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EXAMINATION OF McTAGGART'S PHILOSOPHY

IN TWO VOLUMES

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EXAMINATION OF
McTAGGART'S PHILOSOPHY

Volume I

BY

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To

A. A. WYNNE WILLSON

"The proper study of XANkind is XAN"

Non tibi Tyndaridis facies invisa Lacaenae,
Culpatusve Paris, divum inclementia, divum,
Has evertit opes, sternitque a culmine Troiam.

VERGIL *Aeneid* Book II

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PREFACE

The present volume contains a detailed exposition and criticism of that part of McTaggart's system of philosophy which occupies Vol. I of his *Nature of Existence*. If I should have life and health, and if the capitalist system, on the substantial integrity of which one's opportunities of pursuing philosophy and publishing the results depend, should continue to stagger on, a second volume should be ready in about two years' time. This will deal with the contents of Vol. II of the *Nature of Existence*. It is already, in a large measure, written in rough form; but it will need much re-writing, re-arrangement, and supplementation, which the pressure of other duties will prevent me from undertaking in the immediate future.

I owe it to the kindness of the Faculty Board of Moral Science that I have been able to write at length on McTaggart's philosophy at this time. The history of the matter is as follows. Candidates taking Part II, Section A, of the Moral Sciences Tripos in any year have to make a detailed study of the works of one or more eminent modern philosophers chosen by the Board from a fixed list as the "Special Subject" for that year. It is usual for the same selection to be made for two successive years, and for the cycle to complete itself in a certain order in a period of ten years with the unhasting and unresting regularity of an astronomical process. It is one of my duties to prepare and deliver the lectures on the Special Subject for the time being. McTaggart was not included in this list, and, in the Long Vacation of 1931 I should, in the ordinary course of events, have been preparing a set of lectures on Locke, Berkeley, and Hume, to be delivered in the academic years 1931–2 and 1932–3. At my request the Faculty Board most kindly consented to interpolate the Philosophy of McTaggart as the Special Subject for these two years, thus enabling me to combine academic duty with personal inclination. I wish to record here my gratitude to

the Chairman and the other members of the Board for their considerate action towards me.

My choice of McTaggart's philosophy as the subject of a critical work of considerable bulk may well be censured by two different sets of persons for two different reasons. Some will say that, if a book in which McTaggart's system of philosophy is subjected to severe criticism had to be written and published at all, I am the last person who should undertake the task. "It is barely decent", they will remark in their epigrammatic way, "that the executor of the man should become the executioner of the system." Others will say: "You know perfectly well that any system of constructive metaphysics which claims to deduce important conclusions about the universe from self-evident premises *must* be moonshine. Surely you could find something better to do with such modest talents as you possess than to spend two years in breaking what must be a butterfly on what might have been a usefully revolving wheel".

I am naturally more concerned to rebut the accusation of disloyalty than that of frivolity, but I intend to answer both in turn.

In mitigation of the first charge there are several things to be said. (i) I had already devoted considerable attention to Vol. I in order to review it for *Mind*; and it was my duty as McTaggart's literary executor to read the manuscript of Vol. II with special care, and to make a synopsis of it, in order to prepare it for the press. Thus the very circumstance which, it might be alleged, made it improper for me to appear as a critic, gave me rather special qualifications for that ungrateful office. (ii) I should think that almost any man who had devoted his life, as McTaggart had, to excogitating and trying to prove a system of philosophy, would rather have it carefully studied, expounded, and criticised by at least one reasonably competent professional colleague than see the product of all his efforts going by default. (iii) I have not the slightest doubt that this would have been McTaggart's own choice. He always sought criticism from his colleagues; welcomed it, however severe it might be; treated it very

seriously; and strove to meet it. If he had lived to read the present work, he would certainly have refuted some of the criticisms, have produced amazingly ingenious and unexpected answers to others, and have started to rebuild those parts of the system which really had suffered in the bombardment. I cannot believe that there is any disloyalty in doing, after his lamented death, what he would never have dreamed of resenting in his life. If others think differently, I can only say with the deepest respect that I think them mistaken.

In answer to the second, and less important, charge there are also several lines of defence which may reasonably be pursued.

(i) Even if I admitted that all systems of speculative philosophy are necessarily futile, I would remark that much greater philosophers than I have devoted their time to much greater nonsense than this. For has not Bertrand Russell laboured in several volumes to make a coherent philosophical doctrine out of the thin crudities of Behaviourism? If McTaggart's philosophy were merely the expression of his personal reaction to life, and if the deductive form in which he clothed it were merely "the finding of bad reasons for what he believed on instinct", it would express the reaction of an extraordinarily original and sensitive personality endowed with a singularly acute and powerful intellect. As such, his system, and the arguments by which he claimed to demonstrate it, would justify the most careful and sympathetic consideration.

(ii) I should certainly not be prepared to make such great concessions as these to a critic who might accuse me of wasting my time. It is plain that Absolutism is the philosophical expression of an aspect of reality which has profoundly impressed some of the greatest thinkers in all parts of the world and at all periods of human history. If the Vedantists, Plotinus, Spinoza, and Hegel (to mention no others) all talked what appears, when literally interpreted, to be nonsense, it is surely a most significant fact that men of such high intelligence and of such different races and traditions should independently have talked such very similar nonsense. Dr Tennant, in his *Philosophical Theology*, after quoting a

characteristic passage from Jakob Boehme, as characteristically remarks that "the critic does well to call nonsense by its name". No doubt he does. But he does not do so well if he ignores the problem presented by the concurrence of so much similar nonsense from so many independent and intellectually respectable sources. To me, for one, this fact strongly suggests that there is a genuine and important aspect of reality, which is either ineffable, or, if not, is extremely hard to express coherently in language which was, no doubt, constructed to deal with other aspects of the universe.

Now, if any weight be attached to this presumption, there is a strong additional reason for studying McTaggart's philosophy with the utmost care. He was perfectly well aware of the characteristic difficulties of Absolutism, he was an exceptionally clear thinker and lucid writer, and he made an heroic attempt to state and defend his position in a form which makes understanding easy and criticism possible. If we are to treat Absolutism seriously, it is an immense advantage to study it in a form in which definite premises are stated in plain language, and definite conclusions are drawn from them by arguments which we can all follow and accept or reject. The writings of too many eminent Absolutists seem to start from no discoverable premises; to proceed by means of puns, metaphors, and ambiguities; and to resemble in their literary style glue thickened with sawdust. To attempt to analyse or criticise them is as hopeful an undertaking as diving for pennies into pea-soup. We may say of McTaggart what L. T. Hobhouse said of Mill: "Like most philosophers, he made mistakes; but, unlike most philosophers, he wrote clearly enough to be found out".

(iii) Even those enlightened thinkers who dismiss religion as "dope for the workers" and speculative philosophy as "sublimated sexual desire" might find something worth their attention in McTaggart's system. For such fundamental notions as Quality, Relation, Substance, Cause, Time, Infinite Divisibility, and Error are introduced and elaborately discussed; and the value of much of this discussion is independent of the philosophical structure which is erected upon it.

In this connexion I must make a remark which will strike many readers as perverse, and perhaps particularly so as coming from me. I am inclined to think that McTaggart's complete lack of acquaintance with contemporary natural science was in certain respects a great advantage to him as a philosopher. The recent advances in physical theory have been so important and spectacular that they have only too obviously "gone to the heads" of some eminent physicists, and have encouraged them and the public to believe that their pronouncements on technical philosophical problems, for which they have no special training or aptitude, are deserving of serious attention. This is of course a profound mistake. The closest historical parallel to it with which I am acquainted is those physical and astronomical speculations by which Hegel and his followers made themselves ridiculous in the early years of last century, when the German public was indulging in its bout of Absolute Idealism. The philosophic problems connected with Universals and Particulars, Occurrents and Continuants, Qualities and Relations, Causation and Indeterminism, Continuity and Discreteness, all remain exactly where they were, and merely find new applications as the theories of physics come and go. McTaggart neither understood nor pretended to understand the details of scientific theory, and was therefore under no temptation to accommodate his philosophy to the scientific fashions of the moment. In this his instinct was undoubtedly sound, for no systems of philosophy are so completely dead and damned as those which have fallen to this temptation in the past.

If self-excuse be self-accusation, I have now accused myself as fully as my worst enemies could desire, and I can pass to the pleasanter task of acknowledging my obligations and my lack of obligations. I will begin with the latter. Several important articles on various points in McTaggart's philosophy have appeared in *Mind* and other journals in the last few years. Some of them deal mainly with doctrines which belong to Vol. II of the *Nature of Existence*; but one, by Mr Wisdom, is concerned with "Determining Correspondence", and thus covers a very important part of the ground which I cover in

the present volume. From what I know of Mr Wisdom and his other work, I am quite sure that this article must be a first-class contribution to the subject. And I have no reason to doubt that the same may be true of other articles which I have not mentioned by name. But I may say at once that, in accordance with my general rule when writing on a subject, I have refrained from reading any of these articles. I find it more interesting to worry the truth out for myself, to the best of my ability. So, if I have plagiarised, I have done so unwittingly; and assertions which are made both by other writers on McTaggart's philosophy and by myself will at least have the support of undesigned coincidence.

On the other hand, I have read with very great interest and benefit some of Mr Wisdom's difficult, but extremely able and careful, articles on "Logical Constructions"; and anyone else who has done so will easily see how much I am indebted to them in several places. I have also to thank Prof. G. E. Moore, for the immense trouble which he took on several occasions when I asked him questions or submitted parts of my work to his inspection. In this volume the obligation mainly concerns my attempts to get the "Principle of Determining Correspondence" clearly stated. In dealing with the notion of Entailment in Chapter XI I have been greatly helped by an article on "Intentional Relations" in *Mind*, Oct. 1930, by Prof. Everett J. Nelson.

I am under very special obligations to Mr Ian Gallie, of Wadham College, Oxford. During the greater part of the year in which the lectures which form the basis of this volume were being written and delivered he was staying with me in Cambridge, and we were constantly in each other's company. He attended most of the lectures, he has read much of the manuscript, and many additions and modifications have been made at his suggestion. I have acted on the principle that anything that was not clear to him would be unintelligible to everyone else. We have conversed so much and so intimately, and have so greatly influenced each other, that it would be idle to select particular passages or to attempt a nice discrimination of *meum* and *suum*; it will suffice to say that he has

left his mark even in places where the reader might least expect to find it. In addition, his presence has provided a constant stimulus which has kept me from flagging in the course of a long and exhausting bit of work; and the knowledge that he would read what I have written has encouraged me to do my best in spite of habitual laziness and occasional deep discouragement.

I must heartily thank Mr A. A. Wynne Willson for the kindness and care with which he has performed the laborious and uninteresting, but indispensable, task of proof-reading. Should he ever, in the course of his professional duties, find the book of service to comfort the sick, to strengthen the tempted, to raise the fallen, or to waft the spirit of an expiring parishioner from earth to heaven, he will, no doubt, have his reward. But it is not for me to attempt to estimate the present value of this reversion.

Finally, I must acknowledge with gratitude the courtesy and efficiency of all those who have been concerned at the University Press with the printing and publishing of the book.

It remains to say a word about the arrangement of the contents of this volume. In the main the order is the same as that of Vol. I of the *Nature of Existence*, but I have often found it convenient to take together topics which McTaggart separated, and to separate topics which he took together. I do not think that I have omitted to expound or to criticise any part of McTaggart's first volume. At certain points, where it seemed to me that I had something of my own to say, I have unhesitatingly left the exposition and criticism of McTaggart in abeyance for a while, and have "stretched my legs and had my talk out". As all such parts of the book are carefully marked with asterisks, no one who does not want to do so need trouble to read them.

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October 1932

DIRECTIONS TO THE READER

(1) *Misprints in Vol. I of the* Nature of Existence.

P. 37, § 40, l. 11. For "probabilities" read "possibilities".

P. 114, § 109, l. 27. For "intrinsically" read "extrinsically".

P. 171, § 159, l. 18. For "shopmen" read "shopman".

P. 179, § 167, l. 12. Delete "no".

P. 215, § 202, l. 3. For "points" read "parts".

P. 256, § 244, l. 2. For "original" read "*a priori*".

P. 266, § 254, l. 32. For "composition" read "manifestation".

(2) *Passages in this Book marked with an Asterisk.*

All sections in the present work which are marked with an asterisk, and only such sections, contain independent developments of questions raised by McTaggart's argument. They may be omitted by anyone whose only interest is in the exposition and criticism of McTaggart's own doctrines.

Note. All references to pages or sections of the *Nature of Existence* refer to the first edition, published by the Cambridge University Press (Vol. I, 1921, and Vol. II, 1927). At present this is the only edition; but it seems worth while to record the precise source of the quotations in case there should in future be other editions with different pagination.

BOOK I

PRELIMINARY CONSIDERATIONS

ARGUMENT OF BOOK I

In the first chapter we consider McTaggart's philosophical method, as used in the *Nature of Existence*, and discuss its relation or want of relation to the Transcendental Method of Kant and the Dialectical Method of Hegel. In Chap. II we are concerned with the meanings of the terms "reality" and "existence", and with the relations of these two terms to each other. In Chaps. III and IV we are occupied with the question whether there is anything that does not exist. In Chap. III this question is raised about Characteristics and Possibilities. After dealing with McTaggart's views about "non-existent characteristics", we discuss the subject independently, and treat of *universalia ante rem*, of ideal limits, of *a priori* concepts, and of innate ideas. In Chap. IV the same question is raised about Propositions. We try to explain what "propositions" would be if there were such entities, and why many people have believed that there are propositions. We then consider whether there is any good ground to believe that there are propositions; and, in this connexion, we state and criticise McTaggart's views on the subject and also offer an independent treatment of it.

CHAPTER I

McTAGGART'S METHOD AND ITS RELATIONS TO OTHER METHODS

I shall begin this book with an account of McTaggart's method of philosophising, as illustrated in the *Nature of Existence*, and its relations to certain other methods which have been used by eminent philosophers. In particular we shall have to consider carefully the connexion or lack of connexion between it and Hegel's dialectical method, since McTaggart was a distinguished exponent and an ardent admirer of the Hegelian dialectic.

1. The Method and Aim of McTaggart's Enquiry.

McTaggart's enquiry in the *Nature of Existence* falls into two parts, and these demand different methods and claim different degrees of certainty.

(A) The first part of his task is to discover what characteristics belong (*a*) distributively to everything that exists, or (*b*) collectively to the existent taken as a whole. The distinction is important, and the absence of a clear recognition of it seems to me to be a characteristic defect in Hegel. To take an example: It might be that every part of the universe is both a cause-factor in some total cause and an effect-factor in some total effect; but it seems nonsensical to suppose that the universe as a collective whole could be either. Conversely, the universe might be, as McTaggart believed, a society of intimately related minds. But, if so, it is quite certain that not every part of the universe will have this characteristic, for some parts of it will be minds and therefore not societies.

There are two small criticisms to be made at this point. (i) McTaggart's two kinds of characteristic are not mutually exclusive. He would say, for example, that both the universe as a whole and every part of it have the characteristic of being a compound particular existent. (ii) There is a certain

ambiguity in the notion of applying distributively to everything that exists. It might mean (*a*) "applying to every one of a certain set of parts which together make up the universe without remainder and without overlap", or (*b*) "applying to every part whatever of the universe". For example, on McTaggart's view the universe has a set of parts each of which is a self; and yet not every part of the universe is a self. For a twinge of toothache in one of these selves is, on McTaggart's view, a particular existent and a part of the universe, in precisely the same sense in which the self is; and a twinge of toothache is certainly not a self. We therefore ought to divide characteristics of the kind which McTaggart is going to consider into the following four classes: (1·1) those which belong to the universe as a collective whole and to every part of it; (1·2) those which belong to the universe as a collective whole and to every member of a certain set of parts of it; (2·1) those which do not belong to the universe as a collective whole, but do belong to every part of it; and (2·2) those which do not belong to the universe as a collective whole, but do belong to every member of a certain set of parts of it. It must be remarked that, corresponding to any characteristic of the fourth kind, there will always be one which applies to the universe as a collective whole. For it will be an important characteristic of the universe as a whole to be analysable without remainder or overlap into a set of parts every one of which has a certain characteristic ϕ. For example, one of the most important collective properties which McTaggart claims to prove of the universe is the property of being completely analysable into a set of parts every one of which is a self.

(B) The second part of McTaggart's task is to see what consequences of practical or theoretical interest can be drawn from the conclusions of the first part with regard to various items of the existent which are empirically presented to us. This falls into three divisions. (*a*) In the first place, we may be able to show that certain characteristics which seem to belong to some or to all parts of the universe cannot really do so, because they are inconsistent with the nature which we

have been forced to ascribe to the universe as a whole or to every part of it. (*b*) This leads at once to the problem of how parts of the universe with which we are acquainted can seem to us to have characteristics which are other than and incompatible with those which they really do have. Can we find any correlation between the characteristics which such things seem to have but do not have and those which they have but do not seem to have? (*c*) Finally, there is the problem of conjecturing, on the basis of our actual experience, what the nature of the existent must be if it is to fulfil the conditions which have been shown to be necessary and is to present the appearances which it does in fact present. And from these conjectures we may be able to draw more or less probable conclusions on subjects which are of practical importance to us.

McTaggart says that the method to be adopted in the first part of his task is almost wholly *a priori*, though two empirical premises will be used. He does not explicitly define "*a priori* knowledge", but it is clear from the context that he means by it knowledge of necessary connexions or disconnexions between universals. This is gained either by direct inspection or by deductive inference from premises which can be seen to be necessary by inspection. The two empirical premises are based upon acquaintance with particulars, to which McTaggart gives the name of "perception". It is by this means that we know that something exists, which is an essential premise in his system. And it is by this means that we know that what exists is differentiated into parts and is not just a single point-instant. (We shall see later that McTaggart holds it to be self-evident that *every* particular, as such, must have parts which are themselves particulars. If this be granted, the second empirical premise becomes superfluous.)

McTaggart points out that an empirical premise may be just as certain as an intuitively *a priori* premise. I think he means, what is not the same thing, that it may be just as much an instance of genuine *knowledge* and not mere belief or opinion. If I am feeling toothache at a certain moment, this fact is contingent. But I know it by inspection at that

moment just as well as I know the necessary and self-evident fact that shape involves size. There is, however, one important difference between our *a priori* knowledge of necessary facts and our empirical knowledge of contingent facts. There is no reason to doubt that two or more minds can be acquainted with one and the same pair of universals, and can intuit or demonstrate the same necessary connexion or disconnexion between them. Necessary facts are, in principle, public. But it is very doubtful whether, in this life at any rate, two human minds are ever acquainted with one and the same particular. This, however, does not affect the general coerciveness of arguments based on such empirical premises as McTaggart uses. My introspection assures *me* that something exists, and Smith's introspection assures *him* that something exists, and it does not matter for the purpose of McTaggart's argument that the something which I know to exist is private to me whilst the something which Smith knows to exist is private to him.

So far all is clear. But it is a curious fact that, in his chapter on *Method* (Bk. I, Chap. III), McTaggart does not mention something which is most characteristic of his method and does not fall under any heading that he has introduced. The situation up to Bk. III, Chap. XXIII, is as follows. We have accepted various *a priori* premises and the two absolutely certain empirical premises mentioned above, and we have made straightforward deductive inferences from them. Let us denote the premises which have been used up to this point by *pqr*. In Bk. III, Chap. XXII, a further premise *s* is introduced, viz., that every particular consists of parts which are themselves particulars. This is alleged to be self-evident. It is then argued that, unless a certain further proposition *t* be granted, which is admittedly not self-evident, there will be a contradiction. This means that the conjunction of premises $pqrs\bar{t}$ entails a contradiction, and is therefore impossible. But every member of this conjunction except $\bar{t}$ is absolutely certain. Therefore $\bar{t}$ must be rejected and *t* must be accepted, in spite of the fact that *t* is not self-evident and cannot be deduced directly from the premises *pqrs*. The new proposition

t is asserted on these grounds in Bk. IV, Chap. XXIV, § 195, and it becomes the basis of many of the most characteristic results, positive and negative, of McTaggart's philosophy. Of course it is not a new *premise*, since McTaggart claims to prove it by an argument of the kind mentioned above. But it is peculiar in so far as it can be proved *only* by the indirect method of showing that the combination of the earlier premises with the denial of it would entail a contradiction. There is another point to be noticed about this proposition. It merely lays down a certain very general condition which every particular must obey. The next step which McTaggart takes is to try to show that this general condition could be fulfilled in one and only one very special way, which he states in § 197 and elaborates throughout the rest of Bk. IV. This specification of the general condition he calls the *Principle of Determining Correspondence*, and it is from this that many of his most characteristic doctrines follow.

Now it seems to me that something closely, though not exactly, similar to what I have just been describing happens in many systems of deductive metaphysics. Leibniz and Spinoza, for example, starting from premises which to many people would seem self-evident, deduce the conclusion that there cannot be a plurality of interacting substances. But they have also to admit the empirical premise that there seems to be a plurality of substances and that they seem to interact. Leibniz at this stage accepts a plurality of substances, and introduces the doctrine of Pre-established Harmony to account for the appearance of interaction. Spinoza at this stage rejects a plurality of substances, and introduces the doctrines of Modes, of *Conatus*, and of Parallelism to account for the appearances. And the most characteristic doctrines of each philosopher follow from the proposition which he has introduced in order to reconcile the deductions from his *a priori* premises with the appearance of a plurality of interacting substances. Of course the analogy with McTaggart's procedure is not complete. He introduces the Principle of Determining Correspondence in order to reconcile the deductions from his other *a priori* premises with the

a priori premise that every particular is endlessly divisible, and not to reconcile the deductions from his premises with certain appearances. Still, the analogy is close enough to be worth mentioning.

McTaggart claims that the results reached in the first part of his enquiry are absolutely demonstrated. There can be no question of probability here. If the premises be certain and the reasoning valid, the conclusions must be true. He claims the same certainty for many of the negative results reached in the first division of the second part of his enquiry. If everything that exists has been shown to have certain characteristics, then no existent which appears to have a characteristic that would be incompatible with any of these can really have that characteristic. In the second and third divisions of the second part of his enquiry nothing more than a high degree of probability is claimed. Here we are only making conjectures, and our conjectures will be limited by the range of our experience and our powers of imagination. At most we may be able to say that such and such a theory of reality fits the empirical facts and fulfils the necessary conditions, and that we cannot imagine any other theory of reality which will do this. We must admit that there may be plenty of other theories which we cannot imagine for lack of the necessary experience, and that one or other of these may be the true one.

On this I have at present only the following comments to make:

(i) McTaggart might reasonably have felt some doubt about his results even in the first part and in the first division of the second part of his enquiry. So much depends on the Principle of Determining Correspondence. Now the certainty of this depends on the conviction that it is the one and only way in which a certain general condition could possibly be fulfilled. And the certainty that this general condition must be fulfilled depends on the conviction that the conjoint denial of it and assertion of the premises of the system would entail a contradiction. Now is it reasonable to be sure that this general condition can be fulfilled in one and only one way?

The principle itself is not intrinsically plausible, and it leads to many very paradoxical conclusions. Might it not be more reasonable, in view of these facts, to suspect either that some of the premises which seem to be self-evidently necessary are in fact false, or that there is some undetected flaw in the reasoning, or that there is some other way of fulfilling those conditions which *must* be fulfilled if the contradiction which would otherwise be involved in endless divisibility is to be avoided? False propositions often have seemed self-evident, apparently cogent reasoning often has been found to be faulty, and it is notoriously difficult to be sure that any proposed solution of a problem is unique. Hence there is real ground for hesitating to accept McTaggart's highly paradoxical conclusions even if we can see nothing wrong with his premises or his arguments.

(ii) It must be remarked that one important negative conclusion, viz., the denial of the reality of temporal qualities and relations, is reached independently of the results of the first part of the enquiry. The reality of time is rejected in Chap. XXXIII, not because temporal characteristics would conflict with any characteristic which has been shown to belong to everything that exists, but because they are alleged to be *internally* inconsistent.

2. Relations of McTaggart's Method to others.

Under this head I propose to say something about the relations of McTaggart's method to that of Kant and to that of Hegel.

2·1. *Relation to Kant.* McTaggart's method is not in the slightest degree epistemological or transcendental. He does not set out, as both Locke and Kant did, to determine the powers and capacities of the human mind, and thus to assign on epistemological grounds the limits to its profitable employment on ontological questions. Nor does he start, as Kant did in his transcendental arguments, from the premise that such and such a fact *is known* by human beings, and attempt to discover the conditions under which such knowledge is possible and to infer from them other ontological and

epistemological propositions. His method is that of the old-fashioned "dogmatic metaphysics", which Kant claimed to have overthrown. He does not attempt to defend this procedure, and at this time of day it would seem as if some defence of it were needed.

At first sight it seems very plausible to say that we ought to consider carefully the powers and limitations of the human mind before embarking on ontological speculations for which we are perhaps quite unfitted. This contention is often supported by the analogy of the scientist testing his instruments before using them, and is reinforced by the very scanty amount of agreement which has been reached in ontology although it has been pursued for some thousands of years by some of the ablest minds of the human race. It is also argued on evolutionary grounds that our minds, which have developed in the practical struggle for existence, are unlikely to be fitted for speculations on the nature and structure of reality as a whole; since knowledge of this would have no positive survival value, whilst concentration upon it would at most periods have been definitely detrimental to one's chances of living long and bringing up a large and healthy family.

There are two different questions in all this, which must be separately discussed.

(i) Is the likelihood of reaching ontological results which are both important and trustworthy great enough to make it worth a man's while to pursue speculative metaphysics at the present day? Here the one strong argument in favour of a negative answer is the eminence of those who have spent their lives in such studies, and the scanty results that they have won. This is a legitimate ground for doubting whether the conclusions of any contemporary writer in this field, however distinguished he may be and however convincing his arguments may seem, are really well-founded. The evolutionary argument seems to me to be of very little weight. By parity of reasoning we might expect the human intellect to be weakest in pure mathematics, where it is in fact strongest, and to be strongest in social and political theory and practice, where it is in fact weakest.

(ii) The second question is this. Is it possible or desirable to determine the limits of our intellectual powers before embarking on ontological speculations? The analogy of the scientist testing his instruments before using them is quite misleading. When you test a material instrument you do so by means of some other material instrument which you take as your standard. When you examine your mind to see whether it will do certain things your mind is at once the instrument to be tested, the scientist who applies the test, and the standard in comparison with which the test is made. Now this would not greatly matter if the mind were investigating itself from a purely psychological point of view, i.e., were trying to determine as accurately as possible what it is doing when it professes to be thinking or willing or feeling emotions. But, if it is enquiring whether it is competent to arrive at truth about certain subjects, it will have to consider, not merely the classification and analysis and causation of the processes which it is actually performing, but also whether these processes are so adapted to the facts about these subjects as to be likely to lead to knowledge or rationally grounded belief. Now how can one possibly make any intelligent judgment on this matter unless one *presupposes* a great deal of knowledge about the nature and structure of the rest of the world and about the mind's position in it? And these are precisely the ontological questions about which metaphysicians are forbidden to express any opinion until epistemologists have completed their task. The plain fact is that epistemologists necessarily assume ontological propositions, and, since they do not realise that they are doing so, they often assume uncritically ontological propositions which have only to be stated in order to appear highly doubtful.

Lastly, it cannot be said that there is any greater agreement among experts in epistemology than there is among experts in ontology. When epistemology was young, as it was in the days of Locke and Kant, there was some excuse for supposing that the mind might be competent to discover its own limitations fairly quickly and that metaphysicians might rightly be asked to suspend their operations until this had

been done. Epistemology, like Christianity, never having been tried, could claim never to have failed. But experience has now shown that these hopes were vain, and the epistemological veto on ontology cannot reasonably be maintained. The upshot of the matter is that McTaggart was right not to be frightened off the field of ontology by the awful warnings on the epistemological notice boards. But this does not alter the fact that the omens are highly unfavourable for the success of any system of constructive metaphysics, such as McTaggart's, since even the best shots have hitherto bagged nothing in this field but chimeras.

The above answers to the extreme claims of epistemology might have been learnt by McTaggart from Hegel, who discusses the whole subject very ably in the *Encyclopaedia*. But McTaggart seems to have been singularly little influenced by another, and closely connected, side of Hegel's teaching. Hegel, whilst rejecting the priority of epistemology to ontology and insisting against Kant that the categories are objective types of structure and not forms imposed by the human mind, is not content to go back to the naïve position of the old pre-critical metaphysics. He insists that the categories of common sense and natural science need to be rigorously criticised, and that, when they are subjected to criticism, they exhibit their imperfections by developing contradictions. This may or may not be true; but it is strange how completely McTaggart ignored the very possibility of it. He takes over in happy innocence the categories of common sense and natural science, and confidently builds on them as if Hegel had never lived or he had never read Hegel. This consideration brings us to

2·2. *Relation to Hegel.* All McTaggart's works which precede the *Nature of Existence*, with the single exception of *Some Dogmas of Religion*, are concerned with Hegel. His first book, *Studies in Hegelian Dialectic*, was an interpretation and defence of the general principles of Hegel's dialectical method. His *Studies in Hegelian Cosmology* contains special applications of this method. His *Commentary to Hegel's Logic* is a detailed and critical exposition, category by category, of the

chain of dialectical reasoning by which Hegel professed to show the necessity of passing step by step from the category of Pure Being to that of the Absolute Idea. In the last paragraph of that book he asserts that the next task of philosophy should be to make a fresh investigation of the nature of reality by a dialectical method substantially, though not exactly, the same as Hegel's. He expresses the conviction that the results, like the methods, would be much akin, though he admits that this cannot be known until the experiment has been tried.

When McTaggart began to write the book which eventually became the *Nature of Existence* this was the task which he set before him. The title of the earliest drafts is *Dialectic of Existence*, and in 1910 or 1911 he was giving lectures in which he claimed to prove by dialectical arguments some of the results which now appear in the *Nature of Existence*. I do not know when precisely he dropped the plan of constructing a new dialectic, but his reasons for doing so are made clear in Chap. III of the *Nature of Existence*. In the first place, the validity or the possible fruitfulness of the dialectical method would be questioned *in limine* by many philosophers. McTaggart continued to hold that the method, as interpreted by him, could be defended against these fundamental preliminary objections. But, if the same results could be proved by ordinary processes of deductive reasoning from absolutely certain premises, there would plainly be a tactical advantage in proving them in this way rather than by the compromising help of the dialectical method. The jury would be more likely to be convinced by a barrister who had enjoyed a spotless reputation and moved in the highest circles since the time of Euclid than by one who had only begun to practise in the early nineteenth century in Germany, and had, however undeservedly, been under an almost continuous cloud ever since his call to the bar.

There was, however, a second and a stronger reason. McTaggart, as the footnote on p. 48 shows, had come to a conclusion which was fatal to the practical applicability, though not to the validity, of the dialectical method, even

as interpreted by himself. He there remarks that, although the chief characteristics of reality *might* have been interconnected dialectically, yet, so far as he can see, they are not in fact so connected. This was conclusive for him.

All that remained was for him to point out certain likenesses and differences between his own method and Hegel's method as interpreted by him. This he does in Chap. III, §§ 47–51 inclusive. The following are the two points of likeness. (i) Both methods "base philosophy on the discovery of characteristics which are involved in the characteristic of existence, or the characteristic of being the whole of what exists" (p. 44, § 47). (ii) In both methods the reasoning by which the structure of the existent is demonstrated forms a single chain; it is not "divisible into a number of separate lines of argument which are independent of each other" (p. 44, § 47).

The points of unlikeness between McTaggart's method and Hegel's are the four which follow.

(i) In the dialectic the categories fall into triads of thesis, antithesis, and synthesis. There is nothing like this in McTaggart's method. It must be remarked, however, in this connexion, that McTaggart himself had come to the conclusion, from his detailed study of Hegel, that in every triad after the first there is a *direct* transition from antithesis *alone* to synthesis. The transition is not, as has commonly been supposed, from thesis with antithesis to synthesis (*Commentary*, p. 12, § 12). If this interpretation be right, the triadic form is much less fundamental in Hegel's system than most people, including Hegel himself, had thought; and the difference between the two methods is smaller than it seems at first sight.

(ii) Hegel generally said, and ought presumably always to have held, that every category below the Absolute Idea is partly true and partly false of reality. Thesis and antithesis are said to be "transmuted" and "modified" in their synthesis, and, unless they were, they could not be reconciled. But every predicate which McTaggart ascribes to the existent at any stage of his argument is completely true of the

existent and remains wholly unmodified at the end of the process.

It is impossible to say what importance should be attached to this difference unless we know what interpretation to put upon the plainly metaphorical terms of this statement of Hegel's doctrine. What is meant by saying that a certain category is "partly true" and "partly false" of reality? What can be meant by saying that categories, which Hegel certainly regarded as objective structural factors in reality, are "transformed" or "modified"? How could a category possibly undergo this or any other change?

The only interpretation which does not make complete nonsense of the doctrine which McTaggart here ascribes to Hegel seems to me to be the following. Let c_1 be a thesis, c_2 its antithesis, and c_{12} their synthesis. Then the judgment that R is c_1 is false, because it entails that R is c_2 whilst c_1 and c_2 are incompatible. Similarly the judgment that R is c_2 is false, because it entails that R is c_1 whilst c_2 and c_1 are incompatible. But there is a category c_{12}, which resembles c_1 in a certain respect X_1 and resembles c_2 in a certain other respect X_2, and is not internally inconsistent. If the judgment that R is c_{12} were true, you might say, if you cared to use a rather dangerous ellipsis, that c_1 and c_2 are "partly true" and "partly false" of R, and that c_{12} "contains c_1 and c_2 in a modified and transmuted form". Strictly speaking, c_1 and c_2 would be simply false of R, and c_{12} would *not* contain either c_1 or c_2 in any form whatever. But c_{12}, which is true of R and does not contain c_1 or c_2, would resemble c_1 in a certain respect X_1 and resemble c_2 in a certain other respect X_2. Of course, unless c_{12} were the Absolute Idea, the judgment that R is c_{12} would *not* be true. It would be found to entail and be entailed by a judgment of the form "R is c_3", where c_3 is a certain other category which is inconsistent with c_{12}. There would then be a certain category c_{123}, which resembles c_{12} in a certain respect X_{12} and resembles c_3 in a certain other respect X_3. This would be the synthesis of c_{12} and c_3. To say that it "contained c_1 in a modified form" would be a highly elliptical way of stating that it resembles in a certain respect

this forms a kind of suppressed premise to all the transitions in the dialectic. But this is quite unlike the explicit introduction of new premises at definite stages in the argument.

(iv) Hegel held that there is one and only one dialectical chain from Pure Being to the Absolute Idea, and that the place of any category in this chain is completely fixed. In McTaggart's argument also the order is to a great extent irreversible; in many cases you can prove that reality must be characterised by Y if and *only* if you have already shown that it must be characterised by X. But there are also many places in which the order is a mere matter of convenience.

CHAPTER II

REALITY AND EXISTENCE

In this chapter I shall discuss the meanings of the terms "reality" and "existence", and the relations of these two terms to each other.

1. Reality.

In Chap. I of the *Nature of Existence* McTaggart asserts that reality is an indefinable quality which belongs to everything that is. Existence, he says, appears *prima facie* to be a specific modification of the generic quality reality.

Reality is not a quality which admits of degree, as some have thought. This mistake has arisen partly through confusing reality with power, which of course has degrees. Another factor in causing the mistake is the following. A certain predicate Q may misrepresent the nature of a certain subject S less than a certain other predicate P does. If so, there is a meaning in saying that the proposition S is Q is "truer than" the proposition S is P. People are liable to jump from this to saying that an S which is Q would be "more real than" an S which is P. If this is meant to be anything more than a verbal restatement of the fact that Q misrepresents the nature of S less than P does, it is false. If S be not Q and be not P, then neither an S which is Q nor an S which is P is real at all.

Again, McTaggart says that it is nonsense to regard reality as a relational property which essentially involves a relation to some universe of discourse. It is never *literally* true that a term is real in one universe of discourse and unreal in another, though such phraseology may be significant and true if interpreted metaphorically.

Whilst these negative statements of McTaggart's are true and important, his doctrine that reality is a generic quality and that existence is a specific modification of it is, I think,

quite certainly false. McTaggart remarks in § 2 that, although reality is a quality which belongs to everything that is, yet not all predications of *un*reality are self-contradictory. Some are in fact true. It is true that Apollo is unreal, that mermaids are unreal, and that the rational number whose square is equal to 2 is unreal. But he does not explain how predications of unreality fail to be self-contradictory; and it seems to me that, on his theory, they all would be self-contradictory. Take, for example, the judgment that Apollo is unreal. This must be about something, and, on McTaggart's view, it must deny that the something which it is about has the quality of reality. But equally, on his view, that which the judgment is about, whatever that may be, *has* the quality of reality, since this belongs to all that is. And so the judgment is self-contradictory in the sense that it denies of its subject a quality which must be present in *every* subject.

The fact is, of course, that we are misled into thinking that reality is a quality, and that judgments which assert or deny reality are like those which assert or deny redness, by a likeness of verbal form which conceals a profound difference of logical structure. The sentence "Lions are real" has the same verbal form as the sentence "Lions are yellow", and the sentence "Mermaids are not real" has the same verbal form as the sentence "Lions are not herbivorous". But the judgments which are expressed respectively by "Lions are real" and by "Lions are yellow" are quite different in nature. The first is about the *defining characteristic* of the class lion, and it asserts of it that it has instances. The second is about the *instances* of this defining characteristic, and it asserts that they have yellowness. Similar remarks apply to the negative judgments which are expressed respectively by the sentences "Mermaids are not real" and "Lions are not herbivorous". The first is about the defining characteristic of the class mermaid, and it denies of it that it has instances. It is in fact equivalent to the statement that nothing has a woman's body and a fish's tail. The second is about the instances of the lion-characteristic, and it denies of them that they are herbivorous.

Thus there is no such quality as "reality"; though there is the characteristic of having instances, and this belongs to some characteristics and not to others.

2. Existence.

Since there is no such quality as "reality", existence cannot be a specific modification of the generic quality reality, as McTaggart alleges. Nevertheless, existence may be a genuine quality which belongs to some entities and not to others. Given a certain definition or description, we might be able to say that, if anything answered to it, this entity would exist. Given a certain other definition or description, we might be able to say that, if anything answered to it, this entity would not exist but would subsist. Thus, for example, if the characteristic of being wholly evil had an instance, this instance would certainly exist and not subsist. And, if the characteristic of being a rational number whose square is equal to 2 had an instance, this instance would certainly subsist and not exist.

I think it will be useful to introduce the terms "existend" and "subsistend" at this point. The statement that x is existend means that, if there were any instance of the definition or description of x, this instance would exist. A similar definition, *mutatis mutandis*, could be given of the statement that x is subsistend. When, and only when, we wish to convey the belief, not only that x is existend, but also that there is such a thing as x, we say that x *exists* or is exis*tent*. Similar remarks apply, *mutatis mutandis*, to "x subsists" or "x is subsistent". Thus, for example, I should say that both lions and phoenixes are exis*tend*, that lions exist or are exis*tent*, and that phoenixes do not exist or are not exis*tent*. And I should say that both the rational number whose square is equal to 4 and the rational number whose square is equal to 2 are subsis*tend*, that the former subsists or is subsis*tent*, and that the latter does not subsist or is not subsis*tent*.

The characteristics existend and subsistend, though mutually exclusive and collectively exhaustive, do not seem to me to be

determinates under any higher determinable. As we have seen, they quite certainly cannot be regarded as determinates under a determinable quality of which "reality" is the name.

2·1. *Does anything exist?* In Chap. IV of the *Nature of Existence* McTaggart discusses the question whether anything exists. According to him it is neither self-evident that something exists, nor is the fact that something exists deducible from any premises which are self-evident. Nevertheless, it is quite certain that something does exist, and anyone who doubted it or denied it could be shown how to convince himself that his doubt is groundless or that his denial is mistaken. The argument is as follows.

If a man doubts or denies that something exists, then there is certainly something which he describes, rightly or wrongly, as his doubt or denial that something exists. And so the fact that there is this doubt or denial is inconsistent with the doubt being justified and with the denial being true.

This argument has, in my opinion, a suppressed premise. I agree that the fact that there is a doubt or a denial entails that there is something. But it does not by itself entail that this something is existent, as McTaggart claims. A sceptic about existence might admit that there is something which he describes, rightly or wrongly, as his doubt or denial that something exists. But he might then add: "This something certainly appears to me on inspection to be, or to contain, an existent. But might this not be an illusion? Is it not possible that, although it appears to me to be or to contain an existent, it is really a subsistent which does not contain or involve any existent?" I do not see how this could be refuted except in one of two ways. (i) It might be self-evident that nothing could appear to be existent unless something were existent. (ii) It might be self-evident that nothing could appear to be a doubt or a denial unless it were itself existent or contained an existent as an element. The second of these propositions does seem to me self-evident. But one or other of them is certainly needed if the sceptic is to be enabled to refute himself, and so something more than

McTaggart's indubitable empirical premise seems to be required at this point.

There remains one other point that is worth mentioning. Granted that the fact that there is something which exists cannot be seen by us to be necessary, either by direct inspection or by deduction from other facts which we can see to be necessary, three alternatives remain open. (i) That the fact is necessary, and that we are prevented from seeing its necessity by some special limitation of the human mind. An angel or God might be able to see directly, or to prove from self-evident premises, that there must be something that exists. (ii) That the fact is contingent, and can be seen by us to be contingent. (iii) That the fact is contingent, but that we cannot see that it is contingent. Not seeing that a fact is necessary is, of course, quite different from seeing positively that it is contingent.

Now it is not clear which of these alternatives McTaggart would have held, or whether he would have said that he could not decide between them. I suspect, however, that at this point in his work he would have claimed to hold the second, if the question had been put to him. A person who accepted the Ontological Argument would hold that it is, and can be seen by human beings to be, necessary that there is something which exists. For he thinks that he can prove that there must be something answering to the description "most perfect being", and that existence is involved in this description. St Thomas Aquinas, I think, would have held that it is necessary that there is something that exists, but that only God or angels can see the necessity of this fact. Men can see only that the existence of God is a necessary consequence of certain facts which, so far as we can see, are contingent, e.g., the fact that there is motion and qualitative change.

CHAPTER III

IS EXISTENCE CO-EXTENSIVE WITH REALITY?

(I) CHARACTERISTICS AND POSSIBILITIES

In this chapter and the next we have to consider the following question: "Are there any terms which subsist but do not exist?" With regard to certain descriptions of terms we can say that, if anything answers to any of these descriptions, then it certainly exists. McTaggart holds that, if anything answered to the description of a particular, it would certainly exist. Again, any quality which qualified an actual particular would exist, and so would any relation which related two or more actual particulars. Lastly, any quality which qualified an existent quality or relation, and any relation which related existent qualities or relations, would *ipso facto* exist. It will be convenient to say that qualities and relations of the kind first mentioned "directly characterise" actual particulars, whilst those of the second kind "indirectly characterise" actual particulars. McTaggart's doctrine, as so far stated, might then be summed up in the principle that anything that was a particular, or was a characteristic which directly or indirectly characterised some actual particular, would *ipso facto* exist.

Now, *prima facie*, there appear to be terms which do not answer to any of the above-mentioned descriptions. There appear to be characteristics, such as phoenixhood or perfect virtue, which neither directly nor indirectly characterise any actual particular. There appear to be unrealised possibilities. And many people hold that there are propositions, as distinct from judgments, sentences, and facts. With regard to each of these descriptions of terms there are two questions to be asked, which McTaggart does not very clearly separate. (i) Are there any terms answering to these descriptions? Are there such entities as characteristics which do not directly or

indirectly characterise any actual particular, or as unrealised possibilities, or as propositions? (ii) If there were, would they exist? If it could be shown with regard to each of these three descriptions either that no term answers to it or that any term which did answer to it would exist, it would have been shown that Existence is co-extensive with Reality. McTaggart claims to prove this in Chap. II of the *Nature of Reality*. I propose to confine the discussion in the present chapter to what I will call "non-characterising characteristics" and to possibilities. The question about propositions is a very complicated one, which is bound up with McTaggart's theories of judgment and of truth. I shall therefore reserve it for the next chapter.

1. Non-characterising Characteristics.

1·1. *McTaggart's View.* McTaggart begins by drawing a distinction between the qualities and relations of actual particulars and qualities and relations in the abstract. He says that the wisdom of Socrates and the moral superiority of Socrates to Nero are examples of the former. And he says that wisdom in general and moral superiority in general are examples of the latter. The former are existent. If there were anything answering to the description of the latter, it would subsist and not exist.

Now all this seems to me quite untenable. I do not see what "the wisdom of Socrates" can mean except that perfectly determinate degree and kind of wisdom which in fact characterised Socrates. In principle this might have characterised dozens of other men also, though in fact it is most unlikely that it characterised anyone but Socrates. It thus differs from "wisdom in general" only as a determinate differs from the determinable of which it is a specification. If Socrates is characterised by this determinate kind and degree of wisdom, he must *ipso facto* be characterised by wisdom in general, which is the determinable under which this determinate falls. And so it would seem that, if there is any ground for saying that the wisdom of Socrates exists, there is precisely the same ground for saying that wisdom in

general exists. McTaggart seems to have seen that there is a difficulty in his doctrine here. For he remarks in paragraph 2 of p. 6 that a universal, like wisdom, might be at once existent in respect of characterising Socrates and non-existent in another respect. This suggestion seems to me to be hopeless. For McTaggart certainly holds that existence is a quality and not a relational property, and I can attach no meaning to the supposition that anything could have a certain quality "in one respect" and lack the same quality "in another respect". Evidently there is a serious confusion of some kind here. What is the explanation of it?

I think that the truth is somewhat as follows. If there be any qualities which do not directly or indirectly qualify actual particulars, then they are not existent. For example, if there be such a quality as exact straightness, and if nothing be exactly straight, then exact straightness is not existent. Now, whenever a quality is described as "the q-ness of X", where "X" is the proper name of an actual particular, we can infer from the description that, if there is a quality answering to it at all, this does characterise some actual particular. In such cases then we can infer from the description of the quality that, if any quality answers to it, the quality is existent. But, when a quality is merely named or is described in some other way, we cannot infer that, if there is such a quality, it is existent. Nevertheless, it may in fact be existent. Wisdom is in fact existent, though we cannot infer this from the description of it as "that quality which Englishmen call *wisdom*".

It should be noted that wisdom in general *could* have been described by reference to Socrates, and that the wisdom of Socrates *could* have been described without reference to him. For wisdom in general could have been described, for example, as "that quality in which Socrates excelled all his contemporaries"; and the wisdom of Socrates could have been described, for example, as "that kind and degree of wisdom which scores 93 per cent. on Prof. X's scale of intelligence tests".

Thus it seems to me that McTaggart has mistaken a purely

epistemological distinction for an ontological distinction. The ontological distinction is between qualities which do, and those which do not, directly or indirectly characterise actual particulars. The epistemological distinction is between those descriptions of qualities from which one can infer that they characterise actual particulars and those descriptions from which no such inference can be made. There is no necessary connexion between these two distinctions. And there is no necessary connexion between either of them and the distinction between a quality in general and the determinate form of it which characterises a certain particular. Similar remarks apply, of course, *mutatis mutandis*, to relations.

We can now consider McTaggart's argument in Chap. II to prove that there are no non-existent characteristics. This rests on a new principle which is suddenly introduced at the top of p. 29 and is asserted to be self-evident. The principle is that the parts of anything that exists must themselves be existent. Before criticising this dogma we will consider the application which McTaggart makes of it. Suppose it were alleged that there is such a characteristic as phoenixhood, though there are no phoenixes, and that this characteristic is non-existent. McTaggart answers that any actual particular, e.g., the Albert Memorial, has the negative characteristic of being a non-phoenix. Therefore the characteristic non-phoenixhood is existent. But this contains phoenixhood as a part, and the parts of any existent are themselves existent. So phoenixhood exists, in spite of there being no phoenixes.

I will now comment on this argument and on the principle which is used in it. (i) A precisely similar argument would prove that, if there is such a characteristic as round-squareness, it is existent. For the characteristic non-round-squareness exists, since it characterises actual particulars such as the Albert Memorial. Therefore round-squareness, which is part of non-round-squareness, must be existent. (ii) Is it at all clear that the phrase "non-P" is the name or a description of a complex attribute of which P is a part? If so, presumably the other part is something of which the syllable "non" is the name. This is certainly not very plausible. (iii) McTaggart

could have met this objection by slightly modifying his argument. He might have said that, at any rate, there is the negative fact that the Albert Memorial is not a phoenix. Suppose we regard the negation as attaching to the copula and not to the predicate, and do not attempt to introduce the notion of negative characteristics. Still, this negative fact is an existent, since it is a fact about an actual particular. And it contains the characteristic phoenixhood as a part. Therefore this characteristic exists, although there are no phoenixes. I think that this is the most plausible way in which he could have put his argument.

At this point we had better consider the general principle. In view of the extreme ambiguity of the word "part" I am not inclined to attach much weight to it. No doubt the extended parts of any extended particular must exist in the same sense in which it exists. Similarly, the successive shorter phases in a longer stretch of history exist in the same sense in which the stretch as a whole exists. But the predicates of facts are not parts of facts in the sense in which the foundations of a house are parts of the house or the performance of an overture is part of the performance of an opera. And it is not in the least clear that the predicate of a negative fact about an existent must exist simply because there is a very recondite sense of "part" in which this predicate can be called a "part" of this negative fact.

The truth is that McTaggart started with a certain criterion for the existence of characteristics, and then widened it so much that his final conclusion that there are no non-existent characteristics is completely trivial. His original criterion was that a characteristic is existent if and only if it directly or indirectly characterises some actual particular. When he has this in mind he says quite definitely that "we have every reason to suppose that the characteristic of being a phoenix is not existent" (§ 29, p. 26). His later criterion is, in effect, that a characteristic is existent if *either* there is some actual particular which has it *or* there is some actual particular which lacks it. And the mark of this change of standpoint is that in § 31, pp. 28–9, he concludes that the characteristic

of phoenixhood *is* existent. No doubt, when the criterion of existence is widened to this extent, the Law of Excluded Middle ensures that every characteristic shall have existence. But at this stage the proposition has ceased to be of the slightest interest or importance.

*1·2. *Independent Discussion of the Subject.* The really interesting and important question in this connexion is whether there are any characteristics which do not directly or indirectly characterise actual particulars. In its ontological aspect this is the old question of *universalia in re* and *universalia ante rem*. In its epistemological aspect it is closely connected with the controversies about *a priori* concepts and innate ideas. These questions, which McTaggart approached but did not pursue, seem to merit an independent discussion. I propose therefore to say something about them before resuming my exposition and criticism of McTaggart.

Granted that there are no dragons, is there any reason to believe that there is a characteristic of which "dragonhood" is the name? The first argument which might be proposed in favour of an affirmative answer to this question is the following. We understand the question whether there are or are not dragons, and we answer it in the negative. But the question means: "Is there any particular which has the characteristic of dragonhood?" Unless there were a characteristic of which "dragonhood" is the name we could not think of it, and unless we could think of it we could not understand the question. Since we do understand the question there must be such a characteristic.

This argument is invalid. Let us take the definition of the word "dragon" to be fire-breathing serpent. The question whether there are dragons is simply the question whether there is any particular in which the two characteristics of being a serpent and of breathing fire both inhere. Now we are acquainted with the characteristic of serpenthood, since we have seen snakes. We are acquainted with the characteristic of breathing fire, since we have seen flames issuing from chimneys and blast-furnaces. And we are acquainted with the relation of co-inherence, since many characteristics co-

inhere in every particular that we are acquainted with. Thus the question is perfectly intelligible even though there be no characteristic of which "dragonhood" is the name and fire-breathing serpenthood the analysis.

The following is another argument. Even though there be no dragons and no mermaids, being a dragon is different from being a mermaid. This is a true proposition about the characteristics of dragonhood and mermaidhood. Therefore there must be characteristics of which "dragonhood" and "mermaidhood" are names. This argument is also invalid. The fact is that the two sentences "X is a dragon" and "X is a mermaid" have different meanings. The first means that X combines the two qualities of being a serpent and breathing flame. The second means that X combines the two qualities of having a woman's body and having a fish's tail. Each of the first pair of qualities is different from each of the second pair. Thus the statement that being a dragon is different from being a mermaid is intelligible and true even though there be no characteristic of which "dragonhood" is the name and no characteristic of which "mermaidhood" is the name.

We come now to the third, and only serious, argument. There seem to be facts which contain as essential constituents certain *simple* characteristics which in all probability do not characterise anything. Take, for example, the fact that two straight lines cannot cut each other more than once. This certainly seems to involve as an essential factor a characteristic of which "exact straightness" is the name. Yet we should probably admit that it is very doubtful whether there is any particular which is exactly straight. Now to say of anything that it is exactly straight does not seem to mean that two or more characteristics which occur separately in other things, are combined in it. Hence it would seem that straightness cannot be dealt with on the same lines as dragonhood and mermaidhood. It looks then as if we might have to admit that there are simple characteristics about which there is the gravest doubt whether they characterise anything. The most obvious examples of characteristics to which this argument applies are what may be called "Ideal Limits". It

seems likely that these were what Plato often had in mind when he talked of "Ideas". I will therefore proceed to discuss the problem of Ideal Limits.

*1·21. *The Problem of Ideal Limits.* I will first clear out of the way a complication introduced needlessly by Plato. He seems to have held that geometrical facts imply, not only that there are such *characteristics* as exact straightness (Ideas), but also that there are exactly straight *particulars*. Now, as he held that the particulars which we perceive with the senses do not have these ideal characteristics, he had to postulate a special class of particulars (*τὰ μαθηματικά*) with which we become acquainted by some kind of intellectual intuition. (I can make no claim to be a Platonic scholar, and so my statements about Plato's opinions should not be treated too seriously; but we can profitably discuss the theory, whether the experts decide that Plato held it or not.)

The reason for thinking that geometry requires there to be ideal particulars as well as ideal limits was probably the following. Geometrical propositions are not about straightness or circularity in the abstract; they assume the existence of a plurality of straight particulars and circular particulars, standing in various relations to each other (cf., for example, the proposition that *two* straight lines cannot cut each other more than once). This reason, however, is quite inconclusive. If it be admitted that there could be straightness and circularity without there being any straight or circular particulars, it is easy to see that the facts of geometry do not force us to assume the latter in addition to the former. The fact that two straight lines do not enclose a space, for example, can quite reasonably be identified with the hypothetical fact, that, *if* x and y were two exactly straight particulars, *then* they would either not intersect at all or would do so in only one point. Plainly, if there could be exact straightness without there being any exactly straight particulars, there could be such a fact as this without there being any exactly straight particulars.

Having thus disposed of *τὰ μαθηματικά*, we can return to our main problem. What is implied by the fact that we under-

stand sentences which contain words like "exactly straight", "perfectly circular", etc.? It seems to me that we must begin our enquiry by considering what I will call "judgments of perceptual appearance". These are about perceived physical objects, and they assert of such objects that they "seem" or "look" or "feel" such-and-such. If I am looking at the edge of a saw from the side and at no great distance away, I have a characteristic kind of visual experience which self-evidently justifies me in making the judgment: "That looks jagged". If I were looking at the edge of a penny under similar conditions, or at the edge of the saw from a very long distance away, I should have a characteristically different kind of visual experience which would self-evidently justify me in making the judgment: "That looks smooth". Now there are quite certainly visual experiences which self-evidently justify me in saying of an object which I am seeing that its contour "looks exactly straight". I have such an experience when I look from the side with the naked eye through a homogeneous medium at a tightly stretched thread.

It seems to me then that each of us understands perfectly well what is meant by "looking exactly straight" or "looking exactly circular". Even if the phrase "looking exactly straight" can no more be defined than the word "red", I can indicate to anyone who is not blind what I mean by it. I have only to show him a tightly stretched thread in a homogeneous medium, and to tell him that anything whose contour looked exactly like the contour of this would look exactly straight, and that nothing else would do so.

Now, if I know what it means to look straight, I, *ipso facto*, know what it means to *be* straight. To say that *x is* straight means simply that its contour *is* of that peculiar kind which the contour of a thing *looks to be* when it looks straight. In short *x* would *be* straight if and only if it in fact had that peculiar kind of contour which a tightly stretched thread viewed with the naked eye through a homogeneous medium undoubtedly *looks* to have. There is then no difficulty in seeing how we can understand suppositions of the form: "Let *x* be exactly straight", "Let *y* be perfectly circular", and so

on. We shall not be forced to assume that there is a characteristic of which "straightness" is the name and which may not characterise anything, unless we can show (*a*) that the fact that some things look straight under some circumstances implies that there is a characteristic of which "straightness" is the name, and (*b*) that probably nothing has this characteristic. I will now consider these two propositions in turn.

(*a*) I shall first try to show that there is no simple positive characteristic of which "straightness" is the name. It seems to me that there is a certain determinable characteristic which belongs to the contours of things. I will call it "linearity". Now there are certain simple positive forms which this may take. A thing whose contour looks linear may look jagged or it may not look jagged. Jaggedness is a positive perceptible characteristic, like redness. It has degrees, and we have seen things which looked very jagged and others which looked hardly jagged at all. Now, if the contour of a thing does not look jagged, it may look curved or it may not look curved. Curvature, like jaggedness, is a positive perceptible characteristic capable of degrees. We have seen things whose contour looked very curved and others whose contour looked hardly curved at all. Now to say that a thing "looks straight" seems to me to mean that its contour looks linear and does not look jagged or curved. If so, to say that a thing *is* straight means that its contour *is* linear and *is not* jagged or curved. Thus it is a statement which is purely affirmative in grammatical form but partly negative in meaning.

Let us now deal in the same way with circularity. If the contour of a thing looks curved, it may look sinuous or it may not look sinuous. Sinuosity is a positive perceptible characteristic, like curvature and jaggedness. If the contour of a thing looks curved and does not look sinuous it may look to vary in curvature or it may not. To say that a thing "looks circular" means that its contour looks linear and curved and does not look jagged or sinuous or of variable curvature. Once more, a sentence which is linguistically positive has a meaning which is partly negative.

I believe that, in every case in which an Ideal-Limit-word

occurs in a sentence it will be found on reflexion that the meaning of the sentence is partly positive and partly negative, and that there is no reason to think that there is any simple positive characteristic of which the Ideal-Limit-word is the name.

(*b*) If the above conclusion be admitted, it ceases to be of much importance to enquire whether it is or is not probable that anything is in fact perfectly straight or exactly circular. For, even if it were certain that no proposition of the form "x is exactly straight" or "y is exactly circular" were true, we could not infer that there were characteristics that characterised nothing. On our view, to say that nothing is exactly straight would merely mean that everything which has a linear contour at all has a contour of some degree of curvature. To say that nothing is exactly circular would merely mean that everything which has a curved linear contour has a contour of variable curvature. And so on. Still, our conclusion may not be accepted, and there are some confusions in connexion with the present question which need to be cleared up. So we will pursue the subject a little further.

Why is it said to be doubtful whether anything is perfectly straight, exactly circular, and so on? What does it mean, why is it asserted, and is it true? The first point to notice is that the statement that it is doubtful whether anything is exactly straight is ambiguous. It might mean (i) "I cannot be sure that there is anything which is perfectly straight", or (ii) "There is nothing with regard to which I can be sure that *it* is perfectly straight". These are different propositions. To take a parallel case. There is no human action that I know of, in regard to which I can feel sure that *it* was disinterested; and yet I see no reason to doubt that there have been disinterested human actions. Now the only proposition on this subject for which there is any evidence is that there is no *physical object* with regard to which I can be sure that it is exactly straight. The ground for this proposition is the following. Two objects, x and y, when both viewed under certain conditions C_1 may both look straight. When the same pair of objects are viewed under certain other conditions C_2

one of them may still look straight and the other may no longer do so. We may have good reason to believe that no change has taken place meanwhile in the contour of either. Under these circumstances we seem forced to conclude that x and y cannot both have been straight, though both of them looked straight under the conditions C_1 and one of them continued to do so under the conditions C_2. Now there is a criterion by which we can judge that one physical contour is more nearly straight than another; but there is none by which we can assure ourselves that any physical contour is exactly straight. The comparative criterion is as follows. We may find that the following propositions are true of x and y. (i) Under certain conditions both x and y look straight. (ii) Under certain other conditions x looks straight and y does not. (iii) There are no known conditions under which y looks straight and x does not. When these three propositions are true it is reasonable to believe that x is more nearly straight than y. Now at any moment there will be certain physical objects of which we can truly say that we know of none more nearly straight than they. But we can never be sure that all or any of these objects are exactly straight.

As I have pointed out, it does not follow from this that I cannot be sure that there are some physical objects which are exactly straight. It does seem to me most unlikely that there should be no physical object of which any part of the contour, however short, is exactly straight. Certainly none of the facts mentioned in the last paragraph have the faintest tendency to support this sweeping negative proposition.

But, even if it were certain that no part, however small, of the contour of any *physical object* were exactly straight, it would not follow that no part of the contour of *anything* is exactly straight. Whenever I perceive a physical object I am acquainted with a certain particular, which I will call a "sensibile". My judgments of perceptual appearance are not about the sensibilia which I sense, but they are founded upon the latter and their sensible qualities. If I choose to do so, I can attend to the sensibile and inspect it and make a judgment about its sensible qualities. Now, even if no physical

object could be known to be exactly straight, it might be that some sensibilia could be known to have exactly straight contours. In that case, even if there were a simple positive characteristic of which "straightness" is the name, it would not be a characteristic which characterises nothing. Now many people would lay it down as a general principle that it is impossible that a perceived object should *seem* to me to have a simple positive characteristic unless I had *at some time* sensed a sensibile which *actually had* that characteristic. Some people would go further and would say that I must be sensing a sensibile which actually has the characteristic *C whenever* I am perceiving something which appears to me to have this characteristic. If even the first and milder of these principles were accepted, it would follow at once that there must have been at various times exactly straight sensibilia.

What are we to say about these general principles? (i) It does seem quite incredible that any physical object should look to me at a certain moment to have a certain highest determinable characteristic, e.g., colour or extension, unless *at that moment* I were acquainted with a sensibile which actually had that determinable characteristic. (ii) It does not seem to me self-evident that the sensibile which I am sensing in perceiving a physical object must have precisely the same determinate form of the common determinable characteristic as that which the perceived object looks to have. (iii) If such divergence be possible at all, it must lie within very narrow limits. It is inconceivable that an object should look sky blue to me when the sensibile which I sense in perceiving it is pale pink. (iv) If "straightness" were the name of a simple positive characteristic, it would be difficult to suppose that any perceived object could look exactly straight to me now unless, either now or at some earlier date, I had sensed a sensibile which was exactly straight. (v) On our analysis of the judgment "This looks exactly straight", there is no need to suppose that I have ever sensed an exactly straight sensibile. It seems most likely that there is a certain low degree of jaggedness, such that, whenever I sense a sensibile whose contour is less jagged than this, the contour of the physical

object which I perceive by means of this sensibile does not look jagged at all. It seems likely that the same remarks are true, *mutatis mutandis*, of curvature. If then "looking exactly straight" means simply "looking linear and not looking jagged or curved", the fact that I have perceived contours which looked exactly straight does not entail that I have sensed sensibilia whose contours were without any degree of jaggedness and without any degree of curvature. (vi) Nevertheless, I see no positive reason to doubt that there have been such sensibilia and that I have sometimes sensed them. I have certainly sensed sensibilia in which I could not detect any degree of jaggedness or curvature throughout a finite stretch of their contour, however carefully I inspected. It is, I think, logically possible that all of them had in fact some degree of jaggedness or of curvature. But there is not the least positive reason to think this likely. Relative to the datum that I am perceiving x as exactly straight, it is of course less likely that the sensibile which I sense in perceiving it is exactly straight than that it is not. It is not, of course, any less likely to be straight than to have any *one* perfectly determinate degree of jaggedness and curvature that falls within the small permissible range; but it is less likely to be straight than to have *one or other* of these determinate degrees of jaggedness and curvature, since the latter alternative covers a large number of possibilities. But, when the datum is that I have inspected the sensibile as carefully as I can, and have failed to detect any degree of curvature or jaggedness in its contour, the case is quite different. I can see no ground for holding that, relative to this datum, it is more likely that the contour of the sensibile has some degree or other of curvature and of jaggedness than that it has none.

We can now sum up the results of this long argument. The contention which we set out to examine was that phrases like "exact straightness", "perfect circularity", etc., are names of simple positive characteristics, and that there is good reason to doubt whether there are any particulars which have these characteristics. We have had to deny both parts of this contention. It is almost certain that these phrases, as

used by us, are not the names of simple positive characteristics, and that sentences in which they occur can be replaced without loss of meaning by sentences in which neither they nor any synonym of them occurs. And, as regards straightness at any rate, there is no good reason to doubt that there are particulars whose contours are exactly straight throughout a finite stretch of their length. Thus the case of Ideal Limits gives us no ground for thinking that there are characteristics which do not directly or indirectly characterise any particular.

*1·22. *A priori Concepts and Innate Ideas.* We can now turn to an epistemological question which is closely connected with the ontological questions that we have just been discussing. In some sense we "have an idea of" redness, of dragonhood, of exact straightness, of causation, and so on. How did we acquire these ideas? And can ideas be classified according to the different ways in which they are acquired?

I will begin by pointing out a certain ambiguity in the phrase "to have an idea of so-and-so". If a man says: "I have an idea of Julius Caesar", he may mean that he is actually thinking of Julius Caesar at the moment. But he may mean merely that he has a permanent capacity to think of Julius Caesar, which may not be in action at the moment, but could be put into action at any time by a suitable stimulus. We may distinguish the two senses by the phrases "occurrent idea" and "dispositional idea" respectively. If an idea of anything has occurred, and particularly if it has occurred often, it tends to produce a corresponding dispositional idea. And, once the dispositional idea has been formed, it may easily be stimulated to give rise to an occurrent idea by very different causes from those which originally produced it. I got my dispositional idea of redness by seeing things that looked red, and performing acts of comparison, contrast, and abstraction. But, now that I have got it, it may be stimulated by my merely reading the word "red", or by my thinking of danger, or by hundreds of other causes. The question of "the Origin of our Ideas" is simply the question of whether we acquired all our dispositional ideas in the course of our present lives, and how precisely we acquired those which we did acquire.

We must next point out certain other confusions and ambiguities.

(i) Hume and many others have assumed that to have an idea of x means to have an image which resembles x, if x be a thing, and which has the characteristic x, if x be a characteristic. Thus, to have an occurrent idea of a dragon would be to be acquainted with an image which looks as a dragon would look; to have an occurrent idea of redness is to be acquainted with a red image; and so on. This is, of course, ridiculous nonsense. One can have a red image without thinking of redness; one can be thinking of redness without having a red image; one can have an idea of a characteristic, such as charitableness or primeness, which no image could possibly have. Our admiration for the rigour with which Hume drew absurd consequences from his absurd premises should not blind us to the obtuseness which still failed to see the absurdity of the premises even when confronted with that of the consequences.

(ii) We must distinguish between having an "intuitive idea" of a characteristic, and having a "descriptive idea" of it. To have an occurrent intuitive idea of the characteristic x is to be experiencing an act of acquaintance which has for its object the universal of which "x" is the name. It seems plausible to suppose that at times I stand in this kind of cognitive relation to the universal redness. To have an occurrent descriptive idea of the characteristic x is to believe or to suppose that there is one and only one characteristic answering to a certain description with whose terms I am acquainted at the time. It may be that in fact there is no such characteristic. Suppose, for example, that there is such a quality as perfect virtue. And suppose that Christ in fact was perfectly virtuous. Then there is no characteristic which answers to the description "a higher degree of virtue than that possessed by Christ". But this description is perfectly intelligible. For we know what is meant by "virtue", by "degree of virtue", and by "a degree of virtue being higher than another degree of virtue". Again, one might have both an intuitive idea and a descriptive idea of the same characteristic. As we have said,

it seems plausible to suppose that I sometimes have an occurrent intuitive idea of redness. And it is perfectly certain that I sometimes have an occurrent descriptive idea of redness, for I sometimes think of it as the characteristic which answers to the description of being the colour of the sensibile which I sense when I look at a penny stamp. This distinction enables us to deal quite shortly with Hume's question as to whether I could have an idea of a shade of colour of which I had never seen an instance, provided that it was intermediate between two shades of which I had seen instances. The answer is as follows. (*a*) If by "idea of the missing shade" you mean an image which is characterised by the missing shade, the question is purely a question for empirical psychology. (*b*) If by "idea" you mean "intuitive idea", the answer is in the negative. (*c*) If by "idea" you mean "descriptive idea", the answer is in the affirmative. By hypothesis I can have intuitive ideas of the shades on either side of the missing shade. I know what is meant by "being intermediate between two shades". Hence I can think of the property of being intermediate between the shade x and the shade y, and I can suppose or believe that there is a shade answering to this description. And to do this is to have a descriptive idea of the missing shade.

There is one other point to be mentioned. What is meant by saying that my idea of a certain characteristic is "compound"? It seems to me to have the following meaning. Suppose that the statement: "I am thinking of the characteristic C" can be replaced, without loss or gain of significance, by the statement: "I am thinking of the characteristics C_1, C_2, and C_3 as co-inherent in a common subject". Then it would be in accordance with usage to say that "my idea of C is compound", and it would be in accordance with usage to say that "my idea of C is composed of my ideas of C_1 and of C_2 and of C_3". To have an idea of dragonhood is, on this definition, to have a compound idea composed of the ideas of serpenthood and of fire-breathing. For it just consists in thinking of these two characteristics, and believing or making the supposition that they co-inhere in some common subject.

It is now possible to define an "empirical concept." It is quite certain that many, if not all, simple intuitive dispositional ideas are formed in the following way, which may be illustrated by the formation of the idea of redness. I perceive from time to time things which present a characteristic kind of perceptual appearance. They "look red". I compare them with other things that look like them in this respect and look unlike them in other respects. For example, I may see objects which look round, triangular, square, etc., and all look red. Again, I compare them with yet other things which look unlike them in this respect, but look like them in other respects. For example, I compare triangular things which look red with other triangular things which look green, and with other triangular things which look blue, and so on. I perform a similar process of comparison and contrast between circular things that look red, and circular things that look green, and circular things that look blue, and so on. Eventually I am able to perform an act of abstraction, and to contemplate the characteristic of redness in separation from other qualities and in abstraction from any particular substance. Finally a disposition is formed which, whenever it is suitably stimulated, will produce an act of acquaintance with the quality of redness for its object. I have then "acquired the idea of redness". A very important adjunct to the process is to link this disposition by association with the traces left by hearing, seeing, and speaking the word *red*. When this associative link has been formed anything that excites the verbal trace will tend to excite the dispositional idea and will thus tend to evoke an occurrent intuitive idea of redness.

Any dispositional idea formed in the way just illustrated is an instance of an empirical concept. Any compound idea all of whose components were empirical concepts would also be an empirical concept. And any descriptive idea in which the ideas of all terms in the description were empirical concepts would be an empirical concept. I do not know of any other kind of idea that could be called "empirical". So we may define an "empirical concept" to be either (*a*) a simple dispositional idea of a characteristic, formed by comparison,

contrast, analysis, and abstraction from objects which perceptually appeared to be qualified or related by this characteristic; or (*b*) a compound idea whose components are all ideas of the first kind; or (*c*) a descriptive idea in which the ideas of all the terms in the description are of the first or the second kind.

Now an "*a priori* concept" is best defined negatively, in the first instance, as one that is not empirical. It is plain that the question whether there are any *a priori* concepts turns on the first clause in the above definition of "empirical concepts". Are there any simple dispositional ideas *not* formed by comparison, contrast, analysis, and abstraction from perceived instances? If there are, then there are *a priori* concepts; otherwise there are none.

*1·221. *Concepts of Ideal Limits.* Some people have held that the concepts of Ideal Limits must be *a priori*. I think that this was Descartes' opinion. After our discussion of the nature of Ideal Limits it would seem fairly safe to reject this view. It seems to me that our concepts of Ideal Limits are almost certainly empirical concepts of either the second or the third kind. (*a*) If, as I have suggested, to think of *x* as perfectly straight is simply to think of it as linear and not jagged and not curved, then "the idea of exact straightness" will be a compound whose components are all empirical concepts of the first kind. It will therefore be an empirical concept of the second kind. (*b*) If this view be rejected, the most plausible alternative is that "the idea of exact straightness" is a descriptive idea of a rather special kind, which I will now try to explain.

There are certain phrases, like "hotter than", "straighter than", etc., which express relations of a special sort, which we will call "comparatives". We can often perceive, with regard to two terms with which we are acquainted at the same time, that one stands in a comparative relation, such as "hotter than", to the other. Thus, our ideas of comparatives are often empirical concepts of the first kind. Now, when we reflect on a comparative, we can sometimes see quite clearly that there is no corresponding superlative; in other cases we

can see with equal clearness that there is a corresponding superlative. Take, for example, the relation "hotter than". I can see plainly that it is logically impossible for there to be a term which could be hotter than something and such that nothing could be hotter than it. It is of course quite possible that there may be something so hot that nothing ever has been or will be hotter than it. It is possible that the laws of nature may set a limit beyond which it is *causally* impossible for the temperature of anything to rise. But this is irrelevant for the present purpose. The "could" and "could not" in our statements refer to logical or metaphysical possibility and impossibility. We can now put forward a general definition. To say that the relation R "does not have a superlative" means that R is a comparative relation, and that it is impossible for there to be any term such that it could have R to something whilst nothing could have R to it.

Now to say that R "does have a superlative" would mean that it *is* possible for there to be a term such that it could have R to something whilst nothing could have R to it. It is of course quite possible that there may not in fact be such a term. It is even conceivable that the laws of nature might be such as to render the existence of such a term *causally* impossible. But this, as before, would be irrelevant to the present purpose.

We must now apply this general doctrine to the special case of concepts of Ideal Limits, like straightness. It seems to me quite clear that *there is a comparative relation* "straighter than". Some things that we see "look straighter than" others that we see at the same time and under similar conditions. Thus the idea of "straighter than" is an empirical concept of the first kind. Now it seems to me that, when I reflect on this comparative relation, I see quite clearly that it has a superlative. I see that its nature is such that there *could be* a term *than which nothing could be* straighter, though *it could be straighter than* other terms. This seems to me to be a bit of *a priori* knowledge which I have about the empirically conceived relation "straighter than". The judgment that x is perfectly straight would then be the judgment that x is a

term such that, whilst it might be straighter than something, nothing could be straighter than it.

If we adopt this view, are we to say that the concept of perfect straightness is empirical or *a priori*? What we must say is the following. The only non-formal constituent of this concept is the idea of the comparative relation "straighter than". This is quite certainly an empirical concept. But there is also a formal constituent, viz., the concept of modality, present in the form of ideas of logical possibility and impossibility. I see no objection myself to saying that our ideas of modality are empirical, though non-sensuous. For we have, presumably, derived them by a process of comparison, contrast, analysis, and abstraction, from our acquaintance with facts which were manifestly necessary or manifestly contingent. Still, they are a very peculiar kind of empirical concept. And it must be recognised that, even if they be empirical concepts, our knowledge that a comparative relation does or does not have a superlative is *a priori* knowledge.

Now, even if I am right in holding that, when we believe or suppose x to be perfectly straight, we are often merely believing or supposing that x is linear and not jagged and not curved, I do not imagine that this is always what we are doing on such occasions. I have little doubt that often we are believing or supposing x to be such that it *is* straighter than some things and that nothing *could be* straighter than it. Thus I am inclined to think that we have two different, though connected, ideas of perfect straightness. Of one of these we can truly say that, although it is not strictly an *a priori* notion, yet it "has something *a priori* about it" in a perfectly definite sense which I have explained above. This seems to me to be the modicum of truth which is contained in the Cartesian opinion that our concepts of Ideal Limits are *a priori* concepts. What I see no reason to believe is that there is a simple positive quality of which "exact straightness" is the name, and that we have an intuitive idea of this, not derived by comparison, analysis, and abstraction from perceived instances of it. If this were so, we should have an

a priori concept of exact straightness, in the most literal sense of that phrase.

*1·222. *Concepts of Categories.* It has often been held that our ideas of Categories, such as Cause and Substance, are *a priori* concepts. Let us consider the case of Cause, for example. I see a certain stone moving quickly towards a certain window; then I see the stone and the window in contact; and then I see the window starred and with a hole in it, fragments of glass flying about, and the stone moving along. I make the judgment that this stone broke this window by coming in contact with it when moving rapidly. Some people would say that all that I mean is that, whenever objects like this stone have been observed to come into contact, when in rapid motion, with objects like this window, the latter objects have been observed to become perforated and starred and bits of them have been observed flying about. It seems to me as certain as anything well can be that this is not what I or most people mean by such statements. Others would say that what I mean is that events of the first kind always have been, always are, and always will be followed immediately by events of the second kind, no matter when or where they may happen, and no matter whether they are observed or not. It seems to me that, if this were *all* that we meant, it is unintelligible that we should ever imagine that we had the slightest ground for making statements of the form "This caused that". Now we do think, rightly or wrongly, that we have good grounds for some of the statements of this kind which we make.

Now, if either of the analyses which I have rejected as *prima facie* unsatisfactory were correct and adequate, the idea of Cause would be an empirical concept. But it certainly looks as if there were a factor in Causation which is not manifested in sense-perception. The stone *perceptually appears* to be moving, to be getting nearer the window, to get in contact with the window, and to pass on. The window *perceptually appears* to be continuous and at rest before the contact, and to be perforated and flying about after the contact. All this we can quite literally see with our eyes. But we

cannot, in the same literal sense, "see" the stone causing the window to break; though we may be perfectly sure, and may even know, that it does so. These facts suggest that the concept of Causation may be *a priori*. Even if they be accepted, there is another way in which the concept might yet be empirical. Though objects of sense-perception never perceptually appear to be causally related, it might be that certain objects of introspection perceptually appear to be causally interconnected or to cause certain objects of sense-perception. It has been held, for example, by some people, that, if we introspect a volition, we perceive it as a cause-factor tending to produce the desired state of affairs. I think that this is a highly plausible view, and I wholly agree with Prof. Stout[1] that the facts adduced by Hume against it are quite irrelevant. If it were accepted, we might admit that the idea of Causation is an empirical concept, derived originally from one's own experience of volition, and then transferred, rightly or wrongly, to other things and processes. But many people, whose opinion deserves respect, would reject this account of the origin of the idea. So, without going in elaborate detail into these various alternatives, we may say that the view that the concept of Causation is *a priori* is plausible enough to deserve serious consideration.

*1·223. *Concepts of Ethical Characteristics.* It might reasonably be suggested that, unless a naturalistic theory of ethics can be accepted, we must regard the concepts of Ethical Characteristics, such as goodness, rightness, moral obligation, etc., as *a priori*. No doubt the concepts of Ideal Limits in ethics, e.g., perfect goodness, could be dealt with in the same way as that which we have indicated for geometrical Ideal Limits. But this presupposes that we have somehow got the idea of good, or at any rate the idea of "better than"; and the question is how, if at all, we acquired such ideas. Now, unless some purely naturalistic analysis be accepted, it seems impossible to suppose that we acquired these ideas by analysis and abstraction from instances which perceptually manifested goodness or rightness. For it does not seem intelligible to

[1] *Mind and Matter*, Vol. I, Chap. II.

suggest that such characteristics could be perceptually manifested either in sense-perception or in introspection. Introspection might tell me that a certain emotion was one of intense indignation, but surely there is no sense in saying that *introspection* could tell me that this emotion was *fitting or unfitting* to the object towards which it is felt. Even if this be granted, it does not of course follow that the concepts of ethical characteristics are *a priori*. For, although it is quite clear that no naturalistic analysis of ethical characteristics with which I am acquainted is satisfactory, it is certainly not clear to me that none could be satisfactory. Still, we may say that the view that our concepts of ethical characteristics are *a priori* is quite plausible enough to be worth consideration.

*1·23. *Positive Theories of a priori Concepts.* We defined an "*a priori* concept" purely negatively, as one that is not empirical. We then discussed certain alleged instances of *a priori* concepts in order to see whether they really are *a priori* or not. The upshot of the discussion has been that none of the concepts examined can be said with complete certainty to be *a priori*. Concepts of Ideal Limits in geometry are almost certainly not so; the concept of Causation may be derived by reflective analysis from the appearance which our volitions present to introspection, or there may be some satisfactory way of analysing it without residue in terms of *de facto* regularity of sequence; and there may be a satisfactory naturalistic analysis of ethical characteristics, although none has so far come to our notice. On the other hand, it has appeared not improbable that the concepts of Causation and other categories and of ethical characteristics may be *a priori*. It is therefore worth while to complete the discussion by considering what would be the positive nature of an *a priori* concept, if there were such concepts. Two theories on this subject seem possible, which I will call the "Theory of Innate Ideas" and the "Theory of Non-Perceptual Intuition". We will now consider them in turn.

*1·231. *Theory of Innate Ideas.* In stating this theory the distinction between occurrent and dispositional ideas is very important. There is not the least reason to believe that there

are innate occurrent ideas. The people who have held that the idea of God, or of cause, or of exact straightness, is innate cannot possibly have meant that babies are born thinking of these objects, and that everyone goes on thinking of them continually night and day from the cradle to the grave. Nor do I suppose that such people have meant that these ideas were present, even in a dispositional form, at birth. This would imply that, if one gave a suitable stimulus to a newly born baby, it would at once begin to think of God, or causation, or straightness, as the case might be. Now it seems almost certain that no stimulus which could possibly be applied to a newly born baby would have such effects. What then did upholders of Innate Ideas mean?

We must begin by distinguishing between dispositions of various orders. A disposition to think of a certain object may be called a disposition "of the first order". A disposition to form a disposition of the first order may be called a disposition "of the second order". And so on. No baby is born with the power to talk. But practically all babies are born with the power to acquire the power to talk. If suitable stimuli be applied, they gradually acquire the power of talking. If such stimuli be not applied, they never acquire this power. And, if one applied the same, or any other, stimuli to an oyster, or a cat, or an idiotic baby, it would never acquire this power. If any sense is to be made of the theory of Innate Ideas, it must be interpreted by analogy with such facts as these.

The theory of Innate Ideas may now be stated as follows. All sane human beings are born with certain very general intellectual powers, e.g., that of retentiveness, that of making comparisons and contrasts between perceived objects, that of abstracting universals from perceived instances of them, and so on. These general intellectual powers, together with the objects that we perceive in the course of our lives, suffice to account for the formation of the vast majority of our dispositional ideas. There is plainly no need to assume, for example, a special second-order disposition to account for our acquirement of the power to think of redness. The fact that we see things that look red, together with the general powers

of comparison, abstraction, etc., suffice to account for the acquirement of the dispositional idea of redness. But there are some of our dispositional ideas which cannot be accounted for in this way, and yet all sane human beings do in fact acquire them, provided that they are supplied with suitable experiences. For example, we all form the idea of cause, of straightness, and so on, provided that we meet with cases of regular sequence, of approximate straightness, and so on. And, it is alleged, these ideas cannot be formed in the way in which we form our idea of redness. It is therefore necessary to postulate, in addition to these *general* innate intellectual powers, more specific intellectual powers. For example, we must postulate a disposition to form the idea of Cause when presented with instances of regular sequence; a disposition to form the idea of Substance when presented with instances of recurrent bundles of qualities; a disposition to form the idea of Rightness or Wrongness when we contemplate certain kinds of situation with certain kinds of emotion; and so on. Probably the order of events would be somewhat as follows. (i) We begin by acting in certain situations as it would be reasonable to act *if* we had judged that we were in presence of substances with definite properties, interacting in accordance with general laws. No judgment may actually have been made. This stage is presumably reached by the higher animals as well as by men. (ii) All sane human beings go on in many cases to make explicit judgments which involve the categories of Cause and of Substance, e.g., "The stone broke the window". (iii) Finally, some men reflect on such behaviour and on such judgments, and, by a process of analysis and abstraction, form the concepts of Cause and of Substance in the abstract.

When the theory of Innate Ideas is stated in the way which I have been explaining it is certainly not open to any of the objections that are commonly brought against it. These objections may be summed up as follows. (i) It is absurd to suppose that babies are born thinking of Cause or Substance, or that anyone is thinking of such objects at every moment of his life. This objection is answered by the distinction between

having an idea as an occurrent experience and having an idea as a cognitive disposition. (ii) No conceivable stimulus applied to a newly born baby would make him have the idea of Cause or of Substance. This objection is answered by distinguishing between a dispositional idea and a second-order disposition to acquire this dispositional idea. All that we can assume to be present in the newly born baby is the latter. (iii) Idiots and savages probably never form these ideas at all. As regards idiots, the answer is that they may be so defective as to lack an innate disposition which is common to all normal men. Sufficiently idiotic babies never learn to talk or to walk, yet the power to acquire the power of walking and the power of talking is certainly innate in all normal human beings. As regards savages, the answer is twofold. (*a*) They may never have been supplied with suitable stimuli to set their innate intellectual powers in full operation. If a perfectly normal baby were never put on the ground and never spoken to, it would probably never acquire the power to walk or to talk properly. (*b*) Even if savages never get to the stage of forming the concepts of Cause and Substance in the abstract, they certainly make judgments which involve determinate forms of these categories, and they still more certainly often act as if they had made such judgments. (iv) If "idea" be used to mean "disposition" or "power", it is trivial to ascribe innate ideas to anyone. Naturally we have the *power* to think of anything of which we do *actually* think. This objection is irrelevant. The real question is: "How did we acquire the power to think of certain objects?" In some cases no explanation is needed except that we have certain very general innate intellectual capacities, and that subsequent experience provides us with suitable material for them to work upon. But in other cases, it is contended, this explanation is not adequate. We have to postulate much more specific innate intellectual capacities in order to explain the fact that all normal human beings, when appropriately stimulated, acquire certain ideas, such as those of Cause and Substance.

It seems to me then that the theory of Innate Ideas, when

properly stated, is immune to all the ordinary objections that have been made against it, and that it may very possibly be true. It is, of course, most undesirable to postulate innate intellectual powers rashly, and no doubt many supporters of the theory of Innate Ideas did this and made it a cloak for intellectual laziness and lack of analysis. But it is certainly not obvious that no powers except the general powers of retentiveness, comparison, and abstraction are needed to explain the formation of all our dispositional ideas.

*1·232. *Theory of Non-Perceptual Intuition.* As regards empirical concepts of the first kind, such as the idea of redness, their origin guarantees their having instances. We derived our idea of redness from perceiving things that looked red. Even if no *physical object* were really red, it seems incredible that such an object should look red to a person unless in perceiving it he was sensing a sensibile which is red. Empirical concepts of the second and third kinds may be wholly fictitious. There is no reason to believe, and strong reason to doubt, that the characteristics of serpenthood and flame-breathing ever have been or ever will be co-inherent in any particular. Now, if the theory of Innate Ideas be true, we have no guarantee that our innate ideas may not be as fictitious as our idea of dragonhood or phoenixhood. On this theory the notions of Cause, Substance, etc., are *read into* perceived objects by human minds. When our perceptual experiences take a certain form we inevitably believe ourselves to be in presence of *substances*; when they take a certain other form we inevitably believe ourselves to be witnessing or initiating or suffering a *causal interaction*; and so on. Now the fact that a certain concept is innate, and is applied by all sane and developed human minds on all occasions of a certain kind, is no guarantee of its validity. There might be innate racial delusions, and the concepts of Cause and Substance and Rightness and Duty might be instances of such racial delusions. Unless there be some kind of pre-established harmony between the human mind and the rest of nature, it would seem just as likely that our innate ideas should be delusive as that they should be veridical.

This fact is a motive for a quite different type of theory which I will now briefly outline.

May there not be certain characteristics of the real, which cannot be manifested either in sense-perception or in introspection? And may not the human mind be able to recognise the presence of these characteristics, in favourable conditions, by the exercise of a kind of Non-Perceptual Intuition? Let us take a concrete case to illustrate the theory. When a stone approaches a window, hits it, breaks it, and passes through, there are certain relations which I *can* perceive with my senses. But there is another relation, viz., that of causation, between the coming in contact of stone with window and the subsequent starring and flying in pieces of the latter. This is certainly not manifested in sense-perception; if it were, it, or something analogous to it, would have to relate the visual sensibilia which I am sensing in perceiving the process. But why should sense-perception be the only way in which I can become aware of a relation which in fact holds between objects that I am perceiving with my senses? May there not actually be a causal relation between the earlier and the later phases of the total perceived process, just as there is a spatio-temporal relation? And may I not have an intuitive awareness of this relation, though not by any of my senses?

On such a view as this we have only to postulate in the human mind a general power of non-perceptual intuition. Categories, ethical relations, etc., will be relations or types of structure actually present in reality, but incapable of manifesting themselves sensuously or introspectively, as colours, shapes, and spatio-temporal relations can do, and as psychological qualities and relations can do. When our perceptual experience takes certain specific forms this power of non-perceptual intuition is stimulated, and we intuit these objective types of relation or structure in the perceived objects.

Such a theory as this is logically possible, and it plainly has certain advantages over the theory of Innate Ideas. It might be objected that it has the opposite defect to the latter theory. On the theory of Innate Ideas we have no reason to believe

that such judgments as: "This caused that" or "That emotion was unfitting" are ever true; whilst, on the present theory, it might be said, it is difficult to see how they could ever be false or even doubtful. If I perceive X and perceive Y I cannot intuit the relation R between them unless they do in fact stand in that relation to each other. And, if they do stand in the relation R, and I do intuit it, then I must *know* that they do so. Now it is certain that we can make mistaken judgments of the form: "X caused Y"; and many people would say that no such judgment ever expresses *knowledge*, as distinct from *probable opinion*.

I do not think that the occurrence of false judgments, involving the categories or ethical characteristics, is a serious objection to the view that our concepts of categories or ethical characteristics are derived from non-perceptual intuition. Suppose I have acquired a dispositional idea of causation or of rightness by intuiting a causal relation or a relation of ethical appropriateness in actual instances of it. I might quite well misapply this idea in certain cases in future. I might be misled through association to think that I was perceiving an instance of causation when I was perceiving a mere instance of regular sequence. And I might be misled through association to think that a certain emotion was unfitting to a certain object when the fact merely is that I have a feeling of *quasi*-moral disapproval when I contemplate other people having this kind of emotion in this kind of situation. The second objection is a more serious one. If it be really true that I never *know* any fact of the form: "X caused Y", it seems incredible that I ever intuit the causal relation as holding between two terms which I perceive. But to this it might be answered, in my opinion with very great plausibility, that, in the case of my own volitions at any rate, I do *know*, in the strictest sense, that a certain volition is a cause-factor which, if the remaining cause-factors are as I believe them to be, is necessary and sufficient to produce the desired result.

2. Possibilities.

We can now return to the task of expounding and criticising McTaggart. The next question is whether there are Possibilities, and whether, if so, they are existents.

McTaggart points out that the statement that so-and-so is possible may have an epistemic or an ontological meaning. It may mean: "I know of no reason why so-and-so should not be, or have been, the case". On that interpretation it is simply a fact about myself and my state of knowledge, and these are existents. It may, however, mean that a certain set of data, which I explicitly mention or tacitly assume, do not either entail or exclude that so-and-so should be the case. When I say that it is possible for a triangle to be equilateral I generally mean that the characteristic of being bounded by three straight lines neither entails nor excludes the characteristic of being equilateral. Now we are supposed to have shown that all characteristics are existent. But all facts about existents exist, and possibilities turn out to be negative facts about the entailment or exclusion of one characteristic by another. Therefore there are no non-existent possibilities.

McTaggart's account of possibilities seems to be unduly negative. When we say that a triangle may be equilateral an important part of our meaning surely is that the presence of triangularity involves that of a certain disjunction of determinate relations of length, one of which is equilateralness. This is at least as important as the fact that it neither entails nor excludes equilateralness. This modification does not, however, affect the principle of McTaggart's argument that every possibility is existent. His doctrine must not, of course, be confused with the doctrine that everything that is possible is *actual*, i.e., that there are no unrealised possibilities.

In § 40 McTaggart proceeds to infer from the existence of all possibilities that "it is not the case, as is sometimes supposed, that what is actually existent is surrounded by a sort of framework of possibilities of existence, which limit what does exist, and do not depend on it". This conclusion sounds interesting and important. It seems, for example, to con-

tradict such a theory of the universe as Leibniz held. Leibniz's doctrine is often misunderstood, and it may be well to state it clearly in order to see what bearing McTaggart's conclusion really has on it. I think that the following is an accurate account of Leibniz's doctrine. (i) There is one Existent whose existence is a necessary consequence of its nature. (ii) The being of all possibilities, whether actualised or not, depends on the nature and existence of the Necessarily Existent. (iii) Not all possibilities are realised. (iv) The actualisation of those possibilities which are actualised depends on the volition of the Necessarily Existent. Now suppose we accepted everything that McTaggart has asserted about characteristics and possibilities, what precisely does the passage quoted above *really amount to? Simply to the following triviality:* "*Every* characteristic has to some existent the relation of characterising it, or else it has to every existent the relation of not characterising it. Therefore there is no characteristic which is *out of all relation to the existent. Now all possibilities* are negative facts about the entailment or exclusion of characteristics by each other. Therefore there are no possibilities which are out of all relation, positive or negative, to the existent". Has anyone in the whole course of human history ever denied that there is this amount of connexion between the possible and the existent? We may regard Leibniz as the typical example of a philosopher who held that "what is actually existent is surrounded by a sort of framework of possibilities of existence", and there is plainly nothing in McTaggart's conclusion which might not have been cheerfully admitted by Leibniz.

CHAPTER IV

IS EXISTENCE CO-EXTENSIVE WITH REALITY?

(II) PROPOSITIONS

McTaggart's discussion of propositions is important. But it seems to me to be highly confused, and therefore very difficult to follow. We must notice, in the first place, that, whilst he believes that there are characteristics and possibilities, and is concerned to show that they are all existent, his attitude towards propositions is fundamentally different. He admits that, if there were propositions, they would not be existent; and he tries to prove that in point of fact there is no reason to believe that there are any propositions.

Plainly he ought to have begun by defining or describing quite clearly what he understands by the word "proposition". Unfortunately he does not do so. At the beginning of the discussion (§ 7) he says that a proposition is such an entity as "Socrates is wise" or "the multiplication table is green", as distinct from anyone's belief that Socrates is wise or that the multiplication table is green, and as distinct from Socrates and the multiplication table. It is, of course, quite obvious that he is not referring to the *sentences*, for there is no doubt that there are sentences and that all sentences are existent. Very much later (§ 23) he describes a proposition as "a non-existent reality which is true or false independently of our beliefs". Neither the earlier exemplification nor the later description is very helpful. Between these two sections comes the main argument to show that there is no reason to believe that there are propositions. In the course of this he mentions several other characteristics which propositions would have if there were propositions. In § 8 it is said that those who accept propositions hold that a true belief is made true by corresponding to a true proposition, and that a false belief is made false by corresponding to a false proposition. In § 17 we are told that, if there were propositions, they would be timeless.

It is plain that McTaggart assumes that those who accept propositions do so because they think that otherwise there would be nothing for true or false beliefs to correspond with, and because they think that otherwise truth would not be timeless.

Now, although I agree in the main with McTaggart's conclusions and with many things that he says in the course of his argument, I think that there is a great deal of confusion and misunderstanding in his treatment of the subject. It will save time and trouble if I begin by trying to state quite clearly in my own way what people who hold that there are propositions mean by "propositions", and why they have thought it necessary to assume that there are such entities. But, before I do this, I must say something about Facts, and about some of McTaggart's statements concerning them.

The notion of a Fact is first introduced in § 9. In § 10 McTaggart tries to define the term "fact". It is said to be "either the possession by anything of a quality or the connection of anything with anything by a relation". Here "anything" is to include both particulars and universals, and, I suppose, facts. Whether this description would apply to the fact that there are lions and the fact that there are no dragons seems at best doubtful. The following further remarks about facts must now be noted. (i) He says (§ 10) that, if my table is square, the squareness of my table is a fact. There is some inconsistency here, for in § 5 the wisdom of Socrates was said to be an existent quality, and therefore not a fact. (ii) He repeatedly says that beliefs are facts. Cf., for example, p. 11, note 2, where he says: "My belief 'the table is square' is of course itself a fact". Cf. also § 18, p. 19, "A belief is a psychical fact in a man's mind". Now all this is extremely odd. For elsewhere he takes states of mind to be particulars, which are parts of the mind whose states they are, and therefore not to be facts. Of course, if I believe at a certain moment that my table is square, there is the fact that I have this belief at that moment. But surely the belief is an event, and the fact is that this belief is happening in my mind at that moment. (iii) In § 17 he asserts that some facts are in time. Of course he does

not believe that anything is really in time, but he does mean that the statement that some facts are in time is true in the same sense and with the same qualifications as the statement that the Albert Memorial is in time, whilst other facts are not in time even in this sense and with these qualifications. Since it is abundantly clear that he sometimes confuses an event which in fact happens at a certain time with the fact that this event happens at that time, it may well be that his statement that some facts are in time depends on this confusion. I think it is evident from these quotations that McTaggart was either not clear as to what he meant by a "fact" or that he sometimes applied the name "fact" to terms which are not facts on his definition.

1. What are "Propositions", and why are there supposed to be Propositions?

Let us begin, if we can, with what is admitted by everyone. (i) It is quite certain that situations do from time to time arise which can properly be described by such phrases as: "M is believing at t that S has the characteristic P". In all such cases M is a mind, whilst S may be anything whatever—a particular, mental or material; a characteristic; a fact; or what not. (ii) It is certain that there may exist a number of such situations which differ from this and from each other only by variations in M or t or both. Thus we can have: "M' is believing at t that S is characterised by P", "M is believing at t' that S is characterised by P", and "M' is believing at t' that S is characterised by P". Such facts as these are conveniently expressed by saying that "the *proposition* that S is characterised by P may be believed by the same mind at different times, and by different minds at the same time". (iii) It is certain that there are also situations which can properly be described by such phrases as: "M is disbelieving at t that S is characterised by P", and that it is impossible for there to be two situations which differ *only* in the respect that "disbelieving" is substituted in the one for "believing" in the other. This fact is conveniently expressed by saying that "the same person cannot at the same moment believe and

disbelieve the same *proposition*". (iv) It is, however, quite possible for there to be such situations that statements of the following three forms are all true, viz., (*a*) "*M* is believing at *t* that *S* is characterised by *P*", (*b*) "*M'* is disbelieving at *t* that *S* is characterised by *P*", and (*c*) "*M* is disbelieving at *t'* that *S* is characterised by *P*". Such facts are conveniently expressed by saying that "the *proposition* that *S* is characterised by *P* may be both believed and disbelieved at the same time by different minds, and at different times by the same mind".

Now there is no doubt about these facts. And the natural and obvious way of analysing them is the following. Such situations consist of a mind related in certain ways to a certain objective constituent. The relation is that of judging, and this has two determinate forms, viz., believing and disbelieving. The objective constituent is something which is believed or disbelieved. We cannot believe or disbelieve without believing or disbelieving something, any more than we can have a sensation without sensing something. And, in the case of judgment, the something in question is a proposition.

So much might have been inferred from considering each judgment-situation in isolation. But this would have left it possible that the objective constituent of each judgment is private to the mind which makes the judgment. In that case a proposition would be a factor which is inseparable from the judgment-situation of which it is the objective constituent, just as many people would hold that a sensum is inseparable from the sensation of which it is the objective constituent. This possibility is eliminated when we take into account the facts about the relations of one judgment-situation to others. These, it will be said, force us to assume that propositions are neutral and independent of the judgment-situations in which they occur as objective constituents. For otherwise we could not say that the same proposition may be believed at the same time by different minds, that it may be believed on several different occasions by the same mind, that it may at the same time be believed by some minds and disbelieved by others, and that it may at different times be believed and disbelieved by the same mind.

Thus far, then, two characteristics have been ascribed to propositions, viz., (i) that they are the kind of entities which occur as objective constituents in judgment-situations, and (ii) that they are public and neutral entities, capable of being objective constituents of many different judgment-situations. And we have seen what facts suggest that there are entities having these properties.

We must now try to carry our analysis a little further. (i) The phrases which express judgment-situations have a grammatical peculiarity which distinguishes them from those which express other kinds of objective situations, such as sensations. The grammatical object of the phrase which expresses a judgment-situation is never a simple noun, such as "flash" or "table", or a simple adjective, such as "red" or "square". It is always a complex phrase which either is, or is equivalent to, a phrase of the form "that S is characterised by P". (I am omitting existential judgments for the present. The argument is not affected thereby, for the grammatical object would still be a "that"-phrase, though it would now take the form "that S exists" or "that there is an S".) You may be said to see a flash or hear a noise, but you cannot be said to believe or disbelieve flash or noise or red or squeaky, though you may be said to believe that the flash is red and to disbelieve that the noise is squeaky. This difference in grammatical form suggests that, although the judgment-situation and the sensation-situation are both objective, yet the former is in some way more complex than the latter.

Now this extra complexity might, of course, fall on the side of the objective constituent, or it might belong to the relation which relates the subjective and the objective constituents of the judgment-situation. It might be, for example, that the relation of sensing is dyadic, like that of parenthood, whilst the relation of judging is more than dyadic, like that of jealousy. If that were so, there would have to be more than one objective constituent in every judgment-situation; for example, if the judging relation were n-adic, there would have to be $n-1$ objective constituents in the judgment-situation. If, on the other hand, it is *assumed* that the judging-relation,

like that of sensing, is only dyadic, it will have to be assumed that there is only one objective constituent in the judgment-situation. This must then be assumed to be a single internally complex whole, composed of several terms interrelated in a characteristic way. Suppose we represent the analysis of a typical sensational situation by $\Sigma\ (M, O)$, where Σ stands for the relation of sensing, M stands for the mind, and O for the sensibile that it senses. Then, if we assume that the judging-relation J is dyadic, like the sensing-relation Σ, we shall have to represent the analysis of the judgment-situation by some such formula as $J\ \{M, \pi\ (S, P)\}$, where π is a peculiar relation, which might be called the "propositional relation", and $\pi\ (S, P)$ is a peculiar kind of complex whole, which might be called a "proposition".

If we were prepared to suppose, as Russell at one time suggested, that the judgment-relation J may be triadic, we could represent the analysis of the judgment-situation by some such formula as $J\ (M, S, P)$. Now it is the first kind of analysis which is tacitly assumed by most people who accept the reality of propositions. They assume without question that the right analysis of a judgment situation is into (M)-believing-or-disbelieving-(that S is characterised by P); and they assume that the proposition is a peculiar kind of complex object, consisting of the terms S and P interrelated in a perfectly unique way. There will be at least two terms in it; and there may be more, for P might itself be a relational property, such as "being jealous of V on account of W".

Thus one cause which has led people to believe that there must be propositions is that they have assumed without question that the judging-relation *must* be dyadic, like the sensing-relation. This was, no doubt, partly suggested by language. But it must also be remembered that philosophers have seldom recognised that there are triadic and tetradic relations. (There is still a quaint old-world prejudice against them in the *Home of Lost Causes*.) And no one, so far as I know, before Russell, had made the important suggestion that the judging-relation might be more than dyadic; whilst he, I suppose, abandoned it, like so many of his philosophic

offspring, on the steps of some Foundling Hospital for illegitimate conceptions, when he decided to make an honest woman of Behaviourism. We may now add a third characteristic of propositions to the two that we have already mentioned. It is (iii) that the proposition which is the objective constituent of such situations as are expressed by phrases of the form "*M* believes (or disbelieves) that *S* is characterised by *P*" is a peculiar kind of complex unity composed of the terms *S* and *P* interrelated in a unique way.

We can now carry our analysis yet a step further. It is admitted by everyone that the adjectives "true" and "false" are specially connected with judgments. Every judgment is either true or false, and no judgment is both. But it is also held that these adjectives apply to propositions. I think that everyone would admit that, if there are both judgments and propositions, there must be a primitive sense of "true" and "false" in which these adjectives apply to one, and a derivative sense in which they apply to the other. Now those who accept the reality of propositions generally hold that the adjectives "true" and "false", in their primitive sense, apply to propositions and not to judgments. The sense in which these adjectives apply to judgments is, on their view, derivative, and definable in terms of the sense in which they apply to propositions. A "true" judgment may be defined as belief in a true proposition or disbelief in a false proposition. A "false" judgment may be defined as belief in a false proposition or disbelief in a true proposition. It is the fact that some beliefs are false and some disbeliefs are true which seems to make it necessary to distinguish propositions from facts. When I believe falsely I am certainly believing *something*, in exactly the same sense in which I am believing something when I believe truly. And other people may have false beliefs which agree with mine; so that there is just as good a reason here as in the case of true belief to hold that this something is public and neutral. And yet it plainly cannot be identified with any *fact*. Suppose, for example, that several people believe that Bacon wrote *Hamlet*, and that I disbelieve it. My disbelief is true, and their beliefs are false. But they believe and I dis-

believe the same something, and this something cannot be a fact. If all beliefs had been true and all disbeliefs had been false, there would have been less ground for assuming propositions in addition to facts. A true judgment might then have been just a belief in a fact, and a false judgment might have been just a disbelief in a fact. But this is not so. There are false beliefs and true disbeliefs; and, if truth and falsity are to belong primarily to the objective constituents of such situations, we cannot identify the latter with facts.

Apart from this there is, I think, another reason for refusing to identify the objective constituents of judgment-situations with the facts which make them true or false. We have so far drawn no distinction between belief and disbelief, on the one hand, and *knowledge*, on the other. Now it seems certain that true belief can and does exist without knowledge of the corresponding fact. It seems to me plausible to suppose that, when we have knowledge, as distinct from mere true belief, we have true belief founded upon acquaintance with the fact which makes the belief true. Now it seems clear that I can at one time have true belief that S is characterised by P without having knowledge of it, and that at another time I can know that S is characterised by P. For example, I might first *believe* that the circle cannot be squared, on inductive grounds or on authority, and later on I might come to *know* it, in the strict sense, by following the proof that π is a transcendental number. If this be so, it will be necessary, even in the case of true belief, to distinguish between the proposition believed and the fact which makes the belief true.

We may now sum up the characteristics which together constitute the description of the term "proposition". (i) Every judgment consists of a subjective and an objective constituent united by a dyadic relation of judging. A proposition is the objective constituent of a judgment. (ii) Propositions are not merely distinguishable but inseparable factors in judgments. They are neutral and public objects. Any proposition can be judged at various times and by various minds; it can be now believed and now disbelieved; it may sometimes be believed and not known, and at other times or by other minds be

known and not merely believed. (iii) A proposition is a single internally complex whole, consisting of at least two terms interconnected in a unique way. (iv) Truth and falsity, in their primary sense, attach to propositions. Anything else, e.g., a judgment, which is true or false, is so in a sense which is derived from and definable in terms of truth and falsity as applied to propositions.

2. Must we assume that there are Propositions?

We now know what people have in mind when they talk of "propositions", and we have seen what premises have led some people to the conclusion that there are propositions in the sense described above. Some of these premises are undoubtedly true. It is quite certain that judgments are epistemologically objective or "intentional", i.e., that in every judgment something is believed or disbelieved. And it is quite certain that there are sets of beliefs and disbeliefs, occurring at various dates and in various minds, which are so related to each other that we speak of them as so many different beliefs or disbeliefs "in the same *proposition*". Let us call such a set of beliefs and disbeliefs a "Co-referential Set" of judgments.

On the other hand, two at least of the premises might conceivably be false. It may be false that the relation which unites the subjective and the objective constituents of a judgment is dyadic. And it may be that truth and falsity, in their primary sense, apply, not to propositions, but to judgments. The question then is: "Do the premises necessitate the conclusion that there are propositions; and are the doubtful premises true?"

2·1. *Co-referential Sets of Judgments.* It seems clear to me that the facts which are referred to as the "publicity, neutrality, and timelessness of propositions" could all be admitted without assuming that there are any propositions in the sense described above, and without assuming any particular analysis of judgment or any particular theory of what makes judgments true or false.

Suppose we were to define "the proposition which is the object of the judgment J" as the class of judgments which is composed of J itself and of all judgments that are co-referential

with *J*. There is no doubt that the "proposition", so defined, exists. Again, the proposition, so defined, is something public and neutral, in the sense that it exists provided there is *any* judgment in this co-referential set. Its existence is not dependent on the judgment of Smith, or on the judgment of Brown, or on the judgment of Robinson, though it would not exist if no one whatever at any time made a judgment that would fall into the set which constitutes the proposition. Again, the proposition, so defined, is timeless, in the sense that it exists if anyone at any time makes a judgment which would fall into the set. With this definition it is possible to *define* the statement that a "proposition is true or false". A "proposition", in the sense defined, would be "true" if and only if the set of co-referential judgments which is the proposition contained either a true belief or a false disbelief. In that case, of course, *all* the beliefs within the set would be true, and *all* the disbeliefs within it would be false. Similarly, a "proposition", in the sense defined, would be "false" if and only if the set of co-referential judgments which is the proposition contained either a false belief or a true disbelief. In that case, of course, *all* the beliefs within the set would be false, and *all* the disbeliefs within the set would be true.

With these definitions "truth" and "falsehood" as applied to "propositions" would have the usual properties. (*a*) No proposition could be both true and false. For otherwise all the beliefs within the set would be true and all the disbeliefs within it would be false, whilst all the beliefs within the set would be false and all the disbeliefs within it would be true. This would involve that the set contains some judgments that are *both* true and false. And this is impossible. (*b*) Again, every proposition must be either true or false. For, if a certain proposition were not true, the set which is the proposition would contain no true belief and no false disbelief. If the same proposition were not false, the same set would contain no false belief and no true disbelief. But, if it contained no true belief and no false belief, it would contain no belief at all. And, if it contained no false disbelief and no true disbelief, it would contain no disbelief at all. Consequently the set de-

fining a proposition which was neither true nor false would contain no judgment at all, and therefore there would be no such proposition.

I think it is quite plain, then, that we can define Pickwickian senses of "proposition", and of "truth" and "falsehood" as applied to "propositions", without making any assumption about the right analysis of judgments or about the relations of judgments to facts. And "propositions", so defined, will have all the properties that formal logic requires them to have. So far then there is no reason to assume that there are propositions in the non-Pickwickian sense which we described earlier.

2·2. *The Intentionality of Judgments.* We can now pass to the next stage of the discussion. Those who accept propositions in the literal sense might admit that they are not needed for the purposes of formal logic, and might then argue as follows. "You have taken the fact that judgments are objective or intentional occurrences, and the fact that there are co-referential sets of judgments, as ultimate, and have not attempted to analyse these facts further. This is quite legitimate for the formal logician, but it is not enough for the metaphysician and the epistemologist. It is their business to analyse these facts, and then it becomes impossible to dispense with propositions in the literal sense. For judgments are objective or intentional only because they have propositions for their objective constituents; and there are co-referential sets of judgments only because one and the same proposition can be the objective constituent of a number of different beliefs and disbeliefs." This is the contention which we have now to examine. We will take the second point first.

2·21. *Co-referential Sets do not require Propositions.* I think it is quite certain that the fact that there are co-referential sets of judgments does not by itself require that there should be propositions in the literal sense. McTaggart deals with this question in terms of the Correspondence Theory of truth. I shall state the answer in rather different terms from those which he uses, because I am not altogether satisfied with his form of the Correspondence Theory. I should put it as follows. Two beliefs or two disbeliefs are co-referential if they

are such that they both concord or both discord with the same fact. A belief and a disbelief are co-referential if they are such that one accords and the other discords with one and the same fact. Thus, to sum up, two judgments are co-referential if they are such that (*a*) there is a single fact with which both concord (in which case they are both true), or (*b*) a single fact with which both discord (in which case they are both false), or (*c*) a single fact with which one accords and the other discords (in which case one is true and the other is false).

Now, although this solution of the problem of defining co-referential sets of judgments without assuming propositions in the literal sense is correct so far as it goes, it is not wholly satisfactory for two reasons. (i) It presupposes the Correspondence Theory of truth and falsehood. Now I have no doubt that this theory is true, and I think that McTaggart has given conclusive reasons for it and has made conclusive answers to the objections against it in §§ 9–13 inclusive. But it is not accepted by everyone, and it would therefore be better if we could solve the present problem without assuming it. (ii) Even if the Correspondence Theory be true, McTaggart's analysis of the fact of co-referential sets of judgments cannot be ultimate. It is plain that we know with regard to any pair of judgments by mere inspection whether they are or are not co-referential. On McTaggart's analysis this means that we know by inspection whether they are or are not of such a kind that there is a single fact with which both concord or with which both discord or with which one concords and the other discords. Since we can know this without being acquainted with the fact in question, the ground of our knowledge must be some observable identity of terms and some observable similarity of structure in the judgments themselves. It must be like looking at two keys, and seeing from their structure that they will either both fit or both fail to fit the same lock, though we may never have seen the lock in question. Thus the fundamental fact about co-referential judgments will be this observable identity of certain elements in all of them, and this observable similarity in the arrangement of the elements in all of them. This kind of relation

must hold, and must be observable, among the judgments of a set, even if the Correspondence Theory be true. And it might hold even if the Correspondence Theory were false. We can therefore drop that theory out of the picture for the present.

Now it is quite certain that this kind of observable similarity of structure and contents among co-referential judgments could exist without there being propositions in the literal sense. Suppose, for example, that some form of multiple-relation analysis of judgment were, on other grounds, admissible. Suppose that M's belief at t that S is characterised by P were a complex situation of the form $B\ (M,\ t,\ S,\ P)$, where B is a tetradic relation which relates the terms M, t, S and P in a certain order which is represented by the spatial order in which the letters are written down. Suppose that believing (B) and disbelieving (B') are two determinate forms of the determinable relation of judging (J). Then the set of judgments co-referential with M's belief that S is characterised by P would be all those judgments in which the relating relation is B or B', in which the terms other than M and t are S and P, and which are ordinally similar to $B\ (M, t, S, P)$. The set would in fact consist of all the judgments whose symbolic expressions could be obtained from the symbol $B\ (M, t, S, P)$ by varying B to B' or M to M' or t to t', whilst keeping S and P and the order of the symbols within the bracket fixed. We see then that, even without assuming the Correspondence Theory, we could explain the fact that there are co-referential sets of judgments without needing to postulate a proposition in the literal sense to be the common objective constituent of each such set.

2·22. *Does the Intentionality of Judgments require Propositions?* We come now to the last defence of the Proposition Theory. It is simply that no satisfactory analysis can be given of the *intentionality*, which is an essential feature of all judgments, unless we admit that every judgment contains a proposition, in the literal sense, as its objective constituent. This, it is contended, is peculiarly obvious in the case of *false* judgments. "You admit", it will be said, "that you cannot judge without judging *something*. You admit that this some-

thing is not an ordinary term, but is denoted in language by some such phrase as 'that S is P'. And you admit that there are false judgments; so this something cannot in all cases be a fact. What then can it be but a *proposition*, in the literal sense?"

Now at this point I propose to do three things. (i) To show that the above challenge, even if unanswerable, would not suffice to prove that there must be propositions in the sense of public and neutral objects. (ii) To show that McTaggart's attempt to answer the challenge is a failure. And (iii) to try to suggest an answer to it myself.

The first point can be settled quite easily. Even if the intentionality of judgments cannot be accounted for without assuming that each judgment contains an objective constituent of a unique kind, such constituents might never be common to two different judgments, even though the latter were co-referential. It might be that judgments were like sense-perceptions, propositions like sensa, and facts like physical objects. A number of people can perceive the same physical object, and each one of their perceptions contains an objective constituent of a characteristic kind. But there is good reason to doubt whether any objective constituent is common to several perceptions, and whether any objective constituent is identical with, or is literally a part of, the physical object, if such there be, which all these people are said to be perceiving. It is possible then that "propositions", in the sense in which the present argument would demand them, might be as private as sensa are commonly held to be. When W. E. Johnson was pressed as to what he meant by "propositions" he seemed sometimes to fall back on some such view as this. But he was never clear or consistent about it. He wanted propositions to be public and neutral, in order for there to be something for people to agree about, to differ about, and to alter their minds about. But, when one asked him whether he was really prepared to admit the independent being of objective false propositions, he was liable to reply that the proposition is not really separable from the judgment of which it is the objective constituent. His "propositions" in fact seemed to be public and neutral on Mondays, Wednesdays,

and Fridays, and to be private and mind-dependent on Tuesdays, Thursdays, and Saturdays. On Sundays they no doubt underwent a higher synthesis, in which both these opposed characteristics were absorbed, transmuted, and reconciled.

2·221. *McTaggart's Attempt to dispense with Propositions.* We can now pass to the second point, viz., McTaggart's attempt to answer the last challenge of the supporters of the Proposition Theory. This is contained in § 20. The essence of it is as follows.

The opinion that every belief has an objective constituent, which is a proposition, arises from a confusion about two genuine facts. (i) Every belief *professes* to correspond to a certain object, but only true beliefs *really* correspond to such objects. (ii) Every belief *really has* a peculiar relation to a certain fact on which its truth or falsity depends. Through a confusion between these two facts people are led to the false doctrine that every belief really has a certain objective constituent which is a proposition.

It seems to me that this is no answer to the challenge, and that it involves confusions of its own. What literal meaning can be attached to the plainly metaphorical statement that every belief "professes" to correspond to a certain object? Beliefs do not literally "profess" to do anything; it is only persons who can make professions. McTaggart's statement therefore seems to mean that anyone who believes that S is characterised by P *ipso facto* "professes" (i.e., maintains or believes) with regard to something that this something corresponds to a fact. But what can the "something" in question be? Is it his belief? If so, McTaggart's statement amounts to saying that anyone who believes that S is characterised by P *ipso facto* believes with regard to this belief that it corresponds to a fact. Now this is quite certainly false. In the first place, if taken literally, it would involve a vicious infinite regress. It would be impossible to believe p without *ipso facto* having a belief about one's belief in p. On exactly the same principle one would *ipso facto* have a belief about one's belief about one's belief in p; and so on without end. This objection might be removed by making McTaggart's

principle hypothetical. It would then take the form that anyone who believed that *S* is characterised by *P would*, if the question were raised, believe that his belief corresponds to a fact. But even this is not true. For a man may reject the Correspondence Theory of truth and yet have beliefs. Bradley, for example, rejected the Correspondence Theory, and believed that Hegel was a great philosopher. How then can it possibly be said that, in believing Hegel to be a great philosopher, Bradley was *ipso facto* believing that this belief corresponded to a fact? No doubt, if the belief be true and the Correspondence Theory be true, the belief *does* correspond to a fact. But this cannot possibly be part of what a person who rejects the Correspondence Theory is believing.

It seems to me then to be certain that the "something" which a person who believes that *S* is characterised by *P ipso facto* believes to correspond to a fact is not his belief that *S* is characterised by *P*. And, if the "something" is not *this* belief, I do not see what other belief it could be. But, if the "something" in question is not a belief at all, what is it? In the first place, beliefs (or disbeliefs) are the only kind of entities which McTaggart has admitted to be capable of corresponding to facts. If we are now to have an entity which is not a belief or a disbelief and yet is capable of corresponding to a fact, what can it be but our old friend the proposition? McTaggart will be reduced to saying that anyone who believes that *S* is characterised by *P ipso facto* believes that the *proposition* that *S* is characterised by *P* corresponds to a fact. This would be a far more plausible contention than the other alternative which we have discussed and rejected. But it would be a complete abandonment of his position. And it would still be inconsistent with the fact that a man can have beliefs and yet reject the Correspondence Theory of truth. It seems to me then that McTaggart has made no answer at this point to the challenge of the supporters of the Proposition Theory. He has only got into a hopeless muddle.

*2·222. *Independent Attempt to dispense with Propositions.* It remains to be seen whether we can give for ourselves an analysis of judgment which will account for the objective or

intentional character of judgments without assuming that there are propositions in the literal sense. I am inclined to think that this can be done on the lines of the theory of judgment put forward by Prof. Stout in his *Studies in Philosophy and Psychology* in the essay entitled *Real Being and Being for Thought.*

Suppose that I am looking at a certain sheet of paper, of which only one side is visible to me from where I am standing. Suppose I make the judgment that the other side of this bit of paper is blue. What is really happening? To simplify matters we will assume that I am acquainted with the side of the paper which is facing me, and am not merely acquainted with a sensibile which is numerically different from this physical surface. In that case it may be said that I *know* the following *facts*, and do not merely have beliefs. (i) I know that there is another side to the paper. (ii) I know that this other side must have some colour or other, if white and black be counted as colours. (iii) I know, with regard to blue, green, yellow, red, white, and black, that they are determinates which fall under the determinable of colour. What I do *not* know is the fact about the determinate colour of the opposite side of the paper. I *believe* that it is blue. If it is in fact blue, my belief is true. If it is in fact red or green or yellow or black or white, my belief is false. What precisely is involved in the fact that I believe it to be *blue*, and do not believe it to be red or green or yellow or black or white?

The fact that I believe this must consist in the fact that my thought of the alternative *blue* stands in a certain special relation to my three states of knowing, which have been mentioned above, whilst my thoughts of the other alternatives do not stand in this relation to these three states of knowing. My thoughts of the other alternatives may indeed stand to these three states of knowing in a certain special relation which is *opposed to* the special relation in which my thought of the alternative blue stands to these three states of knowing. In the first case I just believe that the opposite side of the paper is blue, without either believing or disbelieving that it is red, etc. In the second case I both believe that the opposite

side is blue and positively disbelieve that it is red, etc. Let us call these two opposed relations the relation of "being inserted" and the relation of "being extruded", respectively. It is arguable that each of these relations is capable of various degrees, which might be expressed by the phrases "strongly" or "weakly" inserted or extruded; but I do not want to introduce complications which are needless for our present purpose. Now my belief is true if and only if the thought which stands to my states of knowing in the relation of being inserted is the thought of that determinate colour which in fact characterises the opposite side of the paper. Here, at any rate, we can see, not only *that* the Correspondence Theory is true, but also in what the concordance between a true belief and the fact to which it refers consists. My belief is false if and only if the thought which stands to my states of knowing in the relation of being inserted is the thought of one of the other determinate colours. Here, at any rate, we can see in what the discordance between a false belief and the fact to which it refers consists.

We can now generalise this example. To simplify the statement I will confine myself to those judgments which are unmixed beliefs. There will be no difficulty in applying the analysis to judgments which are unmixed disbeliefs or combinations of beliefs and disbeliefs. Every belief is a complex state of affairs, in which the following factors can be distinguished. (i) Acquaintance with a certain fact whose subject or predicate is a determinable, and lack of acquaintance with the more determinate fact in which this determinable subject or predicate is specifically determined. (ii) Acquaintance in the same mind with the fact that certain determinates of which it is thinking are specifications of this determinable. (iii) The thought of one of these determinates being marked out from the thoughts of the others by standing to the acts of acquaintance, already mentioned, in the special relation of being inserted in them. The acts of acquaintance might be called the "noetic framework" of the belief, and the fact that I believe so-and-so is the fact that my thought of a certain alternative specification is inserted in this noetic framework.

Similarly the fact that I disbelieve so-and-so would be the fact that my thought of a certain alternative specification is extruded from this noetic framework.

A mixed state of belief and disbelief might be illustrated by the following diagram:

$$I \begin{cases} K\,[M,\ \phi\,(X,\ x_1)] \\ K\,[M,\ F\,(a,\ X)] \\ K\,[M,\ \phi\,(X,\ x_2)] \end{cases} E.$$

Here K stands for the relation of knowing a fact. $F(a, X)$ represents a relatively indeterminate fact involving a particular a and a determinable characteristic X. x_1 and x_2 represent two determinates under X. $\phi(X, x_1)$ represents the fact that x_1 is a determinate under X; and $\phi(X, x_2)$ represents the fact that x_2 is a determinate under X. I represents the relation of being inserted, and E represents that of being extruded. M represents the mind which makes the judgment. It might, of course, happen that M thinks of one and only one of the alternative specifications of X. If so, there would be a strong tendency for the thought of this alternative to become inserted in the noetic framework, and we should have an instance of "primitive credulity".

I am of course well aware of the inadequacy of the above statements if regarded as a full theory of the nature of judgment. They deal only with singular characterising judgments, and make no mention of existential judgments or of more complicated kinds of characterising judgment, such as universal and particular, alternative and hypothetical, and so on. I cannot attempt to go fully into details, but I will say something about existential judgments. Suppose that a certain man believes that there are dragons. What is actually happening when he is engaged in believing this? We will suppose that he understands by a "dragon" a flame-breathing serpent. The noetic framework of his judgment in this case is as follows. He knows that there are serpents. He knows that breathing is an essential factor in the notion of serpenthood, and indeed in that of animality. He knows that breathing must be specified in some determinate way in any particular case, and that it

can be specified in several alternative ways. For fishes may be said to breathe water, cats and dogs to breathe air, and chimneys and blast-furnaces to "breathe" flame. Thus the situation in which the man finds himself just before he makes his judgment may be expressed in the sentence: "I know that there are serpents, and that they all breathe something or other. I know that, among the determinate forms of breathing that are possible, there is flame-breathing. Do any serpents have the determinable breathing in the determinate form of flame-breathing?" Suppose now that the man comes to believe that there are dragons. Then presumably his thought of flame-breathing enters into a new relation to his state of knowing. If, on the other hand, he comes to disbelieve that there are dragons, his thought of flame-breathing also enters into a new relation to his state of knowing, but this relation is in opposition to the one previously mentioned. Suppose that, at the end of his reflexions, he believes that there are air-breathing serpents, disbelieves that there are dragons, and is doubtful whether there are water-breathing serpents. Then his thought of air-breathing has come to stand in the first-mentioned relation to the noetic framework, his thought of flame-breathing has come to stand in the second and opposed relation to this framework, and his thought of water-breathing has not changed its relation to the framework.

There is one other point which must be mentioned if my general account of judgment is to avoid the accusation of absurdly over-simplifying the facts. Suppose I have a certain visual experience and make the judgment which would be expressed by the sentence: "That is a solid object". I might be mistaken in any of the following ways. (i) It might not be solid but hollow, though it really is voluminous. (ii) It might not be voluminous but a cunningly painted and shaded flat expanse, though it really is a physical object. (iii) The visual sensum with which I am acquainted might be hallucinatory, and not the appearance of an external physical object at all. It cannot be said then that part of the noetic framework of my judgment is a state of knowing that this is a voluminous external physical object. For it may not be a fact that it is

voluminous or that it is an external physical object. My state of mind seems to be best expressed by saying that I "take for granted" that this is a voluminous external physical object, and "believe" that it is solid. Now this "taking for granted" seems to consist in not contemplating the other alternatives at all. I simply do not think of the possibility that the visual sensum might be hallucinatory, or of the possibility that, even if it be veridical, the object of which it is an appearance may be flat and not voluminous.

At the back of "taking something for granted" there is always a knowing of some fact, though exactly how far back this knowing is, and exactly what is the fact known in any particular case, is a matter of controversy. Suppose, for example, that we accepted Prof. Stout's doctrine that, whenever I sense a sensum, I *ipso facto* know that it is a manifestation of something somewhere in the physical world. Then my knowing this fact would be at the back of my taking for granted that I am in the presence of an external voluminous physical object. I ignore the possibility that the sensum might be a manifestation of a centrally excited process in my own body. I ignore the possibility that it might be a manifestation of a flat diagram drawn in perspective and suitably shaded. The first stage at which I begin to consider alternative possibilities is in recognising the fact that what is voluminous may be either solid or hollow, and in recognising that I do not know which of these alternatives is fulfilled in this particular case.

Now, supposing that something like the analysis of judgment which I have been describing were true, the last challenge of supporters of the Proposition Theory could be met. In judgment, whether true or false, there really is a unique kind of complex object before the mind. But it is a fact, and not a proposition; it is known, and not believed; and, in judging, there are always other terms before my mind. A judgment is made at a given moment if and only if my thinking of a certain term then becomes related to my knowing certain facts by the kind of relation which I have tried to describe.

2·23. *The Correspondence Theory.* It only remains to make

a few comments on McTaggart's statements about the Correspondence Theory. (i) McTaggart assumes that those who accept propositions do so because they want something for judgments to correspond to, and because they think that nothing but propositions would answer this purpose. His reply is that, on any form of the Correspondence Theory, there must be correspondence with *facts*; and that, given judgments and facts, all the requirements of the Correspondence Theory can be met without assuming that there are propositions.

This whole argument seems to me to rest on a complete misunderstanding of the nature and motives of the Proposition Theory. Propositions were not supposed to be needed in order to *correspond* to judgments, in the sense in which the Correspondence Theory talks of "correspondence". They were supposed to be needed as the *objective constituents* of judgments, and as the *common* objective constituents of sets of co-referential judgments. A supporter of the Proposition Theory who also accepted the Correspondence Theory would say that a proposition is the objective constituent of a belief, that the belief is true or false according as the proposition believed is true or false, and that the proposition is true or false according as it corresponds or fails to correspond to the fact to which it refers. Thus the argument in § 8 and § 14 is beside the mark.

(ii) I am not altogether satisfied with McTaggart's account of correspondence. His doctrine is that, when a belief is true, there is one and only one fact which corresponds to it, and, when a belief is false, there is no fact which corresponds to it. This is eked out by the doctrine, which we have seen to be barely intelligible and certainly false, that every belief "professes" to correspond to a fact.

This seems to me to be unsatisfactory in two respects. (*a*) Judgments include disbeliefs as well as beliefs, and so a complete account of correspondence ought to deal with both. (*b*) Whilst it is no doubt true that a false belief corresponds to no fact, this is not the essential point. The essential point is surely its positive *dis*cordance with a certain *one* fact; its lack

of correspondence to all other facts is trivial. The falsity of the belief that Charles I died in his bed does not depend in any way on its lack of correspondence to the fact that Mr Gladstone reduced the income-tax, but on its positive discordance with the determinate fact that Charles I died on the scaffold.

I would prefer to deal with the matter as follows. Every judgment refers to a certain fact, and it is true if it concords with this fact and false if it discords with it. Suppose I believe that the other side of a certain bit of paper is blue. The fact to which this judgment refers is the (to me unknown) determinate fact about the colour of the other side of this bit of paper. Suppose that it is in fact blue. Then my belief concords with the fact to which it refers, and is therefore true. Suppose that it is in fact red. Then my belief discords with the fact to which it refers, and is therefore false. Now consider disbeliefs. Suppose I disbelieve that the other side of this bit of paper is blue. The fact referred to is still the same. If the other side of the paper is in fact blue, my disbelief discords with the fact to which it refers, and is therefore false. If the other side of the paper is in fact red, my disbelief concords with the fact to which it refers, and is therefore true.

If we generalise this example the result is as follows. The fact to which a judgment refers is the unknown determinate specification of that relatively indeterminate fact which the maker of the judgment already knows and is trying to specify further. When the judgment is a belief, it will concord with the fact to which it refers if and only if the thought which is *inserted* into the noetic framework of the judgment is the thought of that determinate which occurs in the fact referred to. When the judgment is a disbelief, it will concord with the fact to which it refers if and only if the thought which is *extruded* from the noetic framework of the judgment is the thought of a *different* determinate from that which occurs in the fact referred to. A judgment neither concords nor discords with any fact except the fact to which it refers; but it must either concord or discord with that fact, and it cannot do both. This seems to me, on the whole, the most satisfactory way of stating the Correspondence Theory.

BOOK II

CHARACTERISTICS AND PARTICULARS

ARGUMENT OF BOOK II

In this Book we are concerned with the notion of Characteristics and the notion of Particulars, with the connexions between the two, and with certain general principles which McTaggart holds to be true of all Particulars. In Chap. v we discuss the division of characteristics into Qualities and Relations, and criticise McTaggart's doctrine of Generated Characteristics. In Chap. vi we discuss the division of characteristics into Simple, Compound, and Complex. This leads on to a fairly elaborate independent discussion of the nature of Analysis, Definition, and Description, in which we depart considerably from McTaggart. In Chap. vii we are concerned with the notion of what McTaggart calls "Substances" and we call "Particulars". This ends with a lengthy independent discussion of the division of Particulars into Things and Processes, which McTaggart tacitly assumes to be invalid. We tentatively reach the conclusion that the notion of Thing can be dispensed with in favour of the notion of Absolute Process. Chap. viii contains a discussion of the grounds for believing that there is more than one particular. In Chap. ix we explain, and contest, McTaggart's principle that it is self-evident that two particulars could not be exactly alike in all their characteristics. In Chap. x we expound, and try to refute, the argument by which McTaggart claimed to show that every particular must have an unique description which involves no reference to any merely designated particular.

CHAPTER V

CHARACTERISTICS

(I) DIVISION INTO QUALITIES AND RELATIONS

1. McTaggart's Classification.

Characteristics, according to McTaggart, are of two kinds, viz., Qualities and Relations. Both these terms are indefinable, but both are perfectly familiar and intelligible. In § 80 he remarks that qualities are qualities *of* something, whilst relations are relations *between* something and something; but this does not constitute a definition of the difference between the two. At most these two prepositions, "of" and "between", serve to direct our attention to a distinction with which we are all quite familiar. It must be noted that the two occurrences of the word "something" in the phrase "between something and something" may, on McTaggart's view, stand for one and the same term; for he holds that a term may be related to itself. It would not, therefore, have been possible for him to say that a qualitative fact is one which either has only one logical subject or is a conjunction or disjunction of facts each of which has only one logical subject, whilst a relational fact is one which has more than one logical subject and is not a conjunction or disjunction of facts each of which has only one logical subject. Anyone who denied that a term could be related to itself might put the distinction between qualitative and relational facts in this way, and he might then describe a quality as a "monadic adjective" and a relation as a "polyadic adjective". This is, of course, the line taken by Johnson.

In § 85 McTaggart points out that, corresponding to a term A and a relation R, there may be a number of different relational facts. There might, for example, be the fact that A has R to B and the different fact that A has R to C. He calls such facts "Relationships".

Now he holds that each relationship "generates" a certain quality, corresponding to it, in each term that enters into the relationship. Suppose, for example, that there is the relational fact that A is jealous of B on account of C. This generates in A the quality of being jealous of B on account of C; it generates in B the quality of being an object of jealousy to A on account of C; and it generates in C the quality of being something in respect of which A is jealous of B. McTaggart calls all qualities which are generated by relationships "Relational Qualities". Qualities which are not so generated he calls "Original Qualities" (§ 86).

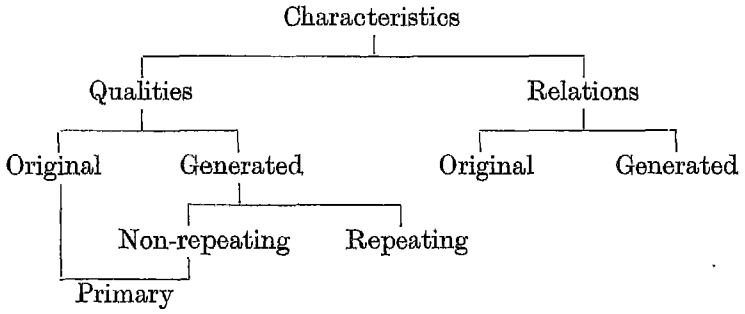
In addition to generated qualities there are generated relationships. If a term has a certain quality, this fact generates a relationship between this term and this quality. For example, the fact that x is red generates the relational fact that redness inheres in x. Again, every relationship generates another relationship. If there is the fact that x stands in the relation R to y, then there is also the fact that x is a term in this fact. Now the latter is a fact about the relation of x to the first-mentioned relationship. It is therefore a second relationship (§ 87).

In pursuing this subject in the second paragraph of § 87 McTaggart lands himself in a confusion. He proceeds to talk of generated *relations*. But he has not shown that any *relations* are generated; at most he has shown that some *relationships* are generated. And he has carefully distinguished between relationships, which are facts, and relations, which are not facts but characteristics. This confusion might be avoided by defining a "generated relation" as the relating relation of any generated relationship. Thus *inherence* would be a generated relation, because all relationships of the form "q inheres in x" are generated from facts of the form "x has the quality q". Similarly, the relation of *referent to*, which holds between a term and a relation that relates that term to something, would be a generated relation. For all relationships of the form "x has the relation of referent to R" are generated by facts of the form "x has the relation R to y".

If we adopt this suggestion, we must notice that it will not

be true that there is an endless series of generated *relations*, even if there be an endless series of generated relationships. Starting with the relationship "that x has R to y", there will be the series "x has the relation of referent to R", "x has the relation of referent to the relation of referent to R", ... and so on. But, even if these be different relationships, there is no new relation generated after the first term of the series.

McTaggart defines "Generated Characteristics" as generated qualities and generated relations. All other characteristics he calls "Original Characteristics". He points out in § 89 that the qualities of any term can be divided into two classes. In the first class will be included all its original qualities, all those relational qualities which are immediately generated by its original relationships, and nothing else. This class he calls the "Primary Qualities" of the term. (This usage must not, of course, be confused with the ordinary distinction of primary and secondary qualities, which dates from Locke and has no connexion whatever with McTaggart's distinction.) Suppose, for example, that x is red and is to the right of y. Then the original quality of redness and the relational quality of being to the right of y, which is immediately generated by the original relationship that x is to the right of y, will be primary qualities of x. All the other qualities of a term are called "Repeating Qualities". The repeating qualities of x in our example would include, for example, the quality of being inhered in by redness, the quality of being referent to the relation of *to the right of*, the



quality of being inhered in by the quality of being inhered in by redness, the quality of being referent to the relation of referent to the relation of *to the right of*, and so on.

The whole classification of characteristics may now be summed up in the table given on p. 83.

2. Critical Comments on the above Classification.

I have now stated and explained McTaggart's way of classifying characteristics, and have refrained almost wholly from criticism. It is now time to consider critically certain points in it. The most important questions which arise are the following. (i) Is there any valid objection to there being relations? (ii) Granted that there are relations, is it necessary to hold that there are also qualities? (iii) Can a term be related to itself? (iv) What are we to say about McTaggart's generated characteristics? I will now discuss these questions in turn.

2·1. *Arguments against Relations.* According to McTaggart (Chap. VIII) the classical arguments against relations reduce to two. The first is Leibniz's contention that they do not inhere in their terms in the way in which qualities do. This is true, but plainly irrelevant. Why should relations be expected to behave exactly like qualities? When Leibniz says that, for an attribute to have "one leg in one term and another leg in another term", would be "contrary to the nature of attributes", and uses this as an argument against there being relations, he plainly commits a *petitio principii*. For a relation would be an attribute of this kind, so that Leibniz's "argument" is just a picturesque way of asserting the dogma that all attributes must be qualities.

The second argument against relations is that of Bradley. The argument is that, if A is to be related by R to B, A must be related by a relation R_1 to R, and R must be related by a relation R_2 to B. On the same grounds A must be related by a relation R_{11} to R_1, R_1 must be related by a relation R_{12} to R, R must be related by a relation R_{21} to R_2, and R_2 must be related by a relation R_{22} to B. Similar remarks will apply to all these four relational facts, and so at the next stage there will be eight relational facts, at the next to this sixteen, and

so on without end. Bradley's contention is that this series could not have a first term unless it had a last term, which it plainly does not. McTaggart admits that there is this endless series in connexion with any relational fact, but he denies that it is vicious. His answer amounts to saying that the first term, i.e., that A has R to B, is a fact in its own right, and that the rest of the series consists merely of further consequences of this fact. I think it might fairly be said that, whilst Leibniz's argument depends on insisting that relations shall behave as if they were qualities, Bradley's argument depends on insisting that they shall behave as if they were particulars like the terms which they relate. It is plain that Bradley thinks of A and B as being like two objects fastened together with a bit of string, and he thinks of R as being like the bit of string. He then remembers that the objects must be glued or sealed to both ends of the bit of string if the latter is to fasten them together. And then, I suppose, another kind of glue is needed to fasten the first drop of glue to the object A on the one side and to the bit of string on the other; and another kind of glue is needed to fasten the second drop of glue to the object B on the one side and to the string on the other. And so on without end. Charity bids us avert our eyes from the pitiable spectacle of a great philosopher using an argument which would disgrace a child or a savage.

There are two remarks which it seems worth while to add before leaving the topic of Bradley and relations.

(i) All our characterising judgments either assert qualities of terms or relations between terms. They therefore presuppose that the categories of "term-characterised-by-quality" and "terms-in-relation" are understood by those who utter and those who hear such judgments. If we now begin to raise the questions "How do qualities characterise terms?" and "How do relations relate terms?", we can attempt to answer them only by making judgments which, like all judgments, will presuppose these general categories. It is therefore inevitable that all attempts to answer such questions will issue in vicious circles or in vicious infinite regresses. Therefore the fact that they *do* issue in such circles

and regresses is no proof whatever that there is anything wrong with these general notions. If we take a concrete case of Bradley's regress, and translate the symbols into words, the point becomes quite plain. Let us start with the fact that *A* is father of *B*. Here we have a perfectly intelligible statement, involving the non-formal relation of *fatherhood*. At the next stage we get the fact that *A* is referent to *fatherhood*, and the fact that *B* is relatum to *fatherhood*. The "relations" introduced at this stage are purely formal. At the next stage we get the fact that *A* is referent to *referent to*, that *fatherhood* is relatum to *referent to*, that *fatherhood* is referent to *referent to*, and that *B* is relatum to *referent to*. Thus no new "relations" are introduced at this or at any subsequent stage. The fact that at every stage after the first the relating relations are purely formal and are merely repeated shows that we are now embarked on the self-evidently impossible task of explaining, by means of particular relational judgments, that general relational form which is presupposed by all relational judgments whatever.

(ii) I am inclined to think that Bradley's real objection to relations is to be found in the second part of *Appearance and Reality*, and that it is very much more respectable than the tiresome and trivial arguments by which he supports it in the first part would suggest. It seems to me that there is one simple alleged fact which Bradley regards as absolutely fundamental. The alleged fact is that there is something both logically and psychologically prior to terms and relations. This something may be called "Unities". Both terms and relations are abstractions made from unities. Unities are presented as such directly in sense-awareness or in feeling. They are, and are felt to be, in some sense complex and differentiated. Directly we start thinking about them we substitute for them a diagrammatic scheme of independent terms and mutual relations. We cannot help doing this; but we are mistaken if we identify the scheme with the original unity of which it professes to be the analysis. Consequently the notion of terms which could exist independently of each other and of the wholes in which they are parts, and which

could then, by "coming into relations", constitute these wholes, is a complete perversion of the real order. Any term less than the whole is an abstraction, and a partly misleading abstraction, from the whole.

If I had to make up an argument in support of this view, I should put it somewhat as follows. "You must admit that your knowledge of particular terms and particular relations is ultimately derived from unities with which you are directly acquainted. You must admit that it is only from your acquaintance with unities which you have subsequently 'analysed into' terms in relations that you know what is meant by 'terms standing in relations to form unities'. Now the only unities that you are acquainted with are the sense-fields which you sense and your own field of consciousness. And here the terms which you profess to distinguish on inspection and introspection seem clearly to be such that they could not have existed out of the very same unity in which you find them. What right then have you to assume that there can be unities composed of terms which could have existed outside these unities? Is it not likely that the whole notion of terms which are to some extent independent of their actual relations, and of wholes which are merely certain of the numerous possible alternative arrangements of such terms, is unjustifiable?" It would take us too far afield to deal adequately with this argument; but I suspect that it is much nearer to Bradley's real thought about Relations than are the dialectical fireworks which he discharges at them in Part I.

2·2. *Can Qualities be dispensed with if Relations be accepted?* In § 83 McTaggart mentions the suggestion that perhaps qualitative facts could be analysed away without remainder into relational facts. He takes this suggestion to be that there is a plurality of ultimate relations of exact likeness. To say of the two sensibilia A and B that both are red would be to say that they have to each other a certain one of these ultimate relations of exact likeness. He dismisses the whole suggestion almost without discussion, on the ground that no positive reason has ever been given for doubting that there are qualities, and that it is obvious that relations of exact likeness

are not ultimate but depend on the possession of common qualities.

The following comments may be made on these statements.

(i) If all judgments which appear to ascribe a quality to a particular really assert that it stands in some relation to some other particular, it is not at all obvious that the relation would be that of *exact* likeness of a specific kind. Take, for example, the judgment that x is red. If this is to be analysed in the way suggested, I should think that the following would be the most plausible account of it. I have sensed certain sensibilia, r_1, r_2, ... etc., which all resembled each other *fairly closely* in hue. I have also sensed other sensibilia which resembled each other fairly closely in hue, but did not in the least resemble these. There was in fact a group, b_1, b_2, ... etc., which answered to this condition. There was also a group, g_1, g_2, ... etc., and a group y_1, y_2, ... etc. Each of these groups consisted of sensibilia which were very similar to each other in hue, whilst the sensibilia in any one of these groups were wholly dissimilar in hue from the sensibilia in any other of these groups. I was taught to give the name "red" to all the members of the first group and to any other sensibile which should resemble one of these in hue at least as closely as the least similar of them resembled each other. My judgment that x is red would then be analysed as follows: "x resembles in hue one of the sensibilia which I was taught to call 'red' at least as closely as the least similar of these resembled each other".

(ii) It does not seem to me to be either self-evident or capable of proof that exact likeness of a specific kind consists in or depends on the possession of a common quality. I should think it certain that recognition of likenesses and unlikenesses precedes recognition of common qualities. And it does not seem altogether unreasonable to suggest that the notion of common qualities may be a convenient fiction to systematise and abbreviate the statement of a complicated set of inter-related facts about likenesses and unlikenesses.

(iii) Suppose that all statements of the form "x has the quality q" correspond to facts of the form "x has the relation R to something". If R be a symmetrical relation, as it would

be if it were a relation of likeness, the following consequence would result. It would be logically impossible for *one* statement of the form "x has q" to be true unless at least one other statement of the same form about *another* particular y were *also* true. It would, for example, be logically impossible that there should have been only one noise or only one coloured sensibile. If this is felt to be an objection, it might perhaps be evaded in the case of the coloured sensibile by pointing out that the latter has parts which are also coloured sensibilia, so that there could not, on any view, be one coloured sensibile without there being many. But this argument could hardly be applied to a noise. Even if every noise has parts, as McTaggart would have to hold, it seems impossible that every noise should have parts which are noises. Thus the difficulty may be put in this way. It seems logically possible that the statement "This is a noise" should have been true even though nothing but this had been a noise. If, however, the statement that this is a noise means that this has a certain relation S to something, and if this relation S be symmetrical, it is logically impossible that this should have been a noise if nothing but this had been a noise. We shall have the very paradoxical position that this, which *was not* a noise, will *become* a noise when and only when another sensibile begins to exist which has to it the symmetrical relation S.

So far as I can see, the only way of evading this paradox would be to say that "x is a noise" means "x is the sort of thing that *could* stand in the relation S to something", and does not mean "x *does* in fact stand in the relation S to something". Now this amended interpretation seems to imply that certain particulars *could*, whilst others *could not*, stand in the relation S. Many people would hold that a fact of this kind cannot be ultimate. They would say that there must be some *actual* difference between the *natures* of those terms which could and those which could not stand in a given relation S. This seems to mean that there must be some quality q, such that particulars which had q, and only such particulars, could stand in the relation S. If this be admitted, we are forced back to the admission of qualities.

2·3. *Can a Term be related to itself?* McTaggart alleges that there are relations which a term can have to itself, e.g., identity, contempt, respect, etc. So we cannot, on his view, distinguish relational facts from qualitative facts by saying that the former always have two or more constituents beside the relation, whilst the latter have only one constituent beside the quality. Yet he admits that, even when a term stands in a certain relation to itself, the one term always "has a certain aspect of plurality". This is indicated by language through the grammatical fact that the name, or some description, of the one term will have to appear twice in the sentence which expresses the relational fact. Thus we have to say: "Smith is contemptuous of *himself*", "A is identical with A", and so on.

Is it true that a term can be related to itself? The alleged examples fall into two classes. (i) In some the relation is symmetrical, e.g., identity. (ii) In others it is non-symmetrical, e.g., respect or contempt. (It could not, of course, be asymmetrical. For to say that R is "asymmetrical" is to say that xRy is incompatible with $x\breve{R}y$, where $\breve{R}$ is the converse of R, for all values of x and of y. It would therefore entail that xRx is incompatible with $x\breve{R}x$. But obviously xRx, so far from being incompatible with $x\breve{R}x$, is logically equivalent to it. So it is impossible that any term should stand in an asymmetrical relation to itself.)

Now, as regards the symmetrical relations, like identity, I do not believe that they ever relate a term to itself. If they did, where would be the "duality of aspect" which even McTaggart insists upon? Contrast, for example, "A is identical with A" and "A respects A". In the latter case there is a duality of aspect, for it is one fact to be a respecter of A and it is another fact to be respected by A. But no such duality of aspect could arise with a symmetrical relation, like identity. Take, for example, "Tully is the same as Cicero" and "$1 + 1 = \sqrt{4}$". The first means: "There was a man who had the property of being called *Tully* and the property of being called *Cicero*, and neither property belonged to more than one man". The second means: "There is a number which

has the relation of sum to 1 and 1 and has the relation of square-root to 4, and neither property belongs to more than one number". If this kind of analysis be right, identity is not a relation between a term and itself; in fact there is no relation of which the word "identity" is the name. What is meant by sentences that contain the word "identity" can be expressed by sentences which do not contain it or any synonym for it, but do contain some symbol for the co-inherence of different attributes in a single term.

The second class of relations between a term and itself is not open to the above criticisms. But at this point I think it is important to distinguish between direct and indirect relations. Sometimes the fact that x has a certain relation T to y is simply the fact that there is some term w such that x has a certain relation R to w and that w has a certain relation S to y, whilst x has neither R nor S to y. In such a case we should call T an "indirect" relation between x and y. We should call T the "relational product" of "R into S", and should denote it by $R \mid S$. The relation of uncle to nephew is an example of an indirect relation, since it is the relational product of the relation of brother-or-sister into the relation of parent.

Now no one could possibly object to a term x standing in a relation R to some term w which stood in some relation S, which was not merely the converse of R, to x itself. Yet this means that x stands to itself in the indirect relation $R \mid S$. An example would be if x loved his mother, since x would then have to himself the relation which is the relational product of loving into parenthood. Now there is a special case of indirect relations, which is important for the present purpose. This is the case where x has a part w which stands in a certain relation S to x. Here the relation of x to itself is indirect, since it is the relational product of the relation of having a part into the relation S. But in this particular case we are rather liable to overlook the fact that the relation of x to itself is indirect, and to talk as if it were direct. Thus we might well say that a certain organism was poisoning itself, when what we really meant was that it had a part, e.g., a decaying tooth, which was poisoning it. Now it seems to me that McTaggart's

second class of examples all come under this heading if we accept his views about the nature of cognition and emotion. Take, for example, the fact which is expressed by the sentence "*A* is feeling contempt for himself". On McTaggart's view the feeling of contempt would be a particular which is part of that more inclusive particular which is the self *A*. It counts as a feeling of *contempt* because of its peculiar emotional quality. And it counts as a feeling of contempt *for A* because it stands to *A* in the relation of perception to perceptum. Thus the relation of *A* to itself is the indirect relation which is the relational product of the two relations of "having a part" and "being a perception of". McTaggart has produced no instance which, on his own views, could consistently be regarded as an example of a *direct* relation between a term and itself. And it seems to me highly doubtful whether a direct relation between a term and itself is possible.

2·4. *Generated Characteristics.* McTaggart thinks that one reason why many people have thought that the facts which are expressed by relational sentences are really quality-facts and not relational facts is that there are three intimate connexions between qualities and relations.

(i) A relation between two terms may be based upon qualities of the terms. Thus two sounds harmonise or make a discord with each other because each has such and such a pitch or tone-quality. It is plain, however, that, even in such cases, the fact that x has the relation R to y cannot be reduced to the two facts that x has the quality q_1 and that y has the quality q_2. The fact that x is 2 inches long and that y is 1 inch long may be the basis of the relational fact that x is longer than y. But the latter involves in one way more, and in another way less, than the two former. We might know that x was longer than y without knowing the length of either x or y. On the other hand, one might know two quality-facts without recognising the relational fact which is entailed by them.

(ii) If A has the relation R to B there is always a corresponding quality in the group $A.B$, viz., the quality of consisting of two terms one of which is in the relation R to the

other. We do not hear much more about this kind of generated quality.

(iii) If A has R to B there is always a quality generated in A, viz., that of having R to B, and another quality generated in B, viz., that of having the converse of R to A.

We have now to discuss this general notion of derived or generated characteristics. McTaggart alleges that relationships generate qualities, that qualities generate relationships, and that relationships generate relationships. We will consider these contentions in turn.

2·41. *Qualities generated by Relationships.* Let us take the relational fact that A loves B. McTaggart alleges that there are two facts, distinct from it and from each other, which would be expressed by the sentences "A is a lover of B" and "B is a beloved of A". Those two facts, he holds, are qualitative. In the first a derivative quality, that of loving B, qualifies A. In the second a different derivative quality, that of being loved by A, qualifies B. He says that such qualities, though determined by relations, are distinct from them. The reason which he gives is that the relation of loving *relates* A to B, but the quality of loving B *qualifies* A alone. He admits that it is not so easy to make this clear if we take the fact that A is greater than B for our example; but he thinks that this is due to deficiencies in language.

I must confess that I regard all this as mere verbal moonshine. Of course the three *sentences* "A loves B", "A is a lover of B", and "B is a beloved of A" are different sentences. It is true that, in the second, the grammatical subject-word is the symbol "A"; that, in the third, the grammatical subject-word is the symbol "B"; that, in the second, the grammatical predicate-phrase is "lover of B"; that, in the third, the grammatical predicate-phrase is "beloved of A". And it is true that, in the first, there is no grammatical predicate in the sense in which there is one in the second and in the third. But I cannot see the least reason to suppose that these three sentences stand for three different facts; they seem to me to be quite clearly just three different linguistic expressions for precisely the same fact. I therefore regard the so-called

"quality" of loving B, and the so-called "quality" of being beloved of A, as mere figments.

2·42. *Relationships generated by Qualities.* Let us now start with a qualitative fact, such as the fact that A is red. According to McTaggart there will also be a different fact, which would be expressed by "A is qualified by redness". I suppose there would also be a third fact which would be expressed by the sentence "Redness inheres in A". These are relational facts, whilst the fact with which we started was qualitative and not relational.

I see no reason to suppose that the two sentences "A is qualified by redness" and "Redness inheres in A" ever express different facts. But the question remains whether the one fact which they both express is different from the fact which is expressed by the sentence "A is red". I believe that in this case there are two different facts, one of which would naturally be expressed by the sentence "A is red" and the other by the sentence "Redness inheres in A", though of course on occasion a person might use either to express the same fact. I will now give my reasons for this opinion.

In any fact we must distinguish between the constituents and their form of union. The form of union is not itself a constituent. Anyone who makes a judgment, or understands the expression of a judgment, which refers to a fact of a certain form, in some sense "presupposes" that form. His judgment is "adapted to" the form, but is not "about" the form. (It is impossible to speak of these matters except by metaphors, which are liable to mislead.) Now take the fact that A is red. If you ask "What is it *about*?", the answer is that it is about A and about redness, and that it is not about anything else. The form of union of these two constituents in this fact is that of inherence. No one who did not already "understand" or "presuppose" this form of union could possibly make or understand the sort of judgment which refers to a quality-fact. But the inherence form of union is not, and could not possibly be, itself a constituent in the facts which are unities of this form.

Now, since the constituents A and redness *are* united in the inherence form of union in the fact that A is red, there is *this*

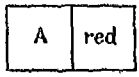
fact about A and about redness and about the inherence form of union. And a fact which is about A and about redness *and* about inherence must be different from a fact which is about A and about redness and is not about anything else. So there are two different facts, one of which would naturally be expressed by the sentence "A is red", and the other of which would naturally be expressed by the sentence "Redness inheres in A". Moreover, it is certain that the mode of union of the three constituents in this second fact cannot be that of inherence, so that the second fact cannot be a quality-fact. Is it then a relational fact, as McTaggart asserts?

Let us take an admittedly relational fact, like the fact that A loves B. This has three and only three constituents, for it is about A and about B and about loving, and it is not about anything else. Now the form of union of these three constituents in this fact is the relational form. No one who did not already "understand" or "presuppose" this form of union could possibly make or understand the sort of judgment which refers to a relational fact. Now the sentence "Redness inheres in A" is of the same grammatical form as the sentence "A loves B". We have seen that the former sentence expresses a fact which is *not* of the inherence form, and that the latter expresses a fact which *is* of the relational form. It therefore seems reasonable to suggest that the fact expressed by the sentence "Redness inheres in A" is a relational fact.

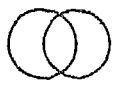
But we must not push the analogy too far. In the relational fact that A loves B the constituent, other than A and B, is the *non-formal* relation of "loving". This may be compared to the non-formal quality of redness in the quality-fact that A is red. But, in the fact that redness inheres in A, the constituent, other than redness and A, is just the inherence *form of unity*. I think that this point can be made much clearer by a few simple diagrams than by a great deal of talk. Let us represent the form of a quality-fact by an oblong divided into two adjoined empty squares. Thus:



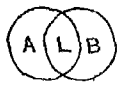
The fact that A is red will then be represented by filling these squares respectively with the letter "A" and the word "red". Thus:



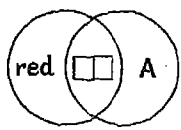
Next let us represent the form of a dyadic relational fact by a pair of intersecting circles. Thus:



The fact that A loves B is to be represented by putting "A" into the left-hand compartment, "B" into the right-hand compartment, and "L" into the middle compartment. Thus:



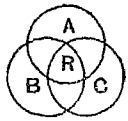
Now how are we to represent the fact that redness inheres in A? Since it is of the relational form, we shall use the figure of intersecting circles. We shall put "red" into the left-hand compartment, and "A" into the right-hand compartment. What shall we put in the middle compartment? Plainly the blank form of a quality-fact. The diagram will thus be



2·43. *Relationships generated by Relationships.* Suppose we start with the relational fact that A loves B. Consider the sentence "The relation of 'loving' relates A and B in the order $A \rightarrow B$". Does this express a different fact from that which is expressed by the simpler sentence "A loves B"? I believe that, in this case, there are two different facts, one of which would naturally be expressed by the first sentence and the other by the second. My reasons are as follows.

The fact that A loves B is about A and about B and about loving, and it is not about anything else. But there is the fact that these three terms are united in the form of a relational unity, and this is a fact about the relational form of unity as well as being a fact about A and about B and about loving. Consequently it is a different fact from the fact that A loves B.

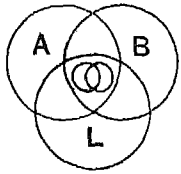
It will be noted that this second fact is *triadic* in form, whilst the first fact was *dyadic*. Now the form of an ordinary triadic relational fact (e.g., that A is jealous of B on account of C) might be represented by a diagram of three intersecting circles, as below:



How should we then represent the fact that loving relates A to B? Remembering that the fact that A loves B is represented by the diagram



we can see that the derived fact should be represented by the following diagram:



Here the two empty intersecting circles in the innermost compartment represent the form of unity of a relational fact which is dyadic, whilst the three intersecting circles represent the triadic nature of the derived relationship.

As at present advised, then, I agree with McTaggart's contention that any original fact, whether qualitative or relational, is at the basis of an endless ascending hierarchy of facts which are not qualitative, and which may, in a slightly

extended sense, be called "relational". This is quite consistent with my denial of his contention that every relational fact gives rise to derivative qualities in each of its terms. Again, I agree with McTaggart in holding that there is nothing vicious in an endless series of this kind. Lastly, it seems to me certain that no human being ever makes judgments which refer to facts beyond the second or third stage of such a hierarchy. We have a general rule for writing down the sentences which *would* express such judgments *if* they were made, and we may write down very complicated sentences in accordance with this rule when we want to give examples. But we are not really making the judgments which these sentences would properly express.

3. The "Nature" of a Term.

I shall conclude this chapter by stating and commenting upon some remarks which McTaggart makes in various parts of the *Nature of Existence* about what he calls the "nature" of a term. In § 64 he defines the "nature" of any term as the compound quality composed of all the qualities of the term; i.e., the conjunction of all its qualities. In § 86 he points out that, with this definition, the nature of a thing will change if any of its relationships should change. For, according to him, each different relationship in which A is a term generates a different quality in A. Now he also holds that every two particulars are related to each other at least by similarity or dissimilarity. Suppose that A changes, and, to take the most unfavourable case, suppose that B undergoes no changes in respect of any of its relations to A. Still there will be a change in B's qualities; for it will now stand in these unchanged relations to a thing with a changed nature, and this difference in B's relationships will generate a change in B's qualities and therefore in B's nature. It follows that, if *any* particular changes, the natures of *all* particulars change. Again, on pp. 87–8 we are told that, if there be change at all, the nature of the past must change in certain respects. "In 1900 the coronation of Queen Victoria was the last British coronation. In 1903 it had ceased to be so—a change of nature which

occurred more than sixty years after the event." In § 90 the following point is made. Since the derivative qualities of a term form an endless series, the nature of any term will be a compound quality with an infinite number of components. This is equally true whether the term in question be a particular or a characteristic. It does not of course follow, nor is it true, that every characteristic has an infinite number of components; for a characteristic is one term and its nature is another characteristic. A characteristic x might itself be simple or of finite complexity, even though the compound characteristic n_x, which is the conjunction of all x's qualities, should be infinitely complex. (It may be of interest to remark that many of the ostensibly vicious infinite regresses which Bradley laboriously constructs in *Appearance and Reality* in connexion with qualities and relations depend on the naïve assumption that, in the case of a quality, the quality and its nature are identical. As soon as this elementary confusion is cleared up, Bradley's argument collapses like a dollar security.) Lastly, in § 91 McTaggart says that there is no means of knowing whether the number of *original qualities* of a particular is finite or infinite. But, if the number of particulars is infinite, as McTaggart holds on the ground that every particular is endlessly divisible, every particular will have an infinite number of *original relationships*.

The above are McTaggart's most important statements about the "nature" of a term. I think that they are open to several serious objections. (i) I shall try to show in the next chapter that the notion of a compound characteristic is probably a figment. (ii) Whether this be so or not, it seems certain that the notion of a compound quality composed of *all* the qualities of a term is illegitimate. For such a compound would have to contain itself as a component, which is nonsensical. (iii) Since I do not admit that relationships, like the fact that A loves B, generate in A qualities like being a lover of B, I could not in any case accept McTaggart's account of the nature of a term without modification. I should proceed as follows. I should define the "Complete Original Fact" about a term as the conjunctive fact whose conjuncts are all

the original atomic facts, whether qualitative or relational, about the term. By "atomic" I mean for the present purpose facts which are neither conjunctions nor disjunctions of other facts. I should define the "Nature" of a term as the class of all its original qualities. We then get three useful and unobjectionable notions, viz., (*a*) The *nature* of a term, i.e., all its original qualities; (*b*) the *original relationships* of a term, i.e., all the facts about its original relations to other terms; and (*c*) the *complete original fact* about a term, i.e., the fact that it is a term of such and such a nature and stands in such and such original relationships. With these definitions a term can change in respect of its original relationships without thereby suffering a change in its nature. And a change in the nature or the original relationships of one term does not, as such, entail a change in the nature of any other term. This seems to me to have the double advantage of being in accordance with usage, and avoiding the positive logical objections which confront McTaggart's account of the nature of a term.

Finally, it must be remarked that the "nature" of a continuant is often taken to consist of its permanent dispositional properties, e.g., its melting point, its modes of reaction in presence of certain other continuants, etc. Thus, it would be said to be a part of the nature of silver to dissolve in nitric acid, and part of the nature of gold not to dissolve in nitric acid but to dissolve in *aqua regia*. I deal with this subject in Section 3 of Chap. XIV of the present work.

CHAPTER VI

CHARACTERISTICS

(II) DIVISION INTO SIMPLE, COMPOUND, AND COMPLEX

1. Statement of McTaggart's Theory.

The latter part of Chap. v of the *Nature of Existence* is devoted to a classification of characteristics which cuts across that which we have been considering in the last chapter. It is indeed ostensibly devoted to Qualities, but, so far as I can see, anything that is said of them could be applied equally to Relations. I propose therefore in the subsequent discussion to substitute "Characteristics" where McTaggart says "Qualities".

1·1. *Simple, Compound, and Complex Characteristics.* In the present method of classification characteristics are divided first into those which are not, and those which are, capable of analysis. The former are called "Simple Characteristics"; they are indefinable, since to define a characteristic is to state an analysis of it. McTaggart then subdivides characteristics which are capable of analysis into (*a*) "Compound", and (*b*) "Complex". He says in § 63 that he means by "compound" characteristics those which are mere aggregates of other characteristics, and he tells us that any two qualities "taken together" form a compound quality. "Red-and-sweet", for example, is the name of a compound quality whose components are redness and sweetness. He also says that humanity is a compound quality of which the components are animality and rationality. By a "complex" characteristic he means one which is composite but which is not a mere aggregate of its components. He thinks that conceit, defined as "having a higher opinion of oneself than the facts justify", is an instance of a complex characteristic. It seems clear that the distinction is meant to turn on whether the relation between the components is simply that of logical conjunction or is some other relation.

Before going further it seems desirable to draw certain further distinctions in connexion with analysis. I would begin by distinguishing between a "Partial" and a "Total" analysis of a characteristic. We give a partial analysis of a characteristic if we mention a set of characteristics which are components of it but do not together constitute it. Thus blackness is a partial analysis of the quality of being a negro. We give a total analysis when we mention a set of characteristics which together constitute the characteristic which we profess to be analysing. We must next distinguish total analyses into "proximate" and "ultimate". An ultimate total analysis analyses a characteristic into simple components. A proximate total analysis analyses it into components some of which are themselves composite. Thus the analysis of human into animal and rational, even if it be total, is certainly not ultimate, since animal is itself capable of further analysis.

1·2. *Must a Composite Characteristic have an Ultimate Analysis?* McTaggart asserts, and claims to prove, the following general principle, which he regards as very important. The principle is that *every characteristic* must either be simple, or have an ultimate total analysis, i.e., a total analysis into components which are simple. This is in sharp contrast to another principle which he regards as self-evident, and which, as we shall see, plays a most important part in his system, viz., that *no particular* can be simple, in the sense of not being composed of other particulars.

McTaggart professes to prove this principle about characteristics in § 64, pp. 64–5 of the *Nature of Existence*. His argument seems to me very hard to understand. He begins by identifying without question two notions which are certainly not obviously identical, viz., "what a certain quality is" and "what we mean when we predicate it of anything". He then asserts that, in the case of a composite characteristic, what it is, or what we mean to assert when we predicate it, "depends on the terms into which it can be analysed". He argues that, if the analysis could go on endlessly, "what the quality is, and what we mean when we predicate it, would depend on the final term of a series which had no final term.

Thus it"—i.e., the quality in question—"would be nothing in particular, and we should mean nothing in particular by predicating it. This would be impossible in the case of a quality". So he concludes that every composite characteristic must have an ultimate analysis. He does not, however, reject the possibility that, in some cases, the ultimate analysis might contain an infinite number of simple components. "Such qualities could not be known by a human mind, but they might nevertheless be real. What is impossible is that there should be an analysis which never ends in simple characteristics".

This is McTaggart's contention, and his argument in support of it. We shall have to deal at a later stage with the general distinction between having no simple constituents and having an infinite number of simple constituents. McTaggart always assumes that these are mutually exclusive alternatives. The real position is not so straightforward as this, but it will be best to defer consideration of this question till we deal with the endless divisibility of particulars.

The first point which seems pretty plain is that McTaggart confused "knowing a characteristic" with knowing its ultimate analysis. For what other ground could he possibly have for being sure that a human mind could not know a characteristic whose ultimate analysis contained an infinite number of simple constituents? And yet surely, if there are composite characteristics, it is clear that people have known such characteristics, and have known what they meant when they predicated them, at times when they did not know the ultimate analysis of these characteristics. If there are composite characteristics, it will be one thing to be acquainted with a characteristic which is in fact composite and it will be another thing to know that it is composite. It will be a third thing to know a total analysis of it. And it will be a fourth thing to know whether this total analysis is ultimate. If we take these four kinds of knowledge in order, it is plain that the earlier members could occur without the later. Yet this is often overlooked. People often use arguments which tacitly assume that, if one is acquainted with a characteristic which is in fact

composite, one must *ipso facto* know some total analysis of it, if not its ultimate analysis. When this assumption is made explicit, it seems to be wholly baseless. Yet, unless this assumption be made, there seems no reason whatever to hold that, if there were composite characteristics whose ultimate analysis involved an infinite number of simple components, no human mind could know any of these characteristics.

This is not indeed directly relevant to McTaggart's principle that all characteristics are either simple or completely analysable into simple components. But it has an indirect bearing on it. For it shows that McTaggart made a certain confusion on a very important point concerned with composite characteristics, and it suggests that he may have made the same confusion in the argument which we are now about to consider.

What does McTaggart mean by the phrase: "what a quality is"? He might mean either a total analysis of the quality or simply the quality itself. I think it is plain that he ought to mean the latter. In the first place, it would be very odd, on the former interpretation, to say that what a quality "is" *depends on* its analysis. What a quality "is" would simply *be* its analysis. Secondly, it is evident that he regards the two phrases, "what a quality is" and "what we mean when we predicate it", as synonymous. Now it is certain that what we mean when we predicate a quality is not any analysis of the quality; it is just the quality itself. Now, if the quality were composite, it would "depend on" its analysis. And, since what we mean when we predicate a quality is just the quality itself, what we mean when we predicate a quality would depend on its analysis if it were composite. It would not, however, depend on our *knowledge* of the analysis.

With this interpretation, and with no other, I can accept McTaggart's statement that what a quality is, and what we mean when we predicate it, depends on its analysis if it be composite. I propose therefore to substitute for it the simpler and equivalent statement that any characteristic which was composite would depend on its components. This, however, does not tell us much until we know what is meant

by the phrase "depends on" in this connexion. Now one fact which is certainly expressed or implied by this phrase is the following. Let C_1 and C_2 be two composite characteristics, and let A_1 be any total analysis of C_1 and let A_2 be any total analysis of C_2. Then A_1 and A_2 cannot contain precisely the same terms related to each other in precisely the same way. This condition, however, could be fulfilled even if C_1 and C_2 had no ultimate analysis. Each of them would then have an unending series of more and more detailed total analyses. In the case of C_1 this series might be represented by A_{11}, A_{12}, A_{13}, ... In the case of C_2 the corresponding series would be A_{21}, A_{22}, A_{23}, ... But no member of the one series need contain precisely the same terms, related in precisely the same way, as any member of the other series. So this implication of the dependence of a composite characteristic on its components will not prove that every composite characteristic must have an ultimate analysis. Now I cannot help suspecting that part of what McTaggart had in mind when he said that a composite characteristic which had no ultimate analysis "would be nothing in particular" was that any one such characteristic would be indistinguishable from any other. If he meant this, he was, as we now see, certainly wrong.

We must therefore seek for some other meaning or implication of the dependence of a composite characteristic on its components. In Chap. XXII, § 175 of the *Nature of Existence* McTaggart reverts to the topic of characteristics with no ultimate analysis. He is here concerned to show that there is no inconsistency between the proposition that *every characteristic* either is simple or is completely analysable into simple characteristics, and the proposition, which he also maintains, that *no particular* is simple but that every particular has parts within parts without end. His argument is that every characteristic must "mean something", and that the meaning of a composite characteristic must depend on the meanings of its components. Therefore the notion of a characteristic which had no ultimate analysis is self-contradictory. On the one hand, it would have to have a meaning, or it would not be a characteristic. On the other hand, it could not have a mean-

ing, since its meaning would depend on that of the last term of a series which, by hypothesis, has no last term. So there can be no such characteristics. Particulars do not have meanings, and so this objection does not apply to the notion of a particular which is neither simple nor composed of simple parts.

This argument seems to me to be completely fallacious. Meaning is primarily something psychological or epistemological. The minimum intelligible statement involving the term *meaning* is of the form "X means Y for Z". This statement means that the mind Z tends to think of Y whenever he perceives or thinks of X. The phrase "X means Y" is an elliptical expression. It means that all or most members of some tacitly assumed class of minds tend to think of Y whenever they perceive or think of X. To talk of X "having a meaning", without saying or tacitly assuming *what* X means and *for whom* X has this meaning, is to talk without thinking. Now the things which have meaning *par excellence* are words and other symbols; and these are not characteristics but are particulars. McTaggart says that every characteristic must have a meaning in order that "when it is asserted that anything has that quality or stands in that relation to anything, the assertion may be significant". This is surely quite inconclusive. If my statement is to be significant, the *words* that I utter must mean something to somebody. And the *name* of the characteristic, which is uttered as part of the utterance of this statement, must mean something to somebody. But so too must the *name* of the subject, although the subject will in general be a particular and not a characteristic. The characteristic which I ascribe to the subject of my judgment, so far from *having* a meaning, *is* the meaning of the adjectival word or phrase in the sentence by which I express this judgment.

So far as I can see, then, McTaggart has produced no valid reason whatever for his contention that every composite characteristic must have an ultimate analysis. And he has produced no valid reason whatever for distinguishing this case from that of particulars, all of which, according to him, must have parts within parts without end. Nevertheless, he may, of

course, be right on both points. Characteristics are fundamentally unlike particulars, and, if there are composite characteristics, the composition of a characteristic out of simpler ones must be fundamentally unlike the composition of a particular out of adjoined smaller parts. So it would not be surprising if the exact contrary of what was true concerning the analysis of characteristics should be true concerning that of particulars. McTaggart would have done better to take his principle about characteristics as self-evident, which is, after all, what he does with the much less plausible contrary principle about particulars.

2. Independent Discussion of the Subject.

Up to this point I have taken McTaggart's division of characteristics into simple, compound, and complex for granted, and have merely criticised the arguments which he used in support of a certain general principle about composite characteristics. But I am profoundly dissatisfied with his whole treatment of the subject, and I think that it is essential to consider it independently. I will open my criticisms by considering the notion of Compound Characteristics, and will then deal with the general topic of Analysis and Definition.

2·1. *Compound Characteristics.* In the first place, it seems quite certain that, even if there be compound characteristics, humanity is not an example of a compound quality, as McTaggart supposes. It is certain that to say of x that it is human is not just to say of x that it is animal and rational as one might say of a penny that it is round and brown. Animality would itself be a compound characteristic, which includes among its components the determinable characteristic of being capable of cognition. And humanity is animality with this determinable characteristic specified as being capable of *rational* cognition. So far then from humanity being a compound of conjoined characteristics which are all on a level and are related simply by the relation of logical conjunction, it is a *complex* characteristic, in McTaggart's sense, involving the relation of determinate to determinable between certain of its constituents.

Secondly, I am altogether doubtful whether there are any compound characteristics in McTaggart's sense of the word. No doubt such a sentence as "x is red and sweet" is intelligible, and no doubt it is of the same grammatical form as "x is red" where the grammatical predicate "red" *is* the name of a characteristic. But it would be most unwise to assume, on this ground alone, that the phrase "red-and-sweet" must be the name of a characteristic. And I know of no other ground for assuming it. I should have thought that "x is red-and-sweet" was simply a short way of saying "x is red and x is sweet", i.e., of recording the fact that the two characteristics, redness and sweetness, both inhere in the common subject x. If there is anything that could properly be called a "compound characteristic", it would seem to be the relational property, if such there be, expressed by the phrase "co-inhered in by redness and sweetness" and not anything expressed by the phrase "red-and-sweet".

When a set of determinable characteristics, C_1, C_2, ..., are found very often to be co-inherent it is a great convenience to have a single name "C" such that the sentence "x is C" shall be understood to mean the same as the sentence "x is C_1 and x is C_2 and ...". But we have no right to assume that there is a characteristic of which "C" is the name and of which C_1-and-C_2-and ... is an analysis. We feel no temptation to assume this except in cases where the language that we speak happens to have a word like "C"; and it is plain that this is no valid ground for the assumption. I am therefore very much inclined to think that McTaggart's notion of Compound Characteristics is a fiction.

2·2. *McTaggart's Tacit Assumptions.* It is fairly clear that certain tacit assumptions underlie McTaggart's theory of composite characteristics, and it will be as well to make them explicit before going further.

(i) It is evident that he thinks of a composite characteristic as analogous to a figure composed of dots of various colours interrelated in a characteristic way to form a pattern. We might think of compound characteristics as analogous to dots arranged in a single straight line, and of complex character-

istics as analogous to more complicated figures, like triangles, pentagons, etc., formed by arranging dots in more elaborate relations. If the dots are near together and a person views such a figure from some distance away, he may be able to see the figure as a whole and notice its characteristic form. But he may not be able to see that it is composed of dots at all; or he may see that one side is composed of dots whilst the others still look continuous; or he may see that it is composed wholly of dots, but may not be able to say exactly how many there are in it, what is the colour of each, or how they are arranged. Suppose that in fact the dots are arranged in the form of a triangular contour, with one side composed of red dots, another of blue dots, and the third of yellow dots. Then there might be a stage at which the observer recognises that what he sees consists of three straight lines, one red, one blue, and one yellow, set end to end to form a closed contour. This would correspond to discovering a total, but not ultimate, analysis of a complex characteristic. Finally, there might come a stage at which the observer recognised that each line consisted of so many points of such and such colours. This would correspond to recognising the ultimate analysis of a complex characteristic. The fact that McTaggart seriously considers the alternatives of a composite characteristic having no simple components and of its having an infinite number of simple components seems to me to show plainly that he was guided by spatial analogies of the kind which I have just indicated.

Now as soon as this alleged analogy is made explicit one begins to feel the gravest doubts about its validity. Let us consider more carefully the case of the figure made of dots. It seems most likely that what the observer is acquainted with when he sees it, first merely as a figure with a characteristic form, then as a figure bounded by three continuous coloured lines, and finally as a figure composed of a discrete collection of coloured dots, is a different particular in each case. Probably he is never acquainted with the physical dots themselves, but only with various sense-data which are more or less differentiated appearances of this one physical pattern of dots. What, if anything, is supposed to be analogous, in the

case of characteristics, to the various sense-data and the one physical object of which they are all appearances? What, if anything, is supposed to be analogous, in the case of cognising and analysing a composite characteristic, to the distinction between *sensing* sensibilia which are appearances of a physical object and *perceiving* the physical object of which they are appearances? Unless some light can be thrown on these questions the analogy must be regarded with the deepest suspicion.

(ii) The second point is this. Whenever we say that something is complex we imply that it is, in one respect, a unit, and, in another respect, a multiplicity. If it were not, in some sense, a unit, we could not talk of *it* as complex. If it were not, in some sense, a multiplicity, we could not talk of it as *complex*. Now, in the case of patterns composed of dots, it is fairly easy to see in what sense a certain set of dots is one and in what sense it is many. The dots in the group are assumed to differ in colour from their background, and no other dots like them are supposed to be near them. The group as a whole has a perceptible quality, viz., its sensible form, which does not belong to its parts. And so on. What analogy is there to this in the case of a complex characteristic? Apparently McTaggart would say that the mere fact of a number of characteristics co-inhering in one particular suffices to give the group such unity that it counts as one characteristic, and that any selection of co-inherent characteristics is *ipso facto* one compound characteristic.

I suspect that he is here blindly following the guidance of language. Really his one and only test comes to the following. Whenever we have an intelligible sentence of the form "x is so-and-so" the word or phrase which follows the word "is" and completes the sentence stands for a single characteristic. If this grammatical predicate is a single word, the single characteristic for which it stands *may* be simple, though it may prove to be composite. If this grammatical predicate is a phrase consisting of several words, the single characteristic will be composite. If the phrase simply consists of several adjective-words joined by "ands", the single composite characteristic

will be compound. Otherwise, this single composite characteristic will be complex. No criterion is explicitly mentioned by McTaggart, and this seems clearly to be the one and only criterion which he implicitly uses. Surely it is plain that such simple-minded confidence in the indications of grammar is rash to the last degree.

To sum up. It seems to me that McTaggart's doctrine of simple, compound, and complex characteristics stands on two sadly weak legs. One is an assumed analogy with certain facts about spatial wholes and our perception of them, which, when clearly stated, would appear not to hold. The other is a child-like trust in the guidance of the structure of sentences in the Indo-European languages, which would appear to be unwarranted.

*2·3. *The Nature of Analysis.* We are now in a position to consider for ourselves what is meant by "analysing a composite characteristic into its simpler components". Plainly we do use this phrase quite often, and do mean something by it, but we have seen reason to doubt whether it can be interpreted literally.

I think that we must start from certain facts about the likenesses and unlikenesses of particulars. It is a fundamental fact that we often find sets of particulars, u, v, and w, e.g., the retriever dog *Ponto*, the negro *Pompey*, and the Chinaman *Chang*, such that u has a strong resemblance to v, and v has a strong resemblance to w, whilst u has no noticeable resemblance to w. Pompey strongly resembles Ponto in one way, viz., in colour; he strongly resembles Chang in another way, viz., in bodily form, behaviour, etc.; but he does not resemble Ponto in the way in which he resembles Chang, and he does not resemble Chang in the way in which he resembles Ponto. This fact is at the basis of the notion of a number of different kinds of resemblance.

Having thus distinguished several different kinds of resemblance, we may find that certain pairs of particulars have several kinds of resemblance to each other. By comparing and contrasting a clock-face, a penny, and a coffee-stain, I distinguish colour-likeness from shape-likeness. By comparing

two pennies I see that they resemble each other both in the way in which the first penny resembled the clock-face and did not resemble the coffee-stain and in the way in which the first penny resembled the coffee-stain and did not resemble the clock-face. Such facts as these are the basis of the notion of a plurality of different characteristics co-inhering in the same particular.

Likeness between particulars is capable of being "greater" or "less" in two different ways. In the first place, the likeness between u and v may be "more extensive" than that between v and w. This happens if u resembles v in every respect in which v resembles w and also in some respects in which v does not resemble w. There is, for example, a more extensive likeness between two pennies than between a penny and a round white clock-face. Secondly, even where the likeness between u and v is no more extensive than that between v and w, it may be "more intensive" or "stronger". The particulars u, v, and w may be indistinguishable in shape and size and alike in colour, but u may be more like v in this respect than v is like w. We should say here that the colour-likeness is "stronger" for the first pair than for the second.

Now we may have observed a certain number of particulars, u, v, w, etc., and we may have noticed that these all resemble each other in a characteristic way in which many other particulars neither resemble each other nor resemble these. The most extensive resemblance between *all* the members of a group of particulars may be called the "aggregate resemblance" among them. We can notice that there is an aggregate resemblance among certain particulars without knowing at the time whether it does or does not depend upon the fact that these particulars resemble each other in several different ways. We can, at this stage, describe this resemblance as "that aggregate resemblance which the particulars u, v, w, etc., have to each other". Bearing this description in mind, we could ask ourselves with regard to some particular z, not included in this list, whether z has to u, v, w, etc., that kind of aggregate resemblance which they all have to each other. Now we might invent or be taught a general name N, which is to be applied to all the particulars in this list, to any other

particular which resembles them strongly enough in the way in which they all resemble each other, and to nothing else. We might perhaps substitute for the vague phrase "strongly enough" the rather more determinate phrase "at least as strongly as the least similar members of the list resemble each other". Suppose that we were then asked what the statement "x is an N" means. At this stage the only answer that could be given would be the following. It means that x either *is* one of the particulars u, v, w, etc., or *has* to them the same kind of aggregate resemblance that they all have to each other, and that x resembles them in this respect at least as strongly as the least similar of them resemble each other.

If it were held that the aggregate resemblance between the particulars, u, v, w, etc., depended upon the presence or the compresence, respectively, in each of them of a certain quality or set of qualities, we should have to describe the latter as follows. It would be described as "that quality or set of qualities whose presence or compresence, respectively, in u, v, w, etc., is the ground of the aggregate resemblance between these particulars". The statement "x is an N" would then mean that x has that quality or set of qualities whose presence or compresence, respectively, in the particulars u, v, w, etc., is the ground of the aggregate resemblance between these particulars.

Now it often happens that, when we compare the things u, v, w, etc., with certain other groups of things, we find that the aggregate resemblance between them consists in the co-existence of several different kinds of resemblance between them. Take, for example, the things which, in virtue of a certain aggregate resemblance between them, are called "negroes". We find that there is a certain wider group which includes all these things, and also retriever dogs, kitchen ranges, black-beetles, and many other things. The members of this group have a certain aggregate resemblance to each other, which is less extensive than that between negroes, in virtue of which they are all called "black". We also find that there is another wider group which includes, in addition to negroes, Chinamen, albinos, Red Indians, etc. The members

of this group have a certain aggregate resemblance between them, which is less extensive than that between negroes, in virtue of which they are called "men". The aggregate resemblance among the things called "negroes" is thus found to consist of the aggregate resemblance between the things called "black" together with the aggregate resemblance between the things called "human".

If we were now asked "What do you mean by the statement that x is a negro?", we should no longer have to make the old answer. Formerly we could say only that x either *is* Pompey or Uncle Tom or Topsy (mentioning certain negroes by name) or *has* to them the kind of aggregate resemblance which they have to each other. Or, if we could go further than this, our statement could only be interpreted to mean that x has that quality or set of qualities whose presence or compresence, respectively, in Pompey, Uncle Tom, and Topsy is the ground of the aggregate resemblance between them. In either case we have had to name or describe two or more negroes. But now we can say what we mean without naming or describing a single negro. We can describe the kind of aggregate resemblance in virtue of which certain things are called "black" by pointing to a retriever dog, a black-beetle, and a few other non-human particulars. We can describe the kind of aggregate resemblance in virtue of which certain things are called "men" by pointing to an albino, an Englishman, a Red Indian, and a few other non-black particulars. And then we can explain what we mean by the statement that x is a negro by saying that x has to the first set of particulars that aggregate resemblance which they have to each other, and that x also has to the second set of particulars that different aggregate resemblance which *they* have to each other. When we can do this we are said to have "*analysed* the characteristic of being a negro into the characteristics of being black and being human", and we are said to have "*defined* the word 'negro'". Sometimes we can describe a certain aggregate resemblance *only* by naming or describing or pointing at certain particulars and describing it as "the aggregate resemblance between these particulars". In such cases, if "C" be the name given to

things in respect of having this aggregate resemblance to each other, we say that "the characteristic C is, so far as we know, simple", and we say that "the name 'C' is, so far as we know, indefinable".

I think that the above account states the essential facts which are expressed by the distinction between "simple and composite characteristics" and "definable and indefinable names". We said that any talk of analysing a composite characteristic implies that we are dealing with a term which is, in one sense, a unit, and, in another sense, a multiplicity. We now see exactly how the unity and the multiplicity are involved. We start with a description of a resemblance, or of a quality or set of qualities by means of a resemblance. Thus we start with the description: "the aggregate resemblance between the particulars u, v, w, etc.", or with the description: "that quality or set of qualities whose presence or compresence, respectively, in u, v, w, etc., is the ground of their aggregate resemblance". The subject is thus delimited; anything that answers to such a description is to be taken as a unit for the purpose in hand. The question then is whether the resemblance thus described can be described *only* in this way. If so, we say that it is "simple", and any general name which is given to things in virtue of this aggregate resemblance to each other will be "indefinable". Sometimes, however, this aggregate resemblance can also be described as the coexistence of several less extensive resemblances, each of which can be described without mentioning particulars which have the more extensive resemblance to each other. If so, we say that the aggregate resemblance is "composite", and any general name which is given to things in virtue of this aggregate resemblance to each other will be "definable".

The fact is that *every* general characteristic C has to be described, directly or indirectly, in terms of particular instances. In some cases the only possible description is direct, i.e., our only resource is to mention or indicate a number of particulars which are all instances of C, and are, in other respects, so variegated that they have very little else in common. To say that the characteristic C is "simple" is to

say that this is the only possible way of describing it. In other cases the instances of C can be shown to be the intersection of two or more classes, one of which is the instances of C_1, another of which is the instances of C_2, and so on. It may be possible to describe the characteristic C_1 by mentioning or indicating a set of instances which are not also instances of C_2, and it may be possible to describe the characteristic C_2 by mentioning or indicating a set of instances which are not also instances of C_1. In such cases the characteristic C, though it will still have to be described in terms of particular instances of *some* characteristics, will not have to be described in terms of particular instances of *itself*. To say that the characteristic C is "composite" is to say that it is describable in this way.

*2·31. *Inseparable Characteristics.* In the examples which we have so far considered there have been actual instances of C_1 which were not also instances of C_2, and actual instances of C_2 which were not also instances of C_1. In such cases we can say that the characteristics C_1 and C_2 are not only separable but actually occur in separation. But there are also cases in which we can recognise that the aggregate resemblance between certain things consists in the presence of several different kinds of resemblance, although we know of no things which resemble each other in one of these ways without resembling each other in all of them. Sometimes we can go further than this. We can sometimes see plainly that it is impossible for things to resemble each other in any of these ways without resembling each other in all of them. We can see, for example, that nothing could possibly have shape without having extension or extension without having shape; and yet there is no doubt that to have shape and to have extension are different characteristics. In such cases we can talk of two or more characteristics being inseparable.

I think that inseparable characteristics are always determinables. We find things that have different determinate values of C_2 and the same determinate value of C_1; and we find things that have different determinate values of C_1 and the same determinate value of C_2. Although neither deter-

minable can occur without the other, any determinate value of the one can be accompanied by any determinate value of the other. It is this fact which enables us to recognise that we are dealing with two characteristics, although the two are inseparable.

It is worth while to point out that, when we can see with regard to two determinable characteristics C_1 and C_2 that neither could occur without the other, we often prefer to say that we are dealing, not with *two* characteristics, but with *a single* determinable C_{12} which has two "dimensions" or "degrees of freedom". I propose to borrow the term "degrees of freedom" from dynamics for the present purpose, because, as we shall see later, McTaggart uses the term "dimension" in a technical sense of his own. It would, for example, be quite in accordance with usage to say that there is a single characteristic of "being a sound", and that this has the three degrees of freedom called "pitch", "loudness", and "tone-quality". And it would be equally reasonable to say that there is a certain one characteristic which has the two degrees of freedom of shape and extendedness. The general definition of a determinable with n degrees of freedom would be the following. When there is a set of determinable characteristics $C_1, C_2, \ldots C_n$, with regard to which we can see (*a*) that all *must* co-inhere in anything in which any of them inheres, and (*b*) that any determinate value of any of them could co-inhere with any determinate value of the rest of them, we say that there is a single determinable with n degrees of freedom, and we denote it by the symbol $C_{12\ldots n}$.

It is important to notice that, whilst there are cases in which we can be absolutely certain that a determinable has *at least* n degrees of freedom, we can never be sure that it may not have *more* than n. It is, for example, logically possible that all the sounds that anyone had ever heard should have been of exactly the same pitch, though they might have differed in loudness and in tone-quality. If so, we should have recognised that the characteristic of being a sound has at least two degrees of freedom, but we should have had no reason to suppose that it had more than two. Actually we

know that it has at least three. It is plainly possible that it may have four degrees of freedom, and that a limitation in the range of our experience of sound, analogous to that which we imagined above, prevents us from suspecting this fact. It may be that its symbol ought to be of the form C_{1234}, and that we have overlooked this fact because the determinable C_4, or the suffix 4 in the symbol C_{1234}, has always had the same determinate value in all the sounds that we have ever heard.

*2·4. *The Nature of Definition.* From the above account of analysis it should be easy to see how analysis is related to definition. If a characteristic is simple, in the sense defined above, it will be impossible to make anyone think of it who is not already acquainted with a fairly variegated set of instances of it. Such a man will therefore be unable to understand sentences which contain the name of the characteristic in question. Suppose, on the other hand, that the aggregate resemblance, in virtue of which the general name N is given to certain things, is the conjunction of two less extensive resemblances, in virtue of which the names N_1 and N_2 respectively are given to certain things. A man who has never met with things that had the more extensive aggregate resemblance to each other may have met with things which had to each other the less extensive aggregate resemblance in virtue of which the name N_1 is applied. He may also have met with things which had to each other the less extensive aggregate resemblance in virtue of which the name N_2 is applied. He may, for example, have met with a variegated enough selection of black things to know what is meant by being "black", though he has never met with a negro. He may have met with a variegated enough selection of human beings to know what is meant by being "human", though he has never met with a negro. He will certainly know from experience in other cases what is meant by a more extensive aggregate resemblance consisting of several different kinds of resemblance. Such a man can therefore be made to think of the aggregate resemblance, in virtue of which the name N is applied to certain things, and to understand sentences which

contain this name, if we substitute for these sentences suitably constructed translations in which N_1 and N_2 occur whilst N does not. In so doing we shall have "defined N in terms of N_1 and N_2".

The statement of a definition for a word which has not previously been defined is the sign that an aggregate resemblance, which had not previously been analysed, has been shown to consist in the conjunction of certain less extensive resemblances. This is an important discovery about the relations of things, and not a mere statement of a convention about the use of words. We can therefore understand why the definition of some well-known word, like "rent" or "continuity", may be the result of years of hard thinking, and may be a triumph of the human mind. We all know roughly what sort of things we should unhesitatingly call "continuous", and what sort of things we should unhesitatingly call "discontinuous". We can all see that there is a certain aggregate resemblance between the former things. But it is a matter of extreme difficulty to see clearly, to separate in thought, and to express the characteristics which are all present in all the former, and which are not all present in any of the latter. The need for such an analysis became clear from the occurrence of marginal cases, i.e., instances which were called "continuous" by one man and "discontinuous" by another, and instances to which a given man hesitated whether to apply the one name or the other. And the analysis was accomplished by the comparison and contrast of these marginal cases with the instances which were unhesitatingly called "continuous" by everyone and the instances that were unhesitatingly called "discontinuous" by everyone.

Nevertheless, there is an element of linguistic convention in any definition, which must not be overlooked. A definition, when it is constructed, may be expressed in the following form: "There is a certain set of characteristics C_1, C_2, ..., all of which are present in all cases in which there is general agreement in applying the name N, and some of which are absent in all cases in which there is general agreement in withholding the name N. And for the future it will be

counted as incorrect to apply the name, without giving notice, where any of these characteristics is absent, and it will be counted as incorrect to refuse to apply the name, without giving notice, where all these characteristics are present". The first sentence is a statement about the relations of things, and is in no sense a linguistic convention, though the things in question are delimited by reference to the general application or withholding of a certain name. The second sentence is an announcement of a convention about the future use of a certain word, a convention which is based upon and made reasonable by the facts recorded in the first sentence.

*2·41. *Three important Kinds of alleged Definition.* Now that we have given a general account of definition and its relation to analysis, it will be worth while to say something about three important instances of alleged definition. It has been alleged that numbers can be defined in Arithmetic, that kinds of figure, such as circles and ellipses, can be defined in Geometry; and that Natural Kinds, such as man, gold, etc., can be defined in the Natural Sciences. I propose to say something about each of these three kinds of alleged definition.

*2·411. *Definitions in Arithmetic.* So far as I can see, the determinate integers, such as 2 or 27, are all simple and incapable of definition or analysis in the strict sense. I should say that, when we use the ordinary form of the Arabic notation, the figures "0", "1", "2", ... up to and including "9" are pure names, whilst figures which contain two or more digits are exclusive descriptions. The essence of the Arabic notation is that it provides a uniform method of giving an exclusive description of any finite integer in terms of a small number of integers which have to be merely designated and not described. In the decimal scale every other integer receives an exclusive description in terms of the integers from 0 to 9 inclusive. But, since any integer can be uniquely described on the same general principles in the binary scale, it is only necessary to have two pure proper names for integers, viz. "0" and "1". The fact that such a uniform system of exclusive descriptions is possible depends on the fundamental

proposition that, if s be any integer, then any integer greater than s can be expressed by the general formula

$$n = \sum_{r=0}^{r=m} a_r s^r,$$

where all the a's are integers less than s, including 0 as possible values.

The rules of arithmetic which we learned at our mother's knee are really methods of solving questions of the following kind: "Given two integers, each expressed in the decimal scale of the Arabic notation, to find the description, in the same scale of the same notation, of the number which is their sum, or their product, or so on". Kant's famous example of a synthetic *a priori* proposition, $7 + 5 = 12$, is really the proposition that the sum of the numbers whose proper names in the usual form of the Arabic notation are "7" and "5" is the number whose description in this system is "12", i.e., the number which is the sum of ten and two. (It will be observed that, in any scale of notation, the radix itself, e.g., ten in the ordinary scale and two in the binary scale, does not have a symbol of its own. It is always represented by the double symbol "10".)

Nothing that I have been saying is incompatible with the fact that the various integers are "defined" by the Principle of Abstraction in such works as *Principia Mathematica*. Such "definitions" are not, and were never supposed by their learned authors to be, definitions in the sense discussed in Section 2·2. They are simply descriptions so framed that it is certain that there is something answering to them and that this something will have the formal properties which we expect the integers to have.

*2·412. *Definitions in Geometry.* Let us now pass from Arithmetic and our mother's knee to Geometry and our preparatory schools. Consider the so-called "definitions" of elementary geometry. The "definition" of a straight line as "that which lies evenly between its two extreme points" is not a definition in the sense discussed. It is what Johnson calls a "bi-verbal definition". "To be straight" and "to lie

evenly" are simply two different verbal expressions for the same property, just as "rich" and "wealthy" are.

Leaving the straight line, let us now consider the circle. A circle is, of course, any figure that has circularity. This is "defined" as the property of consisting of points all of which are at the same distance from a fixed point. Now take any one of the innumerable other properties which can be proved to belong to circles and to them only. We might, e.g., consider the property of consisting of points such that, if any two of them, A and B, be joined to any third of them, C, then the angle ACB is equal or supplementary to any angle AXB whose vertex, X, is a point of the figure. This would generally be taken as an exclusive description, but not a definition, of circularity. Is there any real ground for this distinction? None whatever, so far as I can see.

The real position in all such cases seems to me to be the following. We must begin by distinguishing between what I call "Sensible Form" and what I call "Mathematical Shape". Most sensible forms have no names, just as most shades of colour have no names; but some have, for example, straightness and circularity. We are acquainted with the sensible form of circularity, since we perceive objects which, when viewed from certain positions, look circular. No sensible form whatever can be defined, in the strict sense. Sensible circularity is just as simple and unanalysable as sensible straightness. A man who had never seen a circle would no more know what a circular object looks like, when viewed along a normal through its centre, by knowing the mathematical definition of circularity, than a man who had never seen a red object would know what a pillar box looks like, by knowing the wavelength of red light.

Now mathematical circularity is described in terms of sensible circularity, viz., as that property which a figure must have if it is to continue to look circular, when viewed from a certain position, no matter how accurate the instrument may be that is used for making the test. This is not a *definition* of mathematical circularity, but it might fairly be called the "Primary Description" of it, since it describes *mathematical*

circularity in terms of that sensible form which has the same name, viz., in terms of *sensible* circularity. Now it seems immediately obvious that anything which answered to this primary description would also have the property of consisting of points all of which are equidistant from a fixed point, and that nothing which lacked this property would answer to this primary description. Thus what is commonly called the "definition" of circularity should rather be called an "Immediate Secondary Description" of it. There is an immense number of other properties about which it is not immediately obvious that their range of application is exactly co-extensive with that of the primary description, but about which it can be shown that their range is exactly co-extensive with that of the immediate secondary description. The property that the angles subtended by a chord at any two points on the circumference are equal or supplementary is an instance. Such properties may be called "Mediate Secondary Descriptions".

The following points must now be noted.

(i) There might be a number of different immediate secondary descriptions of the same mathematical shape.

(ii) The distinction between mediate and immediate secondary descriptions is epistemological rather than ontological. Sometimes, however, there is one and only one secondary description which almost every sane human being can see directly to be co-extensive in application with the primary description. In such cases this tends to be called "the definition" of the mathematical shape in question.

(iii) When we have got primary descriptions of a few mathematical shapes in terms of sensible forms with which we are acquainted in sense-perception, e.g., straightness, circularity, ellipticity, etc., we may proceed to construct from them descriptions of other mathematical shapes. For example, having got primary descriptions of circles and straight lines, we can construct a description of the mathematical shape which we call "cycloidal". We describe this as the mathematical shape of the path described by a point on the circumference of a circle when the circle rolls without slipping along a straight line. Probably at this stage we are quite un-

acquainted with the cycloidal sensible form; we may first become acquainted with it when we draw a figure in accordance with these directions. And there would of course be many cases in which it remains permanently impossible for us to become acquainted with the sensible form which corresponds to a mathematical shape that has been described in terms of other mathematical shapes of which we have primary descriptions.

(iv) The last point to be noted is of considerable importance. It is agreed that, whether a mathematical shape has a primary description or not, it has an endless series of secondary descriptions, such that, if any one of them be taken as a starting point, all the rest can be inferred from it. For example, every property that belongs to circles and to them only is an exclusive description of circularity; there is no end to such properties; and, if we start with any of them, we can infer all the rest. But it is vitally important to recognise a fact which is often overlooked. We cannot infer the presence of one property from that of another *directly*, without using any other premise. Always, in the course of the inference, one or more of the axioms of the geometry that we are assuming will be used either tacitly or explicitly. Thus, properties which are capable of being shown to be co-extensive in one system of geometry will not be so in another. Suppose, for example, that we take as our immediate secondary description of circularity the property of consisting of points all of which are equidistant from a fixed point. Then there will be circles both in Euclidean and in non-Euclidean geometry. From the axioms of Euclidean geometry and this immediate secondary description one can infer that the perimeter of any circle in Euclidean space is proportional to its radius. This property will therefore be a mediate secondary description of circularity in Euclidean geometry. From the axioms of elliptic geometry or of hyperbolic geometry and the same immediate secondary description no such inference can be drawn. It is in fact *false*, in both these types of geometry, that the perimeters of figures composed of points equidistant from a fixed point are proportional to their radii. Consequently this property is *not* a

mediate secondary description of circularity in either hyperbolic or elliptic geometry. So we must always beware of talking as if a certain set of secondary descriptions of a mathematical shape were co-extensive *absolutely*; their co-extensiveness will always be relative to some set of axioms which are explicitly stated or tacitly assumed.

*2·413. *Definitions of Natural Kinds.* We come finally to the alleged definitions of Natural Kinds, e.g., the "definition" of man as a rational animal; of gold as a metal with a certain melting point, specific gravity, and so on; etc. It seems to me quite plain that these are not definitions in the strict sense. Locke's example of the rational parrot is quite conclusive. Animality is a highly complex determinable characteristic, in the sense in which we have explained the phrase "complex characteristic" in 2·2. The peculiar likeness in virtue of which certain particulars are all called "animals" depends on the presence in all of them of a whole set of determinable characteristics. Among these are bodily form and the power of cognition. Now the power of cognition might be present in the determinate form of the power of *rational* cognition, and the bodily shape might be present in the determinate form which we are wont to see in parrots. No one would admit for an instant that a thing which had animality in this form ought to be called "human". Everyone would say at once that the characteristic which this thing has excludes something which he has in mind when he applies the word "human". Consequently rational animality cannot be the definition of "humanity".

The real position is as follows. Probably no two people are thinking of precisely the same set of characteristics when they use the word "human". But there is no doubt a great deal in common between the sets of characteristics which various Englishmen are thinking of on various occasions when they use this word. Now it happens to be the case, so far as we know, that few, if any, things exist at present on earth in which the determinable power of cognition is specified in the determinate form of *rational* cognition without the other determinables which accompany this power being specified in

the ways which Englishmen have in mind when they use the word "human". It is because of this purely contingent fact that rational animality serves as an exclusive description of human beings. Similar remarks apply to all alleged definitions of Natural Kinds by genus and differentia.

Any Natural Kind, like any mathematical figure, has a very large number of different exclusive descriptions. For example, the property of having two legs (natural or artificial) and no feathers is as good an exclusive description of man as any other. But, at first sight, there is an important distinction between Natural Kinds and geometrical figures. The various exclusive descriptions of the same geometrical figure are mutually inferable, whilst the various exclusive descriptions of the same Natural Kind seem not to be so. Is this difference ultimate?

It is certainly very much less fundamental than it seems at first sight. On the one hand, as we have seen, the various exclusive descriptions of the same geometrical figure are not *directly* inferable from each other. They are mutually inferable only on the assumption of a certain set of axioms. On the other hand, many of the different descriptions of a single Natural Kind of material substances could be inferred from a single assumption about its minute molecular, atomic, or electronic structure and from the general laws of mechanics and electro-magnetics. The actual procedure is, as a rule, of the following general form. From certain of the macroscopic properties of a Natural Kind, together with the laws of mechanics and electro-magnetics, we can make a probable inference to the microscopic structure of substances of the kind. And from this hypothetical microscopic structure, together with the laws of mechanics and electro-magnetics, we can infer many of the other macroscopic properties of substances of the kind. Thus, to sum up, the various properties of geometrical figures of a given kind are *not* so intrinsically connected as they seem at first sight, and the various macroscopic properties of material substances of a given kind *are* more intimately interconnected than they seem at first sight.

Is there any fundamental distinction between the two cases?

If we compare the laws of mechanics and electro-magnetics with the axioms of geometry, it might be alleged that the former are merely empirical generalisations, whilst the latter are intuitively evident necessary propositions. I certainly could not accept this distinction as it stands. It seems to me quite clear that the axioms which vary from one system of geometry to another, such as Euclid's axiom of parallels, are not necessary propositions. Whether certain very general propositions of *Analysis Situs*, which are common to all systems of geometry, can be counted as intrinsically necessary is a difficult question to which I do not profess to know the answer. But it is certain that more than these are needed in order to infer the various properties of a given kind of geometrical figure from each other.

The really important distinction is that in geometry we are concerned with characteristics of a single kind, viz., spatial ones, whilst in physics we are concerned with characteristics of a great many different kinds. The extent to which the various macroscopic properties of a Natural Kind of material substances can be connected with each other will depend on how far it is possible to push a mechanical explanation, in a wide sense of that ambiguous term, and on how soon, if at all, we are stopped short by genuinely emergent macroscopic properties. And this is a purely empirical question, to which only future experience can provide an answer.

CHAPTER VII

PARTICULARS

(I) THE NOTION OF SUBSTANCE

It will be remembered that McTaggart has claimed to show to anyone who might doubt or deny it that there is at least one existent. We discussed this claim in Chap. II of this book. In Chap. V, § 59, of the *Nature of Existence* he professes to show that anything that was existent would necessarily have some other characteristic beside that of being an existent.

It seems to me that this is self-evidently true. Existence is a purely formal characteristic; in fact, in its primary sense, it seems to me to be equivalent to particularity, and all other senses of it are derived from this. Now it is surely evident that there could be nothing which was simply and solely a particular, and had no non-formal qualities and no non-formal relations.

McTaggart, however, prefers to use arguments to prove that the supposition that there might be something which had existence and no other characteristic is self-contradictory. His first argument is that anything that had existence and no other characteristic would be a "perfect and absolute blank", and that to say that this existed would be equivalent to saying that a non-entity existed. This seems to me to be false or circular. If it had any characteristic at all, it would not be a *perfect* and *absolute* blank; and, by hypothesis, it has the characteristic of being existent. The only ground for saying that it would be a "perfect and absolute blank" is the assumption that the absence of all other characteristics entails the absence of the characteristic of being an existent and so leaves no characteristics at all. But this is exactly what the argument set out to prove. So the argument is circular, since it can prove its conclusion only by assuming it as one of its premises.

The second argument is as follows. Take any characteristic

you like, e.g., squareness. If there were an existent which lacked squareness, it would have, in addition to the characteristic of being an existent, the negative characteristic of non-squareness. Now any existent either has squareness or lacks it, and so every existent has, beside the characteristic of being existent, either that of being square or that of being non-square. There are two comments to be made on this argument. (i) It would leave it possible that all the characteristics of an existent except that of being an existent might be negative. (ii) It assumes that there are positive characteristics beside that of being existent. If there were no such characteristic as squareness, nothing would be square and nothing would be non-square. The Law of Excluded Middle applies to such characteristics as there are and to them only. Thus there is at this point a suppressed empirical premise, viz., that there is at least one other positive characteristic beside that of being an existent. No one is likely to refuse to grant this premise to McTaggart. But, since in this part of his book McTaggart is emulating the White Knight in his anxiety to provide against even such unlikely contingencies as mice on the charger's saddle, it is unfortunate that his mouse-trap should have so many holes in it.

In § 61 of the *Nature of Existence* McTaggart argues that it is certain, with regard to any existent, that there are characteristics which it does not possess. His ground is that there are incompatible qualities, such as red and blue or round and square. If x is red it is not blue, and so there is at least one quality which it lacks. If x is blue it is not red, and so there is at least one quality which it lacks. And, if x is neither red nor blue, there are at least two qualities which it lacks. But x must be either red or blue or neither red nor blue, and so in any case it will lack at least one quality. It seems clear that McTaggart's argument requires a new empirical premise, viz., that there are incompatible positive qualities. This again must be granted to him, but it ought to have been made explicit. It would have been denied by Leibniz and by many other philosophers before Kant.

It is evident that McTaggart himself feels some uneasiness

at this point, for he professes to answer an objection of this kind in the footnote to § 62. But, although his answer to the objection which he there states is correct, the objection is not the fundamental one and his answer is irrelevant to the latter. He takes the objector to assert that our knowledge that red and blue are incompatible is empirical and not *a priori*, so that an empirical premise has been surreptitiously introduced at this point. To this he answers, quite rightly, that, although we need sense-perception to make us acquainted with the qualities redness and blueness, yet, once we are acquainted with them, we can see that they are *necessarily* incompatible. This, however, does not answer my contention that a new empirical premise has been introduced at this point, and that our knowledge of the conclusion that every existent lacks certain qualities is therefore empirical and not *a priori*. The premise of McTaggart's argument is that there are incompatible qualities. No conclusion derived from this can be known *a priori* unless this premise itself is known *a priori*, i.e., unless we can see that it is necessary that there should be incompatible positive qualities. And surely we cannot see this. Our actual position is that we know empirically that there are certain qualities, e.g., redness and blueness, with regard to which we can see that they are necessarily incompatible. From this we can infer that as a matter of fact every existent lacks some positive quality or other. But we cannot infer from it that it is necessary that every existent should lack at least one positive quality.

In § 62 it is asserted that anything that exists will have as many qualities, positive and negative, as there are positive qualities. This, of course, follows at once from the Law of Excluded Middle. Again, if there be three mutually incompatible qualities, e.g., red, green, and blue, any particular will have at least two negative qualities. For it will be either non-red and non-green and non-blue; or red, and therefore non-green and non-blue; or green, and therefore non-blue and non-red; or blue, and therefore non-red and non-green. If we are to pass to the categorical conclusion that every particular has in fact at least two negative qualities, we shall need the

premise that there are at least three mutually incompatible positive qualities. And our knowledge of this premise is empirical.

Must an existent have at least one *positive* quality beside that of being an existent? McTaggart says that it must, since it will have the quality of being many-qualitied, which differs from existence and is positive. This leaves it possible that an existent might have no positive *original* qualities except existence, and might stand in no positive *original* relations. I should have thought that one could see that this supposed state of affairs is impossible, and could assert as a self-evident truth that any existent must have some positive original quality beside existence *or* stand in some positive original relation. Some people would perhaps go further and say that it is self-evident that any existent must have some positive original quality beside existence. What precisely is the alternative which they wish to exclude by this assertion? Suppose, if possible, that x is a particular with no original quality except existence. With regard to *any* particular it seems logically possible that there should have been *this* particular even though there had been no other except this and its parts, if it has any. If then x were a particular with no original qualities except existence, it would be logically possible that there should have been no facts about x except the fact that it is an existent and facts about its relations to its own parts if it has any. Presumably those who assert that every particular must have some positive original quality beside existence mean to deny that it is logically possible for there to be a particular about which the *only* facts would be that it is an existent and that it stands in certain relations to its own parts. Now that the case has been clearly put to him the reader must be left to decide for himself whether this is logically possible or not.

1. Substance.

Although the name "substance" has not yet been used, we have in fact been talking about "substances" in McTaggart's sense of the word. The name is explicitly introduced in

Chap. VI of the *Nature of Existence*, and that chapter is devoted to an explanation of his usage of the term. I will begin by expounding McTaggart's account of Substance, and will then make some further remarks of my own.

1·1. *McTaggart's Notion of Substance.* In § 67, p. 68, of the *Nature of Existence*, a "substance" is defined or described as something which is existent, which has qualities and is related, and is not itself either a quality or a relation. It will be noticed that the description contains negative characteristics. The description is plainly inadequate for McTaggart's purposes, since it would make facts substances; for facts have characteristics. For example, a fact is necessary or contingent, and one fact may entail another fact. And, on McTaggart's view, all facts would be existents, since they are indirectly or directly about existents. Now he certainly does not mean to include facts among substances, and so we must certainly add at the end of his description of "substance" the further alternative "or a fact".

McTaggart says that his is the traditional definition of "substance". It seems to me quite certain that he is mistaken on this point. As he remarks later, a sneeze or a flash of lightning, or a group whose members are a certain sneeze and a certain flash, would all count as substances on his definition. Now it is certainly extremely paradoxical to call such entities as these "substances"; so it seems most unlikely that people can have meant by "substance" what McTaggart describes, though they might find it hard to say precisely what else they did mean. I think that McTaggart's definition would be accepted as a satisfactory description of a "particular", and I propose to substitute the latter word for McTaggart's word "substance" except when I give due warning to the contrary. We must remember that the description is not strictly a definition of "particularity"; the notion of being a particular is, no doubt, as indefinable as that of being a characteristic. The two are correlatives, and each can be described only by reference to the other. We must also remember that there may be fundamentally different kinds of particular, e.g., "substances", in the ordinary sense, whatever that may be, and events.

In §§ 65–7 McTaggart tries to prove that there are particulars. It will be remembered that he has professed to show that there are existents. It therefore remains to show that not all existents could be characteristics or facts. The essential point in his argument is that the existence of qualities, of relations, and of facts is derivative. A quality has existence only by qualifying, either positively or negatively, some existent. A relation has existence only by relating terms which are existents. And, we might add, a fact is existent only by being a fact about some existent. Now it is impossible that the existence of anything should be derived, in this way, from the existence of something else whose existence in turn is derived in this way from that of something else, and so on without end. Therefore, if there be any existents, there must be some which are neither qualities nor relations nor facts. Now there are existents. Therefore there must be particulars. (McTaggart, of course, does not himself consider the case of facts. But it does seem quite clear that there must be some facts which are not themselves about facts, and so the omission is not serious.) This argument seems to me conclusive.

McTaggart then considers, and tries to refute, an alternative view, viz., that what is called a "substance" is really a highly complex quality. I am pretty certain that those who have professed to hold this and similar views have done so through a confusion between determinate qualities and *occurrents*, which are the manifestations of determinate qualities throughout periods of time, e.g., between a certain perfectly determinate quality of squeakiness, which may be manifested on many different occasions, and a particular squeaking, which is the manifestation of this squeakiness at a certain place and throughout a certain five minutes. What they really held may be most accurately expressed as follows. For any statement in which the name of a "thing" or "substance" in the ordinary sense occurs one can always substitute a statement in which no such name occurs. The substituted statement will be about occurrents and their relations, and it will express all that is true in what was expressed by the former. (Of course we must not expect that the grammatical

predicate of the old statement will appear unmodified in the new one; if the subject is changed in the way suggested whilst the predicate is left as it was, we shall merely get nonsense, such as "I opened that series of actual and possible sensations which I call *my umbrella*".) Now occurrents are particulars, and therefore "substances" in McTaggart's sense, though not "things" or "substances" in the ordinary sense. And so the theory which these people were trying to state, unless I have been unduly charitable to them and they really *meant* the nonsense which they *talked* about "the characteristics of particulars being particular", does involve the existence of "substances" in McTaggart's sense. But they confused occurrents, which are particulars, with determinate qualities, which are universals, and so stated their theory in the plainly nonsensical form which McTaggart takes literally and tries to refute.

The theory, as McTaggart interprets it, is quite certainly false. But his refutation in § 66 is not really conclusive, and it could be met by a more careful statement of the position. The argument comes to this. Take the fact that Smith is happy and virtuous. If the theory under discussion be true, Smith is a highly complex quality of which happiness is one constituent and virtue another. What then does happiness qualify? It is equally nonsensical to say that happiness is happy, that virtue (or any other component in this complex quality) is happy, or that the complex quality taken as a unit is happy. Yet it is not nonsense to say that Smith is happy.

McTaggart is able to use this argument because he forgets, or refuses to acknowledge, that, when a new meaning is proposed for the subject of a sentence, the assertor cannot fairly be expected to retain precisely the same meaning as before for the copula and the predicate. It is as if a certain note in a tune had been altered in key, and one insisted that all the rest should be kept as before and then complained of a discord. The supporters of the theory under discussion could have answered McTaggart as follows: "Our theory is that the sentence *Smith is happy* can be replaced without loss or gain

of meaning by the sentence *There is a certain complex quality, which includes as a component the quality of evoking the use of the name 'Smith' in certain men, and this complex quality contains as a component the quality of happiness.* You have no right to insist that we shall interpret the copula in a way which is appropriate only to *your* interpretation of the subject and shall combine the unmodified copula with *our* modification in the interpretation of the subject". No doubt the theory is false, even when thus stated; but McTaggart's objection in § 66 is not valid, for the reason just given.

In §§ 68–70 McTaggart considers, and tries to refute, certain objections to the notion of Particulars. The objections are, I think, all variations on Locke's theme of a substance being "a something, I know not what". It is said, quite truly, that no idea corresponds to the phrase "particular not characterised by any characteristics". It is concluded that no idea corresponds to the word "particular" itself. This plainly does not follow, and it is not in fact true. When I say of something that it is a particular I mean that it has the formal characteristics of having qualities, of standing in relations, of being an existent, and of not being a quality or a relation or a fact. All this is perfectly intelligible. And it is not rendered unintelligible by my knowledge that anything which had these formal characteristics would necessarily also have some non-formal characteristics. McTaggart rightly points out that a precisely similar argument might have been used to prove that no idea corresponds to the phrase "existent characteristic". For it could truly be said that no idea corresponds to the phrase "existent characteristic not qualifying directly or indirectly some particular". And from this anyone who accepts the first argument ought to conclude that no idea corresponds to the phrase "existent characteristic". A consistent user of the argument against particulars would therefore be left with the doctrine that the word "particular" and the phrase "existent characteristic" are equally meaningless. I am not clear that this would worry such a person so much as McTaggart evidently thought that it should. He might admit the conclusion, and propose some entirely different analysis of

the facts which McTaggart analyses in terms of particulars and existent characteristics.

Much later in the book, in § 92, McTaggart suggests three causes which may have led people who never doubted that there are characteristics to feel doubtful whether there are particulars. (i) It has often been thought that what we are acquainted with in sensation is sense-*qualities*, e.g., determinate shades of redness, determinate forms of squeakiness, and so on, and not particulars. And so sensation was not recognised to be indubitable evidence for there being particulars, whilst it was thought to be indubitable evidence for there being characteristics. Such a view of sensation is plainly mistaken. What I sense is not redness or squeakiness, but some particular which manifests redness or squeakiness to me. McTaggart thinks that the mistake arose because we are not much interested in sensa, as such, but only in their qualities as signs of the presence of such and such physical objects. I do not see that this can suffice to explain the origin of the mistake. For the very reason which is alleged to have made people concentrate on the *characteristics* of sensa and ignore their particularity would surely force them to attend to the *particularity* of the things of which the sensa are believed to be signs. (ii) Every particular has characteristics, but there are some characteristics which belong, not to any particular, but only to other characteristics. (iii) We know a great deal about certain characteristics, e.g., perfect straightness or circularity, without knowing whether any particular is characterised by them. But all that we can ever know about any particular is that it has such and such characteristics. The two facts last mentioned have made characteristics seem less dependent on particulars than particulars are on characteristics. This may have led to the belief or the hope that particulars might be dispensed with and that their work might be done by bundles of characteristics. Whether the belief arose in this way or not, it is certainly mistaken.

In § 69 McTaggart deals with an argument of Prof. Stout's, which now appears on pp. 255–6 of the latter's *Studies in Philosophy and Psychology*. "What", asks Prof. Stout, "is

the subject itself as distinguished from the attributes? It would seem that its whole being must consist in being that to which its attributes belong. But how can the whole being of anything consist in its being related to something else? There must be an answer to the question: What is it that is so related?" Prof. Stout uses this rhetorical question to lead up to the doctrine that a subject is a complex whole composed of attributes interrelated in a peculiar way, a doctrine which he developes more fully in the essay on *The Nature of Universals and Propositions* which comes at the end of the *Studies* and was first published in 1921 after Vol. I of the *Nature of Existence* was completed.

McTaggart's answer is as follows. Suppose that Smith is happy and virtuous. Then it is true that there will be the relational fact that Smith is characterised by happiness, and there will be the relational fact that Smith is characterised by virtue. But these relational facts are not ultimate. They are derived respectively from the non-relational fact that Smith is happy and the non-relational fact that Smith is virtuous. If you insist that "Smith is happy" is just a loose phrase for what would be more accurately expressed by "Smith is characterised by happiness", you cannot consistently stop at that point. There is just as much or as little reason to insist that "Smith is characterised by happiness" is a loose phrase for what would be more accurately expressed by "Smith is referent, and happiness is relatum, to the relation of *being characterised by*". And, once started on this course, there is no place at which one can consistently stop. We must then admit that there are non-relational facts as well as relational facts about Smith. So, when Stout asks us: "*What* is it that stands to happiness, virtue, etc., in the relation of being characterised by them?", we can answer: "A happy, virtuous, human particular".

I do not know whether Prof. Stout would accept this answer, for I cannot understand what precisely he means by his question. If the question means: "Under what *category* does that which has qualities and stands in relations fall?", the answer is that it falls under the category of Particularity.

If the question means: "What *kind of thing* is that which has these qualities and stands in these relations?", the answer consists in mentioning certain of its fundamental properties, which either logically entail the rest or are, in the actual world, trustworthy signs of the presence of the rest. This is what we do, in answer to the question "What is that?", when we say "That is a circle" or "That is a bit of gold" or "That is a horse". If the question be interpreted in either of these two ways, there seems to be no difficulty in answering it. If it be interpreted in neither way, I must confess that I do not know what it means, and I do not believe that it could be answered in terms of any theory.

I think it is clear from Prof. Stout's essay on *The Nature of Universals and Propositions* that he and McTaggart are largely at cross purposes in this controversy. There are two sources of misunderstanding. In the first place, there is McTaggart's extremely wide use of the word "substance". As he remarks in § 72 of the *Nature of Existence*, on his definition, an event, such as a sneeze, will count as a substance. So will a whist party, or the group whose members are all red-haired archdeacons. He admits that most people would refuse to call these "substances"; but he claims that other people really mean by "substance" what he means by it and that they refuse the name to events and to groups of particulars only through inconsistency. It is very important to notice that McTaggart is really making a factual assumption here, which he never examines and which has far-reaching consequences for his system. He assumes without question that there is no fundamental distinction between what are called "occurrents" and what are called "continuants". Now most people believe, rightly or wrongly, that there is a fundamental distinction. They would be prepared to call them both "particulars" or "existent substan*tives*", but they would confine the name "sub*stances*" to continuants. That is why I use the word "particular" where McTaggart uses the word "substance". His word "substance" covers particulars, whether they be occurrents or continuants, and groups or aggregates of particulars. It is a most extraordinary fact that McTaggart never

discussed the common opinion that there are at least two fundamentally different kinds of particulars, viz., occurrents and continuants, and assumed, without any kind of argument, that it is a baseless prejudice.

Now Prof. Stout regards the distinction as fundamental. He would refuse to call an event, such as a sneeze, a "substance". When he discusses the nature of "substance" he is discussing the nature of continuants. Stated accurately, his problem may be put as follows: "What is the right analysis of the facts which are expressed by sentences in which a continuant-name appears as subject, such as *Smith is happy?*" The analysis which he rejects, and which he assumes that McTaggart accepts, is that the continuant-name designates or describes a *single* particular existent of an unique kind which is qualified by a *number* of universals, such as happiness, virtue, humanity, etc.

Prof. Stout's own alternative is not easy to state clearly for the following reason. Just as McTaggart, believing there to be no fundamental distinction between occurrents and continuants, has provided no names for these two ostensibly different kinds of particular, so Prof. Stout, holding a peculiar theory of his own about universals, has not provided any means of expressing the ostensible distinction between an occurrent, such as a red flash, and the perfectly determinate quality—a certain shade of redness—of which this occurrent is a manifestation.

In terms of the distinctions for which we have now provided names we can state Prof. Stout's theory as follows: (i) There are occurrents, and each occurrent is a particular existent and therefore a "substance" in McTaggart's sense, though not in Stout's. (ii) In ordinary language each occurrent would be said to be a manifestation, throughout a period of time, of a single perfectly determinate quality. (iii) Such language suggests that every occurrent is a complex, consisting of a *Hoc*, which is a particular, and a perfectly determinate *Quale*, of which this *Hoc* is a manifestation and of which an indefinite number of other *Haec* might also be manifestations. This is a mistake. There is no such internal complexity in an occurrent,

and there are no universal perfectly determinate *Qualia* in each of which a plurality of *Haec* can participate. The fundamental fact is that each occurrent has to certain other occurrents an ultimate relation of exact qualitative likeness; the mistake is to attempt to analyse this fact into the participation of a number of *Haec* in a single common *Quale*. This is a view which McTaggart, as we have seen, rejected with very little discussion. I do not know of any conclusive reason either for or against it. (iv) A substance, in Stout's sense, i.e., a continuant, is a group of dissimilar occurrents, i.e., of substances in McTaggart's sense, interrelated in an unique way. On the rejected theory a continuant is a single *Hoc* inhered in by many different *Qualia*, each of which is capable of inhering in many different *Haec*. On Stout's theory a continuant is a set of peculiarly interrelated *Haec*, each of which is unlike all the other members of the set and is exactly like other *Haec* which are not members of the set.

The upshot of the discussion is that the essential differences between McTaggart and Stout reduce to the two following: (i) McTaggart accepted universal perfectly determinate qualities, and regarded exact likeness between two particulars as dependent on, or analysable into, the inherence in both of a common quality. Stout rejects this view. (ii) McTaggart saw no objection to one and the same particular being inhered in by a number of different qualities. Stout would apparently object to this even if he thought that there were universal determinate qualities. As regards the second point there are two remarks to be made. (*a*) Stout's theory assumes that there are universals, though it denies that there are any universal determinate *qualities*. For, presumably, it is one and the same relation of exact likeness which relates many different pairs of occurrents. And, presumably, the many different continuants are so many different sets, each consisting of a number of dissimilar occurrents interrelated by the same peculiar relation. Now it is difficult to see what objection there could be to a common quality inhering in each of a number of particulars which would not apply equally to a common relation interrelating the members of each of a

number of different sets of particulars. (*b*) Even on Stout's theory there must be something analogous to the co-inherence of several qualities in a single particular. For consider the sensa which are sensed when two flashes of lightning are seen. They may be exactly alike in colour and dissimilar in outline, or exactly alike in outline and dissimilar in colour, or exactly alike in both respects, or dissimilar in both respects. No one would suggest that, for this reason, each such sensum must be a complex whole composed of two peculiarly interrelated particulars, one of which is susceptible of shape-comparison but not of colour-comparison, and the other of colour-comparison but not of shape-comparison. We should say that there is a single sensum which is like a certain other in one respect and unlike this other in another respect. If it has to be granted in any case that one and the same particular can be the common term of different kinds of likeness and unlikeness to other particulars, it is difficult to see any obvious absurdity in the supposition that one and the same particular might be inhered in by several different qualities.

Before leaving this topic there is one other remark that seems worth making. As we shall see later, McTaggart held that every particular is divided into parts within parts without end. He therefore must have held that *every* particular is a set of interrelated particulars. We have seen that Stout holds that every *continuant* is a set of peculiarly interrelated occurrents, and that occurrents are particulars. Now, as we have said, McTaggart never discussed the division of particulars into occurrents and continuants. We therefore do not know what he supposed to be the ground on which this distinction is based. But it seems quite possible that, if he had considered the matter, he would have agreed with Stout that what is called a "continuant" is a group of particulars, none of which would be called "continuants", interrelated in a characteristic way. It is in fact difficult to see what other view he could have taken. Thus it is quite possible that, on this point at least, there is no essential difference of opinion between the two philosophers.

*1·2. *Independent Discussion of the Notion of Substance.* It

will be evident from the above critical account of McTaggart's doctrine of Substance that its main defect is the complete lack of any attempt to discuss the common division of particulars into continuants or "things" and occurrents or "events" or "states". Even if one regards this distinction as not ultimately valid, it is so deeply rooted in our language and our thought that no one is justified in ignoring it. If it is mistaken, it is the business of any philosopher who makes great use of the notion of Substance to indicate the facts which led to the mistake being so commonly made. A secondary defect is that the status of Facts is left uncertain. I have the impression that the notion of Facts was an afterthought in McTaggart's mind, and that he never got quite clear about them or their position in his system. In Chap. IV of this work (p. 57) I have quoted passages from Chap. II of the *Nature of Existence* which show clearly that he sometimes gave, as examples of *facts*, entities which he elsewhere regards as *events* and therefore, in his sense, substances.

I propose therefore to say a little on this topic, though its difficulty is so great that I do not expect to say anything of much value. I shall begin by considering a certain distinction which we all do in fact make, whatever may be the right analysis of it.

*1·21. *Processes and Things.* There are certain predicate-phrases, such as "going-on", "taking place", "happening", etc., which it seems appropriate to conjoin with certain kinds of substantive names and phrases, and quite inappropriate to conjoin with certain others. It is sensible to say: "There is a noise going on" or "There is a movement taking place". It would be nonsensical to say: "There is a chair going on in my bedroom" or "There are several books taking place in my study". There is then, *prima facie*, a distinction between two sorts of substantive, which we will call "Processes" and "Things" respectively. A noise or a movement seems a clear instance of a process, and a chair or a self seems a clear instance of a thing.

It is obvious that Things are substances in McTaggart's sense; and it is fairly easy to see that processes are so too.

Processes have characteristics. A noise may be loud, continuous, "buzzy", and so on. A movement may be slow, jerky, rectilinear, and so on. Processes can have temporal relations to each other; e.g., a certain buzzing may partially overlap in time a certain hissing, and one buzzing may be louder than another, and so on. Also it seems quite plain that processes *are* not characteristics. Is it possible to hold that they are facts? It seems to me that this is not possible. There are certain predicates which can be applied to processes and cannot properly be applied to facts. We can say of a certain process that it is loud and "buzzy"; we can say of a certain other process that it is soft and "tinkly"; and we can say of the two that they go on simultaneously. But surely it would be nonsense to talk of a loud or a soft or a "buzzy" or a "tinkly" *fact*, or to speak of two facts as "going on simultaneously". Facts do not "go on" nor are they simultaneous, though there is the fact that processes go on and there is the fact that some processes go on simultaneously. It would appear then that Processes answer to McTaggart's description of "substances" and to our description of "particulars".

It will be noticed that our clear instances of Things have been either physical objects, like chairs and books, or minds. Our clear instances of Processes include both physical processes, like the movement of a golf-ball, and sensible processes, like a noise. Now there are particulars which are not *clearly* instances of either Things or Processes. What are we to say, for example, about a visual image or a visual sensum? We should hesitate to call it a thing, and we should hesitate to call it a process; though we should not hesitate to call a movement of a visual sensum in a visual field a process. For the present I am going to set aside these ambiguous particulars, and to concentrate attention on the clear instances of things and of processes.

We talk of processes "starting", "going on", and "stopping". I have made the applicability of such predicates the distinguishing mark of processes. But do we never apply them in the same sense to things? We say: "A buzzing started, went on for some time, and then stopped". Now I can, of

course, quite properly say of a train that it started, went on, and stopped. But here I plainly mean that a *movement* of the train started, that it went on for some time, and that it then stopped and was succeeded by a resting of the train which went on for some time. It is plain that here "starting", "going on", and "stopping", as applied to a thing, are derived from these notions as applied to a certain kind of process, viz., a movement.

There is, however, another sense in which we might apply these predicates to things. We might say that a chair "started" when its construction was completed, that it "went on" for some years, until finally it "stopped" when it was broken up. The more natural phrases to use here would be "started to exist", "went on existing", and "stopped existing". It seems to me that a more accurate expression for these facts would be that a certain set of things, none of which were chairs, started to be a chair, went on being a chair, and eventually stopped being a chair. The set started to be a chair when its members in the course of their movements got into certain spatial and dynamical relations to each other; it went on being a chair so long as they went on resting in these relations; and it stopped being a chair when they started moving out of these mutual relations. Thus the starting, going on, and stopping of things which are recognised to be compounds seems to be analysable in terms of the starting, going on, and stopping of certain processes in other things, viz., their elements, which existed before, and will go on existing after, standing in those special mutual relations which are characteristic of the internal structure of the compound. It seems to me doubtful whether there is any other meaning that one can attach to the coming-to-be and the passing-away of Things. And so, if there be any things which are not compounds composed of other things suitably interrelated, I do not clearly understand what would be meant by saying that they come to be or that they pass away.

It will be remembered that Kant, in criticising the Scholastic argument from the simplicity of the soul to its immortality, said that it might cease to exist by "elanguescence", as a

sound dies away without "coming to bits". Now this objection might be interpreted in two different ways. (i) It might mean "Even though the soul be a simple thing, yet it might nevertheless pass away by elanguescence as a sound does". Or (ii) it might mean "It is possible that the soul is not a thing but a very complex process, and in that case it might pass away by elanguescence as a sound does". If interpreted in the first way, Kant's argument seems to me to be plainly invalid; it is meaningless to apply the predicate "passing away by elanguescence" to a subject which is not a process but a thing. On the second interpretation, the argument may be valid; but, in so far as it is directed against the Scholastics, it is an *ignoratio elenchi*, since they would not have admitted for an instant that the soul might be a process and not a thing.

There is one further remark which may be worth making at this point. It has sometimes been said that, if there were anything in the Scholastic argument, it would prove the pre-existence as well as the post-existence of the soul. The truth of the matter seems to me to be the following. If a soul be a simple thing, then neither its coming to be (if it does come to be) nor its passing away (if it does pass away) is intelligible to us. But I may have good reason to believe that there is a fact corresponding to a certain statement S which is unintelligible to me, and I may have good reason to believe that there is no fact corresponding to another statement S' which is equally unintelligible to me and is of the same general form as S. There might, for example, be two formulae in a treatise on the Theory of Numbers, which were both equally unintelligible to Prof. Littlewood's bedmaker, and which never could be made intelligible to her. Yet, if Prof. Littlewood pointed to the first, and said "That is a true statement about certain numbers", and then pointed to the second and said "That is a false statement about the same numbers", his bedmaker would have very good reason to believe that there is a fact about numbers corresponding to the first and that there is no such fact corresponding to the second. Now let us substitute in this parable God for Prof. Littlewood; any human being, however intelligent, for his bedmaker; and the two statements

"The soul comes to be at the time when the body is conceived" and "The soul ceases to be at the time when the body dies" for the two formulae. The Scholastics would say that God has told us, or that we can infer from other things which God has told us, that there is a fact which concords with the first unintelligible statement, and that there is a fact which discords with the second unintelligible statement. This is, so far as I can see, a perfectly consistent position, whether it be in fact true or not.

The next point to notice is that certain temporal phrases can be properly adjoined with names of things, but cannot properly be conjoined with names of processes; and conversely. We can say of a Thing that it has "age"; we cannot say that it has "temporal extension". On the other hand, we can predicate temporal extension of a Process, but cannot talk of its age. We talk of an "old" building, and we speak of it as "ageing" or "getting older". But we cannot talk of the history of a building as being old or getting older. We can, however, talk of the history of a building as being "long" and as "getting longer". We certainly could not speak of a building as "being long" or "getting longer" except in the obviously different spatial sense. We do indeed sometimes talk of "ancient history" as well as of "ancient buildings". But we mean by the former phrase processes which came to an end long ago, and we do not mean this by the second phrase. In the first phrase we could substitute "remote" for "ancient", but we certainly could not do so in the second. To put the distinction in general terms, we talk of Things as "enduring" or "persisting *through*" a period of time. We talk of Processes as "going on *for*" longer or shorter periods of time.

It is important to notice the above distinction. Yet it is equally important to notice the following linguistic fact. The two sentences "This thing is old" and "The history of this thing is long" seem to be two different ways of expressing precisely the same fact. Similarly the two sentences "This thing is getting older" and "The history of this thing is getting longer" seem to be two different ways of expressing a single fact.

Closely connected with the above distinction is a distinction with respect to temporal parts. Any process can properly be said to have successive temporal parts. These are shorter processes which together make up the longer process by adjunction, as shorter lines put end to end make up a longer line. Such temporal parts are called "successive total phases". We could say that the process of underpinning St Paul's Cathedral is a part of, or a phase in, the *history of* St Paul's. We could say that the dome is a part of, but not a phase in, *St Paul's*. We cannot say that the process of underpinning is a part of the cathedral; and we cannot say that the dome is a part of, or a phase in, the history of the cathedral; though the history of the dome is, no doubt, in some sense a part of the history of the cathedral.

Processes have certain characteristics which depend on the fact that they have temporal extension and are divisible into successive adjoined total phases. We can say of a process, e.g., a noise or a movement, that it is "steady" or that it is "fluctuating". If it is fluctuating, we can say that it varies "suddenly" or "continuously", that it varies "periodically" or "non-periodically", and so on. It is evident that these characteristics of a longer process depend on the characteristics of the successive shorter phases which together make it up. Such adjectives as these cannot be conjoined with the names of Things. Nevertheless, the two sentences "There is a periodically fluctuating movement going on" and "Something is moving periodically", seem to be just two different ways of expressing the same fact.

The next point to be considered is this. A man who is sitting in a room with me may say "I hear a buzzing noise". Then, after an interval, he may say "I don't hear that buzzing any longer". And then, after another interval, he may say "Now I hear that same buzzing noise again". He may also say "That chair which I see to-day is the same which I saw yesterday, but it is now in a different place". Now, as regards the first series of statements, I think that anyone would, on reflexion, accept the following as an equivalent and more accurate way of expressing his meaning. "There *was* a noise

which I *did* hear a short time ago. *That* is no longer going on, and I am no longer hearing it. There *is* a noise which I *am* hearing. *This* was not going on, and I was not yet hearing it, when that was going on and I was hearing that. But that and this are specially closely related, either directly or indirectly, so that they may be regarded as successive, though not adjoined, phases in a single process." But no one, without a great deal of argument, would admit that any statement of this kind expresses what he meant by his statement about the chair. What any ordinary man believes is that in this case one and the same particular has persisted through a period of time, has been seen by him on two successive and separated occasions, and has been in one place on one occasion and in another place on the second occasion. There is for him no question of *This* and *That* in the present case. "*This*, which I saw yesterday and now see *again*, was there and is now here" expresses the plain man's view of the situation.

Closely connected with the distinction just mentioned there is another distinction between Things and Processes. There are certain kinds of adjective which may be called "dispositional adjectives". Obvious examples are words like "poisonous", "fusible", "massive", etc. These are properly conjoined with thing-names and not with process-names. We speak of a bit of arsenic as "poisonous", of a bit of wax as "fusible", of a bit of gold as "massive", and so on. Many adjectives are ambiguous in this respect. I should say of a pillar-box that it is "red". If I came to distinguish between the pillar-box and the visual sensibile which I sense when I look at a pillar-box, I should say that the sensibile is "red" too. As applied to the pillar-box the word "red" is a dispositional adjective; as applied to the visual sensibile it is non-dispositional. By saying that the pillar-box is red I mean *at least* that, if any normal observer were to look at it in daylight, it would look red to him. And I *might* mean no more than this. By saying that the visual sensibile is red I mean something which could not possibly be expressed by a conditional sentence. A man *may* believe that the pillar-box is red in the non-dispositional sense also. Most men do not explicitly dis-

tinguish between visual sensibilia and the surfaces of physical objects; and, since it is quite clear that, when one is looking at a pillar-box, one is acquainted with *something* that is red in the non-dispositional sense, it is natural to ascribe non-dispositional redness to the pillar-box itself. I think that, if we tried to express for them the view which plain men cannot express clearly for themselves, it would be somewhat as follows. "The pillar-box *is* red in the non-dispositional sense, and that is why it *would look* red to any normal observer who viewed it in daylight; i.e., its non-dispositional redness is the *ground* of its dispositional redness." However this may be, the facts are as follows. We must distinguish between the visual sensibile which I sense when I look at a pillar-box and the surface of the pillar-box. And, when the distinction has been made, we see that it is almost certain that the pillar-box is red in the dispositional sense, that it is highly doubtful whether it is red in the non-dispositional sense, that it is quite certain that the sensibile is red in the non-dispositional sense, and that it is nonsensical to say that the sensibile is red in the dispositional sense. Almost every adjective which we are justified in ascribing with any confidence to a physical thing is either explicitly dispositional or is an ambiguous adjective used in its dispositional sense.

Now whenever we conjoin a dispositional adjective to a substantive we are expressing in a categorical form a hypothetical proposition of the following kind. "If this were in a certain state, and were in certain relations to certain other things of certain specified kinds, then certain events of a specific kind would happen either in it or in one of these other things." Now such a statement implies at least that "This" is the name of something which may be in various states, and may stand in various relations to other things, at various times. It implies more even than this. It implies that this, which in fact was in a certain state and stood in certain relations to certain things at a certain time, *might instead* have been in a different state or stood in different relations to the same or different things *at that time*, and *would* then have behaved in a certain specifically different way from that in

which it in fact did behave then. I admit the extreme difficulty of analysing the *meaning* of such statements as these, and of knowing whether any of them could possibly be *true*. But it is a fact that such sentences are constantly being spoken and written in daily life, and that their grammatical subjects are always thing-names and not process-names.

The contents of this sub-section may now be summed up as follows. In Indo-European languages, at any rate, there are at least two kinds of substantive-name, viz., thing-names and process-names. There are several different kinds of adjective-phrase which can be conjoined with thing-names to give intelligible sentences. If any of these be conjoined with process-names the result is nonsense. Similarly, there are several kinds of adjective-phrase which can be conjoined with process-names to give intelligible sentences. If any of these be conjoined with thing-names the result is nonsense. This linguistic fact may suggest that there are two fundamentally different, though no doubt closely interconnected, kinds of particulars. It certainly makes it incumbent on any philosopher, such as McTaggart, who thinks otherwise, to go very carefully into the question and to give very good reasons for regarding the *prima facie* distinction as mistaken. On the other hand, we must not take the linguistic distinctions in the only group of languages with which most of us happen to be familiar too seriously. We have seen that, in some cases at least, two sentences, one with a thing-name and the other with a process-phrase as grammatical subject, seem to be simply two different ways of expressing precisely the same fact. (Cf., e.g., "This is old and is getting older" and "The history of this is long and is getting longer".) It is conceivable then that we are concerned here with something analogous to the fact that precisely the same geometrical relation, e.g., that of collinearity, may be expressed either in Cartesian or in Polar Co-ordinates, and will look extremely different in the two modes of expression.

Perhaps I may use the above analogy as a defence against a critic who might say that it is futile to approach metaphysical subjects by way of language and grammar. One

might just as well say that it is futile to approach geometrical and physical problems by way of co-ordinates. *Some* system of co-ordinates *must* be used. And the geometrical and physical facts which are independent of co-ordinates will emerge as a certain community of form between different expressions of the same fact in different systems of co-ordinates.

*1·22. *Can either Things or Processes be dispensed with?* In the first place, what exactly does this question mean? Suppose it were found that sentences which contain thing-names could all be replaced, without loss or gain of meaning, by sentences which contain process-names and do not contain thing-names. Then we could say that Things can be dispensed with in favour of Processes. Suppose, on the other hand, that the exact opposite of this were true. Then we could say that Processes can be dispensed with in favour of Things. A third possibility is the following. It might be that sentences containing thing-names and sentences containing process-names could *both* be replaced, without loss or gain of meaning, by sentences containing *neither* thing-names nor process-names but a certain other kind of name. We could then say that both Things and Processes can be dispensed with in favour of a certain third kind of entity.

Now many people have held that it is self-evident that any process, whether of "change" or of "quiescence", must be a "state of" or a "process in" a thing. If so, it would seem clear that things cannot be dispensed with in favour of processes. Some people have gone a step further. They have said that the statement that a certain process is going on in a certain thing can be replaced, without loss or gain of meaning, by the statement that this thing is the common subject of a certain set of *facts* of a peculiar kind. The facts are of the form: "x has the characteristic c_1 at t_1, x has the characteristic c_2 at t_2, ... x has the characteristic c_n at t_n". Here c_1 ... c_n are determinates under a certain determinable C, and each of these facts except the first and last contains as a constituent one and only one of the moments between t_1 and t_n. It may happen that c_1 ... c_n are all identical. We should then say that x has been in a

state of quiescence with regard to C throughout the interval between t_1 and t_n. Otherwise we should say that x has been in a state of change with respect to C throughout this interval.

Is it really obvious that every process must be a state of, or a process in, some thing? Consider the two statements: "There is a noise going on" and "There is a movement taking place". There is one kind of question which we can reasonably ask about both, viz., "What kind of noise?" or "What kind of movement?". But, in the second case, it seems plain that we can raise the further question "*What* is moving?" The answer might be "This golf-ball" or "This wave" or "This shadow" or "This coloured patch in my visual field". (I have purposely introduced this particular selection of answers in order to show that, in some cases, what would be said to be "moving" is something that would not commonly be said to be a "thing".) Now can this kind of question be raised in connexion with *every* process, or only in connexion with some? In particular can it be raised in connexion with a buzzing or a hissing?

When I am told that there is a buzzing going on I can, of course, ask "What is buzzing?" This is verbally similar to the question "What is moving?" The answer that I should expect to get would be "A bee" or "A gnat", or something of that kind. Some physical object would be mentioned in which a physical process, such as the rapid rhythmic movement of wings, is supposed to be going on and causing the "buzzy" process. This shows that the question means "In what physical thing is the process going on which is responsible for the noise which I am hearing?" But that is not in the least what I mean when I ask "What is moving?", and am told "It is a certain coloured patch in a visual field" or "It is a golf-ball". Here I am not asking about what is *responsible for* the movement, but what is the *subject of* the movement. The question is whether I can reasonably raise the question "What is the subject of this buzzing?", when it is clearly understood that by "this buzzing" I am referring to an auditory process which is "buzzy" and not to a physical process of rhythmic movement.

In order to put the case quite fairly we ought to compare statements of the same level of determinateness. We ought to compare "There is a noise going on" with "There is a movement going on", or to compare "There is a buzzing going on" with "There is a circling going on". Granted that the two statements about movements are to be interpreted to mean respectively "Something is moving" and "Something is moving in a circular way", what are we to say of the two statements about noises? Those who hold it to be self-evident that every process is a state of some thing must, presumably, be prepared to say that the two statements about noises are to be interpreted to mean respectively "Something is *noising*" and "Something is *noising* in a buzzy way". It will be noticed at once that this analysis is so far-fetched that I have had to invent the word "noising" in order to express it. Of course we have the word "sounding"; but this plainly would not have served our purpose, for it is bells, trumpets, and other sonorous physical objects which are said to "sound".

The next point to notice is this. When we ask "What is moving?" we know what kind of answer to expect. We shall be told "It is a golf-ball" or "It is a wave" or "It is a red circular patch in my visual sense-field", or something of that kind. A physical thing or process, or a visual sensibile, will be indicated or described to us in answer to our question. But what kind of answer would one expect to the question "What is *noising*?", if one could bring oneself to ask it? I have not the faintest idea.

No doubt many people believe, or think they believe, that noises are, in some sense, "mental". But even they, when told that a buzzing was going on, would hardly be prepared to say "Some mind is buzzing; or, to speak more accurately, some mind is *noising* buzzily". The mentalist's difficulty here forces on our attention a distinction which I have not yet explicitly drawn. I stated the theory, which we are at present examining, in the form that every process is a "state of" or a "process in" some thing. We have seen that, if "P is a state of T" means "T is the subject of the process P", it is far from

obvious that noises are states of anything, and most difficult to conceive what they could be states of. It might be suggested at this point that P can be a *process in* T without being a state of T, though P cannot be a state of T without being a process in T. The mentalist might then say that a buzzing is necessarily a process in a mind, though a mind is never the subject of such a process. Either noises are not states of anything, or else they are states of things which are not minds but are certain parts of minds. It is not, perhaps, ridiculous to suggest that a mind might have certain parts which are subjects of processes such as buzzing, hissing, etc.

This expedient might help the mentalist, but we are not specially interested in him and his troubles. It does nothing to help the theory which we are discussing. For the question now becomes: "Is it obvious that every process is a state of some thing; i.e., that every process has some thing for its subject in the sense in which, for example, a certain movement has a certain golf-ball for its subject?" And we are no nearer than before to seeing what, if anything, is the subject of a noise-process. Even if we accepted mentalism we could only say that, *if* those processes which are noises have subjects which are things, these things, though they are certainly not minds, must be in some sense mental.

At this stage it seems worth while to raise the following question. Granted that a noise is a process and that a movement is a process, how close is the analogy between the two? In the case of movement we can distinguish between (*a*) a state of resting, and (*b*) a state of moving. I can literally "see" a thing resting, and I can literally "see" it moving. Then among states of movement we can distinguish between those which are constant in direction and uniform in speed and those which are not. Among the latter we can distinguish those which are constant in direction and non-uniform in speed (accelerated rectilinear movements), those which are constant in speed and non-uniform in direction (e.g., uniform circular movements), and those which vary in both respects, and so on.

Now it might seem plausible to hold that the speed of a

movement is analogous to the intensity of a sound, and that the direction of a movement is analogous to the pitch of a sound. I do not know what would be analogous to the tone-quality of a sound unless it might be compared with the colour of a moving sense-object. If we accept these analogies, we must notice one profound difference between sounds and movements. We can literally "see" certain objects in a state of rest, i.e., of positional quiescence; they "look" characteristically different from similar objects in a state of motion, i.e., of positional change. When I "see something start to move" I see this object first in a state of positional quiescence and then in a state of positional change. Now there is no analogy to this in the case of noises. I do often have the kind of experience which I should describe by saying that "I hear a certain kind of noise start". But I certainly could not say that in such cases I first heard something in a state of auditory quiescence and then heard it in a state of auditory change. Rest seems to be a lower limit of motion, as speed decreases indefinitely, and both rest and motion can be "seen". The lower limit of noise, as intensity decreases indefinitely, is quiet; but, whilst noise can be "heard", quiet cannot be "heard".

Such facts as these seem to me to increase the difficulty of holding that, whenever a noise is going on, there is some thing which is "noising". We shall not only have to admit that we have no idea what sort of things are the subjects of this sort of process. We shall also have to admit that we have no idea of the characteristic in respect of which such things are changing when they become the subjects of such processes. The characteristic of spatial position is familiar to us because we see some things resting, others moving among them, and things which we have seen resting beginning to move. But, when a thing which is capable of "noising" is quiescent in respect of that characteristic which varies when such things "noise", it just ceases altogether to be an object of acquaintance to us.

The upshot of the discussion is that it is very far from clear that *every* process must have a subject which is a thing. There

are *some* processes, e.g., movements, with regard to which this principle is highly plausible; but there are others, e.g., noises, with regard to which it is not plausible at all. We must therefore be prepared to admit the possibility of what I will call "Absolute Processes".

If it is doubtful whether all processes are states of things, it is still more doubtful whether processes could be dispensed with in favour of things and certain sets of facts about things. The latter view can, however, be attacked more directly. Undoubtedly, whenever there is the fact that a thing is moving there is also a set of facts of the form: "x is at s_1 at t_1, x is at s_2 at t_2, ... x is at s_n at t_n". And whenever there is the fact that a thing is resting there is also a set of facts of the form: "x is at s at t_1, x is at s at t_2, ... x is at s at t_n". It is also true that for every different kind of movement, e.g., rectilinear or circular, uniform or accelerated, and so on, there will be a corresponding difference in such a set of facts about the occupation of positions at instants. But we must remember that a thing can quite literally be "seen" to rest and "seen" to move, just as it can be seen to be black or seen to be green. Again, a movement can quite literally be "seen" to be constant or variable in direction, in speed, and so on. Surely it is nonsensical to talk of "seeing" (in this quite literal sense) a set of *facts*, or of "seeing" such a set as having certain sensible characteristics. There is the movement of x, with its characteristic peculiarities, and there is the fact that x moved in a characteristic way. The latter can be "analysed", in one sense, into a *conjunction of facts* of the kind indicated above. The former can be "analysed", in another sense, into an *adjunction of phases*. Each kind of analysis is most intimately correlated with the other, but nothing that can be analysed in one of these ways can be analysed in the other of them. I conclude then that Processes cannot be dispensed with in favour of Things and Facts.

We can now pass to the opposite question. Can Things be dispensed with in favour of Processes? Let us begin with those processes which seem most unfavourable to the theory under discussion, viz., physical movements. Is it not obvious

that here at least there is never a movement without some thing that moves? To this one might answer that plain men and scientists do constantly use sentences of the form "x is moving", where "x" is seen on reflexion not to be the name of a thing. For everyone, except Prof. Prichard and some of his pupils, talks quite shamelessly of waves and of shadows as "moving"; and no one regards a wave or a shadow as a thing. Now we know that anything that Prof. Prichard maintains is likely to be important and worth very serious consideration. And we do not want to quarrel about words. I propose therefore to substitute the words "transmission of state" and "translation of stuff" for the word "movement" as applied respectively to a wave and to a golf-ball. I think that Prof. Prichard's doctrine could then be fairly stated as follows. "No doubt there is transmission of state, and people do often use sentences, which are of the appropriate form for expressing translation of stuff, to express transmission of state. But (*a*) there *is* translation of stuff as well as transmission of state. And (*b*) whenever there is transmission of state, that which is transmitted is a state of some thing."

Let us now return to the question of waves and their "motion". When a person says that a wave is moving in a certain direction and with a certain velocity what he means is the following. There is a track in some thing, e.g., in a pool of water. Each particle of water in this track is being translated to and fro about a fixed mean position in a certain characteristic period. And, if a particle which occupies a mean position x in this track has reached any point y in its vibratory course at any moment t, then the particle which occupies the mean position $x + \xi$ in this track will reach the corresponding point in *its* vibratory course at a moment $t + \xi/v$, where v is a constant which is characteristic of the process. Here it is quite obvious that transmission of state presupposes translation of stuff, for the essence of the business is that each particle is the subject of a to-and-fro movement of translation about a fixed mean position. Now there are certainly processes which appear to be *non-periodic* translations of things, e.g., the flight of a golf-ball from a tee to the next green. It would be

possible to hold that all such apparent instances of *non-periodic* translation of things are really instances of transmission of states, and that they are analogous to the "motion" of waves. But this would be of no philosophic interest if the states transmitted be all themselves instances of *periodic* translation of things. And, if one has to admit the occurrence of *periodic* translation of stuff, there is no reason why there should not be non-periodic translation of stuff, as there *prima facie* appears to be.

I should agree then with what I suppose that Prof. Prichard would assert, viz., that the existence and the success of "hydrodynamical" theories of the atom, such as Lord Kelvin's Vortex Theory, have no tendency to show that the notion of translation of stuff can be dispensed with. At most they would show that all those macroscopic processes which have commonly been regarded as translations of material particles are really transmissions of state. But the states transmitted would be states of periodic translation of the particles of some other kind of stuff, viz., the Ether, whatever that may be.

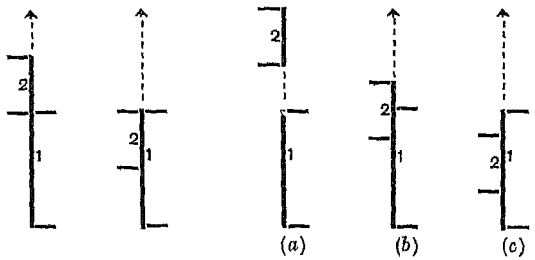
This, however, is by no means the end of the matter. In the first place, suppose one were to take the Newtonian theory of Substantival Absolute Space seriously, as I have gathered that Prof. Prichard does. Then, it seems to me, one could dispense with the Ether, and with translation of stuff, altogether. For the periodic translation of an ether-particle about a mean position one could substitute the periodic pervasion of a set of regions in Absolute Space by a certain determinate quality. And one could then deal with the apparent non-periodic translation of material particles on the same lines as before. There would be no "things", as distinct from regions of Absolute Space; and the latter would not of course "move" in any sense of that ambiguous word. Ultimately nothing could be said to "move" except qualities; and a quality would "move", in the sense that it pervaded now one and now another region of Absolute Space. It might be suggested then that one must admit *either* translation of stuff *or* Substantival Absolute Space, but that, if you are prepared to accept the latter, you can dispense with the former.

Is it possible to get beyond this point? The first thing to notice is that we do talk of what are admittedly Processes as "changing" in certain respects, or "remaining constant" in certain respects. Everyone would understand me if I were to say "I have been hearing a certain noise for some time now; it has remained of the same pitch, but it has got steadily louder". I can be said to "hear" the change in loudness and the constancy in pitch just as properly and literally as I can be said to "hear" the noise itself. It seems obvious that there is a fairly close analogy between what is expressed by the following two statements: (*a*) "I have been 'hearing' a certain noise for some time, and I have been 'hearing' it altering in loudness", and (*b*) "I have been 'seeing' a coloured patch in my visual field for some time, and I have been 'seeing' it altering in position, i.e., moving". Now the statement about the noise seems to be capable of analysis. The noise is a long process, composed of temporally adjoined shorter phases, each of which is itself a noise. At each different moment within a certain period I have sensed a different short phase of this longer process. If two moments be near enough together, the phase which I sensed at the second of them partially overlaps the phase which I sensed at the first of them. There is a phase which I sensed at the first moment, and have ceased to sense at the second; there is a phase which I sense at the second, and was not yet sensing at the first; and there is a phase which I sense at both. The nearer the two moments are together the more nearly does that which is sensed at the second coincide with that which was sensed at the first. The identity, which enables me to talk of "*this* noise" and to say that I have been "hearing *it*" for some time, resolves itself into the peculiarly intimate way in which these successive and partially overlapping noises are interrelated in respect of their qualities. It is in virtue of this that they count as different phases in a single process. The diversity, which enables me to say that this noise "has been changing" and that I have "heard it changing" resolves itself into certain qualitative dissimilarities between these successive and closely interrelated phases.

We must now try to give a more accurate account of this vague notion of "qualitative dissimilarity" and "similarity" between successive phases of a process. It seems to me that we must introduce a conception which I will call that of "Quality-ranges". Suppose we take a certain noise which began suddenly, went on for a period with continually increasing loudness, and then suddenly stopped. It is plainly nonsensical to ascribe any determinate degree of loudness to the process as a whole or to any phase of it. If anything here could be said to have a determinate degree of loudness it would be an instantaneous cross-section of the process. This would not be a phase of it, and it has all the appearance of being a highly artificial intellectual construction. But we could say of the process that it has a certain "*range* of loudness", and we could say of every phase of the process that it has a certain range of loudness. Quality-ranges, in this sense, belong only to processes and their phases, and it is doubtful whether any other characteristic but quality-ranges can properly be predicated of processes and phases. Now we are accustomed to regard determinate loudnesses as primary, and to define the notion of a range of loudness in terms of them. I wish to suggest that, however convenient this may be in practice, it is philosophically a reversal of the true order. I am going to take the notion of quality-range as fundamental, and to show that the notion of determinate quality can be derived from it.

I will now state some of the most important facts about quality-ranges. (i) They have magnitude, and the magnitude may, as a special case, be zero. Suppose that, in ordinary language, a noise started with a certain loudness and stopped with the same loudness, then, no matter what variations of loudness it may have undergone in the interval, the loudness-range of the process as a whole is zero. (ii) Some phases of a process may have a greater quality-range than the process as a whole has. In particular, the quality-range of a process may be zero, whilst that of every phase of the process is finite. Suppose, for example, that, in ordinary language, a noise started with a certain loudness, went up to a maximum, then

dropped, and finally ceased suddenly with the same loudness with which it began. Then its range of loudness would be zero, but every phase of it would have a finite range of loudness. (iii) If, on the other hand, every phase of a process has zero range of loudness, then the process as a whole has zero range of loudness. In such cases, and in such only, we say that the noise has "remained constant in loudness". (iv) The following proposition is commonly assumed to be self-evident. Let P be any process, which has a quality-range of a certain kind, e.g., a range of loudness. Let ϵ be any degree of this quality-range, no matter how small. Then there is an integer n_ϵ, such that any phase of P whose duration is less than $1/n_\epsilon$ of the duration of P will have this quality-range to a less degree than ϵ. This is the assumption which underlies the proposition that any noise could be analysed into an infinite series of successive "instantaneous events" each with a perfectly determinate degree of loudness. The cash-value of this statement is that, if you take *any* range of loudness, however small, then any noise will have a set of adjoined successive phases, such that every member of this set will have a lesser range of loudness than the assigned one. (v) Quality-ranges of the same kind, e.g., ranges of loudness, can differ in what may be called their "position on a scale" as well as in degree. Thus, two noises



may have the same degree of loudness-range, whether finite or zero, and yet differ in their positions on the scale of loudness. There might, for example, be two noises which were constant in loudness, and therefore both had zero loudness-range, and one of them might be louder than the other. If two noises have finite ranges of loudness, the latter may be either co-terminous or not co-terminous on the scale. If co-termin-

ous, they may either not overlap or one may wholly overlap the other. If they are not co-terminous, then either (*a*) they will be wholly separated on the scale, or (*b*) they will partially and only partially overlap, or (*c*) one will wholly overlap the other. The five possibilities are illustrated by straight lines in the diagram given on p. 161. It seems evident that two immediately successive noises, each of finite range of loudness, must have co-terminous ranges if they are to be successive phases in a single noise. On one alternative the noise will continually increase in loudness; on the other it will go up to a maximum and then go down again.

The position which we have now reached is the following. (i) We have argued that *some* Processes, at any rate, seem to be absolute and not to have any Thing for their subject. We have given noises as a plausible instance of Absolute Processes. (ii) We have now seen that certain predicates, such as "changing in respect of a certain characteristic" and "remaining identical through change", can properly be applied to processes, such as noises, even though these should be absolute. For we have seen how sentences with such subjects and predicates are to be analysed, and we have seen that the equivalent sentences do not contain any word or phrase standing, for an identical Thing or Subject which *persists through* a period of time. (iii) We also saw, in dealing with physical motion, that all processes which are commonly regarded as translations of *macroscopic* things can equally well be regarded as transmissions of states. The question remained whether these transmitted processes were not themselves states of *microscopic* things. (The words "macroscopic" and "microscopic" are here used in the technical sense in which physicists employ them. They mean, roughly, "in principle perceptible by the senses, if aided by theoretically perfect instruments" and "in principle imperceptible by the senses, however aided", respectively.) (iv) If, now, it be admitted that there may be absolute processes, and that there is a perfectly good sense in talking of "changes taking place in" such processes, it becomes possible to suggest that the microscopic processes are absolute, and that those macroscopic

processes which are commonly regarded as translations of things are really transmissions of microscopic absolute processes.

This last suggestion now needs some further explanation and elaboration. Up to the present we have said only that there is a "fairly close analogy" between a noise persisting and changing in loudness, on the one hand, and a patch persisting and moving about in a visual field, on the other. It might be answered that coloured patches in visual fields are of the nature of Things, not of Processes; that changes in loudness or pitch are not movements in any sense whatever; and that therefore we have not refuted the contention that, whatever other kinds of movement there may be, there must be *some* movements which are literally translations of things, and thus *some* processes which are, in a quite ultimate sense, states of things. We are thus at last brought face to face with a question which we set aside at an earlier stage of this discussion, viz., "What is the nature of visual sensibilia, images, etc.?"

Before tackling this question I am going to make a further remark about noises, which, if it expresses a correct observation, is highly important in the present connexion. I am inclined to think, though I am by no means certain, that I have experiences which can properly be described by saying that I sometimes "hear a sound remaining stationary" and sometimes "hear a sound moving". When a car stops outside my window with the engine running I have the first kind of experience, and when it starts moving along the street I have the second. The doubt which attaches to the interpretation that I have tentatively put on these experiences is, of course, the following. I cannot feel quite sure that these are *purely* auditory experiences. Undoubtedly, when the car begins to move, I quite literally "hear" a certain noise changing in certain respects in which it was before constant, e.g., in intensity. And it is *possible* that I do not literally "hear" the noise moving, but merely *believe*, on the basis of these auditory changes and of past visual experiences, that the physical object which is "making the noise" is moving. There is no such doubt about the experience which I describe as "seeing

a coloured patch moving in my visual field". Here it is certain that I quite literally "see" a peculiar kind of change, which we call "sensible movement".

Now, supposing for the moment that I do have experiences which can properly be described as "hearing a noise remaining stationary" and "hearing a noise moving", it seems plain that they would have to be analysed in the same general way as the experiences which I describe as "hearing a noise keeping constant in loudness" and "hearing a noise changing in loudness". We should have to suppose that there is a peculiar kind of quality-range, which we will call "Place-range". Every noise will have some place-range, finite or zero, just as every noise has some loudness-range. And every phase of a noise will have some place-range. Place-ranges, like loudness-ranges, will have position on a scale, though the scale in this case will probably not be one-dimensional as it is in the case of loudness-ranges. If a noise is such that every phase in it has zero place-range, we say that the noise remains stationary. If, on the other hand, successive adjoined phases of the noise have finite place-ranges, and the place-ranges of adjoined phases are co-terminous in their position on the place-range scale, we say that the noise is moving about. The notion of a perfectly determinate "instantaneous place" can be derived in the same way, and on the same assumption, as the notion of a perfectly determinate "instantaneous loudness".

The discussion of this hypothetical example at least shows that there is no difficulty of principle in dealing with rest and motion entirely in terms of absolute processes, their successive phases, and certain quality-ranges of such processes and their phases. It remains to consider whether the rest and motion of visual sensibilia and images can in fact be dealt with in this way. Now it seems antecedently unlikely that visual sensibilia and images should be fundamentally different in nature from auditory ones. Everyone admits that the latter are processes, and so there is an antecedent probability that the former are too. It seems to me reasonable to suppose that the fundamental visual particulars are processes which, following Mr Wisdom's example, we might call "Colourings".

A colouring might be a "redding" or a "greening", just as a noise might be a buzzing or a hissing. A colouring does not have a determinate colour, any more than a noise has a determinate loudness; but it has a colour-range, which may be zero or finite, just as a noise-process has a loudness-range. The phases of a colouring are themselves colourings and have colour-ranges, finite or zero. Now colourings, in addition to having colour-ranges, have shape-ranges, extension-ranges, and place-ranges. And all their phases have all these quality-ranges. It is, of course, nonsensical to ascribe a determinate shape, extension, or place to a process or to its phases; but it is possible to give a meaning to the statement that a certain instantaneous cross-section of a colouring has a certain determinate colour, shape, size, and place. We have seen how to do this in the simple case of noises and their loudness, and no difference of principle is involved.

Why are we so much inclined to regard visual sensibilia as different in nature from auditory ones? The explanation lies in the following purely contingent fact. A great many colourings go on for very considerable periods, and are such that every phase of them has zero or nearly zero range of colour, extension, place, and shape. Again, even when successive phases of a colouring have finite and co-terminous place-ranges, they often have zero or nearly zero colour-range, shape-range, and extension-range. In such cases we talk of a "patch" of constant shape, size, and colour, moving visibly about. It may also happen that successive phases of a colouring have finite and co-terminous colour-ranges, but have zero or nearly zero place-range, shape-range, and extension-range. In such cases we talk of a "patch", of constant shape and size, resting and visibly undergoing changes of colour. Now noises seldom go on for very long. If they do, it is not very common for every phase of them to have zero or nearly zero loudness-range and pitch-range. Moreover, noises have far fewer kinds of quality-range than colourings have. In particular, they seem not to have shape-range, and it is doubtful whether they have extension-range. I have suggested that they do have place-range, but I have admitted

that this might be questioned. These differences between visual and auditory sensibilia seem adequate to explain the fact that we hesitate to regard the former as processes whilst we unhesitatingly regard the latter as processes. It may be remarked that no one hesitates to call a flash an "event" or "process", and that it is almost incredible that what we are acquainted with when we are said to "see a flash" should be fundamentally different in nature from what we are acquainted with when we are said to "see a coloured patch". My own view is that what we are acquainted with in each case is a short event. In the case of the flash this event is so short as to be wholly contained in a single specious present, and it is not a phase in a longer process of colouring. In the other case we are acquainted, at each one of a series of moments, with a different one of a series of short colourings which are successive phases in a long process of colouring.

We can now bring this long discussion to an end. Statements which grammatically predicate motion, or rest, or qualitative change, or qualitative quiescence, of Things, seem to be replaceable, without loss of meaning, by more complicated statements about Processes, their phases, and the quality-ranges of processes and their phases. On the other hand, there are Processes which cannot plausibly be regarded as states of Things. Thus there seems reason to think that the notion of Things could be dispensed with in favour of the notion of Absolute Processes. This does not mean that the notion of Things is invalid; but only that it is less ultimate than the notion of Processes. It must also be remarked that we have not dealt with dispositional properties, or with the conception that a thing *might have been* in different circumstances at a given moment from those in which it *in fact was*, and that it *would* then have behaved in a characteristically different manner from that in which it *in fact did*. This question may be considered more conveniently at a slightly later stage, in connexion with McTaggart's Principle of Extrinsic Determination, where it is highly relevant. Until then we cannot be sure whether the notion of Things can be dispensed with in favour of Processes.

CHAPTER VIII

PARTICULARS

(II) THE PLURALITY OF PARTICULARS

In Chap. VII of the *Nature of Existence* McTaggart introduces his second indubitable empirical premise, viz., that there is more than one particular. At a much later stage in the book he asserts that every particular has parts which are themselves particulars, and he claims that this can be seen to be a necessary fact. This would, of course entail that, if there were one particular, there would be many, indeed infinitely many, particulars. But at present he wishes to show by empirical evidence, and independently of this axiom of endless divisibility, that there is more than one particular.

McTaggart thinks that the occurrence of any sensation or introspection suffices to show that there are at least two particulars. Suppose it is the case that at a certain moment an event happens which would be described as a "hearing of a squeaky noise". There must then be something which is, or seems to be, a squeaky noise. Now anything that was, or seemed to be, a squeaky noise would quite certainly be a particular. But it is equally certain that the two statements: "There is something which is or appears to be a squeaky noise" and "There is a hearing of a squeaky noise" do not have the same meaning. We have seen that the latter could not be true unless the former were true, and many people would hold that the former could not be true unless the latter were so. Even if they do thus imply each other, their meaning is different; and I do not think that anyone would deny this when the question was fairly put to him, and all sources of possible confusion were removed. Now McTaggart maintains that what is described as "this hearing of a squeaky noise" either *is* a particular, and a different particular from that which is described as "the squeaky noise which is being

heard", or, if not, *involves* a particular which is other than the latter.

His own view is that the hearing of a squeaky noise *is* itself a particular, viz., an event which stands in a peculiar relation to the particular which is described as "the squeaky noise heard". If so, there are certainly two particulars, viz., this event and that other particular to which it stands in this peculiar relation. For he would regard it as obvious that the relation of sensation to sensum is one which no term could possibly have to itself. Other philosophers would propose other analyses of the situation. So far as I know, only two other analyses have been proposed. The first is that, whenever it is true to say that a squeaky noise is being heard, the fact is that a certain self is standing in a certain direct relation, viz., that of sensing, to a squeaky noise. This analysis equally involves that there are two particulars, viz., this self and this noise. It is plain that there are two; for a noise cannot be a self, and a self cannot be a noise. The second analysis is as follows. Whenever it is true to say that a squeaky noise is being heard the fact is that a number of sensibilia and images are related at that moment in a characteristic way to each other and to that sensibile which is the squeaky noise in question. This again involves that there are other particulars beside the squeaky noise. And it does seem inconceivable that any satisfactory analysis of the situation could fail to involve this. So I agree with McTaggart that the occurrence of even one such situation as would be expressed by the statement "There is a hearing of a squeaky noise" would make it certain that there is more than one particular. And it is an indubitable empirical fact that situations which can properly be described by such a phrase do from time to time occur.

McTaggart contends that we cannot use the occurrence of a *judgment*, as distinct from a sensation or an introspection, as a premise to prove that there is more than one particular. It is true that a judgment could not occur without there being awareness of at least two different terms. But the terms need not be particulars; they might be both universals. And some people would deny that the awarenesses of terms in a judgment

are particulars. McTaggart himself holds that, whenever there is awareness of two terms, whether the latter be particulars or universals, there *are* two particulars, one of which is an awareness of one term and the other of which is an awareness of the other term. But he admits that many other philosophers would refuse to accept this view. They would hold that in such cases there is just one particular, viz., a certain self which is making the judgment, and that this stands in a certain direct relation, viz., that of *being aware of*, to the two terms. So, although for McTaggart himself the occurrence of any judgment involves that there are at least two particulars, even though the judgment should be wholly about universals, he could not expect everyone to accept the argument.

On the other hand, McTaggart holds that the occurrence of *knowledge* that a judgment has occurred would prove to anyone that there is more than one particular, no matter what view he might hold about the nature of judgment. His reason for saying this is that knowledge that a judgment had occurred must rest on introspection of the judgment. The introspection of the judgment could then be treated on the same lines as the sensation of the squeaky noise, and the same conclusion could be reached as was reached in that case. This is not at all clear to me. Suppose a person thought that the occurrence of a certain judgment was the occurrence of a certain direct relation between a self and a number of terms, none of which is a particular. He might also think that the occurrence of an introspection of this judgment was the occurrence of a certain other direct relation between the same self and the complex whose terms are this self and these universals. There would not then be two particulars, but two different occurrences of a single particular, viz., of the self as judger and the self as introspector.

In § 75 McTaggart says that the fact that there is more than one particular could be established by such facts as that at certain times there occurs a sensation of a squeaky noise and a sensation of a red flash. It is certain that what is called "the squeaky noise" and what is called "the red flash" are different particulars. But, if we choose to be extremely sceptical, *is* it

absolutely certain that they are different particulars? Is it inconceivable that one and the same particular should be sensed both as a red flash and as a squeaky noise?

I should have thought that it would have been much safer to take the case of two co-existing sensations of the same kind, e.g., of a red flash and a blue one, or of two red flashes. It is certain that no particular could *be* both red and blue at the same time, or could *be* at two different places in the visual field at once. And it is almost inconceivable that a single particular could be sensed as red and as blue or be sensed as being at two different places in the visual field.

In § 77 McTaggart points out that the fact that there is a plurality of particulars is quite consistent with the fact that the aggregate of all particulars is a particular. On his definition, all collections of particulars are particulars. We shall return to this subject when we deal with his theory of Groups and Compound Particulars.

CHAPTER IX

THE DISSIMILARITY OF THE DIVERSE

In Chap. x of the *Nature of Existence* McTaggart discusses the question whether there could be two or more particulars which were exactly similar to each other, and comes to the conclusion that this is impossible. This principle he calls "The Dissimilarity of the Diverse".

What would be meant by saying that two particulars A and B were "exactly alike"? According to McTaggart it would mean that every quality of either is a quality of both. But agreement of "primary qualities", in McTaggart's technical sense of that phrase, would entail agreement of all derived qualities. So it is enough to say that every *primary* quality of either is a primary quality of both. Now primary qualities are either original qualities, e.g., redness, or are the immediate derivatives of original relationships, e.g., the quality of loving C. (The reader should refer back to Chap. v, Section 1, of the present work, if he wants to remind himself of the definitions of these technical terms.) For A and B to be exactly alike it would then be necessary and sufficient that every original quality, and every quality which is immediately derived from an original relationship, which belongs to either should belong to both.

It seems to me that, if we admit that a particular can be related to itself, there are difficulties in this definition, even if we waive our objections to McTaggart's theory of relational qualities. Suppose that A and B were two selves, and that A respects A and does not respect B, whilst B respects A and does not respect B. Then both A and B have the positive relational quality of respecting A. And they both have the negative relational quality of not respecting B. Nevertheless, they would not be exactly alike. For A respects himself, whilst B does not respect himself; and this is an important point of dissimilarity between them. It seems plain then that

we must add that, in order for two particulars to be exactly alike, any relation which relates either to itself must relate each to itself.

The amended definition of exact likeness would run as follows. Two particulars *A* and *B* would be exactly alike if and only if the following three conditions were fulfilled. (i) Every original quality of either is a quality of both. (ii) Every original relation which relates either to itself relates each to itself. (iii) Every original relation which relates *A* to any other particulars in any order relates *B* to the same particulars and in the same order, and conversely with "*B*" substituted for "*A*". If any of these three conditions broke down *A* and *B* would not be exactly alike. If *A* were clever and *B* were stupid, they would be dissimilar. If *A* respected himself and *B* despised himself, they would be dissimilar. And if *A* were jealous of *B* on account of *C* they would be dissimilar; for it is impossible that *B* should be jealous of *B* on account of *C*, since no one can be jealous of himself.

Now McTaggart holds that it is evident on careful inspection that no two particulars could be exactly alike. They might, for all we know, be exactly alike in all their original qualities, but they could not possibly be alike in all respects. This principle he calls the "Dissimilarity of the Diverse", and he thinks that it is what Leibniz meant by the "Identity of Indiscernibles".

If there were any relation which every particular must have to itself, and which no particular could have to another, the Dissimilarity of the Diverse would follow at once. For *A* would have this relation to *A*, and would not have it to *B*, whatever *A* and *B* might be. Now McTaggart regards identity as a relation which every term must have to itself and which no term could have to any other. But he is not content to rest the principle on the relation of identity. He states his reasons for this very obscurely in § 94. I think that his position is the following. If *A* and *B* be two particulars, there must be some dissimilarity between them which is not a mere analytic consequence of the fact that they are two. Now the dissimilarity which consists in the fact that *A* has

the relation of identity to A whilst B does not have this relation to A is a mere analytic consequence of the fact that A and B are two. We see then that the complete statement of the Dissimilarity of the Diverse is that any two particulars must be dissimilar in some respect *which is not a mere analytic consequence* of the fact that they are two. If this is what McTaggart means, I agree that it is only when the principle is so interpreted that it is of interest and importance. And, in any case, I could not accept the argument based on the so-called "relation of identity" which relates each particular to itself; for I do not believe that there is any relation answering to this description.

Is the principle, in its amended and interesting form, true? I shall try to show that it is not. When a proposition asserts necessity, as this one does, there is no need to produce an *actual* exception to it in order to refute it. It is enough to show that exceptions are *conceivable*. Can we do so? We must remember that McTaggart counts as "substances" both what most people call "Things" or "Continuants", and what most people call "Events" or "Processes" or "Occurrents". I have discussed the question whether it is necessary to hold that there are two fundamentally different kinds of particular, and have tentatively suggested that probably statements which are verbally about Things can be replaced without loss of meaning by more complicated statements which are about Processes. Here, however, I propose to admit, for the sake of argument, that there are two fundamentally different kinds of particular, and to deal with each in turn.

I will begin with sensibilia, which McTaggart rightly regards as particulars, and which are almost certainly of the nature of Processes. It is, I think, obvious that any two sensibilia which are sensed by the same mind must be dissimilar in sensible quality, or be spatially separated, or be temporally separated. Now either spatial or temporal separation involves dissimilarity. For A cannot stand in either of these relations to A; whilst B, if it is another sensibile sensed by the mind which senses A, must stand in one or other of these relations to A. Two such sensibilia then must be dissimilar, and their

dissimilarity will not be a mere analytic consequence of the fact that they are two.

But now consider two sensibilia which are sensed by different minds, e.g., two noises. Plainly they might be exactly alike in sensible quality, viz., in pitch, loudness, and tone-quality. As regards their temporal relations, it might be held either that they stand in no temporal relation to each other or that they do. On the first alternative they cannot have temporal dissimilarity. On the second alternative there is no reason why they should not be simultaneous, i.e., have temporal similarity. As regards their spatial relations, it seems clear that they would have none to each other. There is no ground for saying that a noise heard by me and a noise heard by you are themselves either spatially coincident or spatially separated. If anyone thinks otherwise he is probably confusing the sensibilia with certain physical events of which they are believed to be manifestations. It is then logically possible that there should be two sensibilia which were exactly alike in sensible quality; which either had no temporal relations or were simultaneous; and which had no spatial relations, and therefore could not have spatial dissimilarity. It is also logically possible that these should have been the only sensibilia that there ever were, and therefore that they were not dissimilar in the relationships in which they stand to other sensibilia. The only dissimilarity left between them is that one is sensed by the mind X and not by the mind Y, whilst the other is sensed by the mind Y but not by the mind X.

Now, unless it be logically impossible for there to be unsensed sensibilia, it is logically possible that neither of these sensibilia should have been sensed by any mind. If so, it is logically possible that there should have been no dissimilarity of any kind between them. Now, although there may be good reasons for doubting whether there are *in fact* any unsensed sensibilia, it cannot reasonably be held that the occurrence of an unheard squeaky noise or an unseen red flash is *logically impossible*. It seems to me then to be logically possible that there should have been two sensibilia which had

no kind of dissimilarity except such as are analytical consequences of their diversity. If so, McTaggart's principle that there *could not* be two such particulars is false, though it may be true that there *are not* and never have been and never will be.

One objection to this conclusion presents itself. It might be said that, if A and B have parts, there must be some parts of A which are not parts of B and some parts of B which are not parts of A. Now McTaggart holds that every particular has parts which are themselves particulars. Would it not follow that A must always be dissimilar to B at least in the respect that it contained a part P which B did not contain or that B contained a part Q which A did not contain? Undoubtedly the premise that every particular has parts does entail that any two particulars must be dissimilar in this respect. But does this help McTaggart? I do not think that it does. For this kind of dissimilarity is simply an analytic consequence of the fact that A and B are two particulars, whilst he maintains that there must be some dissimilarity which is not inferable from this fact.

Let us next consider particulars which most people would count as Continuants. Continuants have states, and most people distinguish states from parts, though McTaggart holds that the states of anything are parts of it. Now it is evident that, even if two continuants could have *some* states in common, they could not have *all* states in common. It is therefore true that any two continuants, A and B, must be dissimilar in the respect that A has some state S which is not a state of B, or that B has some state T which is not a state of A. But this kind of dissimilarity would appear to be an analytic consequence of the fact that A and B are two continuants, and it is therefore irrelevant to McTaggart's principle. The question then comes to this: "Is it possible that there should be two continuants which were dissimilar in no respect except that there were *states* of one which were not *states* of both or that there were *parts* of one which were not *parts* of both?"

It seems clear to me that this is logically possible. It is

logically possible that there should have been just two minds, A and B, and no bodies, and that there should have been no other continuants except these two minds. Now is there any logical impossibility in supposing that these two minds should have existed through exactly the same period of time, and that every state of the one should have been exactly like the contemporary state of the other in every respect except that of occurring in a different mind? We could imagine each of them to be wholly occupied in following precisely the same chain of argument, e.g., Lindemann's proof that π is a transcendental number, at exactly the same rate and in exactly the same order. And we can imagine that the emotions of A at any stage of the process are exactly like the emotions of B at the corresponding stage of the process. I can see nothing logically impossible in this supposition. It is, then, possible that there should have been two continuants, A and B, such that the only dissimilarity between them is that A has states which are not states of B, and that B has states which are not states of A. And it is possible that the only dissimilarity between the contemporary states of A and of B should be that one occurs in A and not in B whilst the other occurs in B and not in A.

Now McTaggart asserts that two particulars *must* be dissimilar in some respect which is not inferable from the mere fact that they are two. We have now seen that this is false both for occurrents and for continuants. Nevertheless, it may well be true that every pair of particulars which there have been, are, or will be, are *in fact* dissimilar in other respects beside those which are analytical consequences of their diversity.

I am inclined to think that the Dissimilarity of the Diverse has seemed plausible because those who tried to envisage the possibility of exceptions, and failed to do so, unwittingly restricted their field of view in two respects. In the first place, they confined their attention to physical events and things, and forgot about sensibilia, experiences, and minds. Secondly, they assumed uncritically that there must be a single spatio-temporal system in which every particular has

its place and date. Now, even if this be in fact true, there is, so far as I can see, no kind of necessity about it. It might be, as Bradley suggested in the chapter on "Nature" in *Appearance and Reality* that, whilst every particular has its place and date in *some* spatio-temporal system, there is a plurality of such systems, and a particular in one has no spatio-temporal relation whatever to a particular in another.

In § 95 of the *Nature of Existence* McTaggart argues that the denial of the Dissimilarity of the Diverse is closely connected with an invalid distinction, which many people try to make, between the "individuality" of a particular and its "nature". It is not at all clear to me that there is any close connexion between the two. A person who denies the Dissimilarity of the Diverse is saying that it is logically possible for the same nature N to be the nature of several particulars, P_1, P_2, etc.; e.g., that it is logically possible that there should be several noises or minds which were precisely alike in every respect that is not a mere analytic consequence of their diversity. A person who tries to distinguish the "individuality" of a particular P from its nature N presumably means that it is logically possible that P, which *in fact has* the nature N, should *instead* have had some other nature N'; e.g., that I might have been born in Rome in 55 B.C., or that the Albert Memorial might have been a volcano in South America. Now it is obvious that the first proposition does not imply the second, and therefore is not refuted by the fact that the second is almost certainly false. And the second does not imply the first; for, even if every particular might have had a different nature from that which it in fact has, it might still be the case that no two particulars could have precisely the same nature. I do not wish to deny that some people may have believed the second proposition, and may have thought that the first followed from it. If so, they were almost certainly mistaken in their premises and they were quite certainly committing a fallacy in their argument. But my reason for denying the Dissimilarity of the Diverse is simply that it is a proposition which claims to be necessary and that I can see on inspection that exceptions to it are conceivable.

CHAPTER X

THE PRINCIPLE OF SUFFICIENT DESCRIPTIONS

In Chap. XI of the *Nature of Existence* McTaggart introduces the notion of a "Sufficient Description" of a particular. And he tries to prove that every particular must have at least one sufficient description. This is a vitally important step in his argument, and so we must attend carefully to it.

Any characteristic whatever of a term constitutes a "Description" of it. If the characteristic belongs to several terms, it will not be an "Exclusive Description" of any of them. An "Exclusive Description" of a term is a characteristic which belongs to it and to no other term, or it may be a set of characteristics such that all belong to this term and not all belong to any other term. An exclusive description of a term need not be a "Complete Description" of it; for a selection of its characteristics may suffice to distinguish this term from all others.

Now a description of a term may contain characteristics which involve a reference to particulars that are merely designated by proper names. Suppose, for example, that Julius Caesar is described as the first Roman invader of Britain. The description involves a reference to two particulars, viz., Britain and Rome, which are merely designated. If an exclusive description of a term refers to no merely designated particulars, but consists wholly of universals, it is called a "Sufficient Description". Thus it would be a sufficient description of Christ, on the Christian view of his nature, to say that he is the son of the Most Perfect Being.

If the Dissimilarity of the Diverse be admitted, it would follow at once that every particular must have an *exclusive* description. For consider any particular A. Either A is the only particular that there is, or there are others beside it. If it were the only particular, *any* characteristic of it would be

an exclusive description of it. If there be other particulars beside A, none of them can be exactly like A. So a complete description of A would necessarily be an exclusive description of it. And, of course, a selection from the complete description of A might be an exclusive description of it. The question that remains, for those who accept the Dissimilarity of the Diverse, is whether every particular must have a *sufficient* description. McTaggart professes to show that, if every particular has an exclusive description, every particular must have a sufficient description. And, since he accepts the Dissimilarity of the Diverse as self-evident, he claims in this way to prove that every particular must have a sufficient description. This proposition I will call "The Principle of Sufficient Descriptions". He does not, of course, pretend that, in the case of most particulars, any sufficient description is *known* to us. But he holds that there must *be* a sufficient description in every case, whether anyone happens to know of one or not.

McTaggart begins by distinguishing several possible kinds of sufficient description, of various degrees of complexity. He does not follow any systematic order in his account of them. I think that it is possible to classify them, and I shall now do so. In the first place, we must distinguish between sufficient descriptions of the "First", "Second", "Third", and higher "Orders". A sufficient description of a particular A will be "of the First Order" if it contains no sufficient description of any other particular. Thus the description of God as the Most Perfect Being, i.e., the being who has to every other being the relation of greater perfection, is a first-order sufficient description. A sufficient description of A is "of the Second Order" if it contains a first-order sufficient description of a certain particular, and contains no sufficient description which is not of the first order. The description of Christ as the son of the Most Perfect Being, is a sufficient description of the second order, on the usual Christian assumptions. A sufficient description is "of the Third Order" if it contains a second-order sufficient description of a certain particular, and contains no sufficient description which is not of either the first or the second order. The description of the Virgin Mary as

the mother of the son of the Most Perfect Being, is a sufficient description of the third order, on the usual Christian assumptions. The general notion of orders of sufficient descriptions should now be clear.

Now, so far as I can see, first-order sufficient descriptions fall into five groups, some of which can be further subdivided.

(1) A may be the only instance of a certain original quality, or set of original qualities, ϕ. It might, for example, be the only thing that had a certain shade of a certain colour.

(2) We might take a certain relation R, and consider the following five possibilities. (2·1) A is the only particular which has R to *anything*. For example, God is the only particular that has to anything the relation of creating, according to most theists. (2·2) A is the only particular which has R to *everything*. For example, God, in the opinion of most theists, is the only particular which is acquainted with all particulars. (2·3) A is the only particular which has the relation R to *itself*. For example, the Devil might be the only particular which hates itself. (2·4) A is the only particular that has R to *anything but* itself. For example, if psychological egoism had been true, God would have been the only particular which loves anything but itself. (2·5) A is the only particular which has R to *everything but* itself. For example, on another view of the nature of the Devil, he might be the only particular which hates everything but himself.

(3) In this group we again take a certain relation R, and we now consider the *number* of things to which A stands in this relation. This again gives five possibilities. A might be the only thing which has R to (3·1) n particulars, (3·2) more than n particulars, (3·3) less than n particulars, (3·4) at least n particulars, or (3·5) at most n particulars. It is needless to illustrate all these cases. It will suffice to illustrate the last by saying that there might be one and only one particular which was the husband of at least three-hundred and sixty-five wives.

(4) We now consider a class of particulars having some exclusive common property ψ. We again consider a certain relation R. This gives rise to seven possibilities. A might be

the only thing that has R to (4·1) *any* instance of ψ, (4·2) *every* instance of ψ, (4·3) n instances of ψ, (4·4) more than n instances of ψ, (4·5) less than n instances of ψ, (4·6) at least n instances of ψ, or (4·7) at most n instances of ψ. Thus, for example, a certain particular might be the only one who believed *all* the statements which he read in the newspapers; and he, or another, might be the only particular who was the father of exactly seventeen red-haired children.

(5) Even if a particular has no first-order sufficient description of any of these kinds, it may have one which is constructed by combining *insufficient* descriptions of two or more of these kinds. Thus, there might be several instances of ϕ, and several instances of particulars which have R to n instances of ψ, but there might be one and only one particular which was an instance of ϕ and had R to n instances of ψ. There are, for example, plenty of negroes, and plenty of people who are fathers of two red-haired children; but there might well be one and only one particular which is a negro father of two red-haired children.

I have not gone into all this elaborate detail merely in order to be tiresome. It seems to me important to realise the vast number of different ways in which a particular could be sufficiently described, for this makes the Principle of Sufficient Descriptions less unplausible than it appears at first sight.

We can now deal with McTaggart's attempted proof of the Principle. This is contained in § 105. I will first try to show by an example that a case is conceivable in which, whilst everything had an exclusive description, there were things that did not have a sufficient description. Imagine a universe consisting of just three minds, A, B, and C. We will suppose that none of them has a sufficient description. Now, suppose it were the case that A is jealous of B on account of C, that B is jealous of C on account of A, and that C is jealous of A on account of B. Then I maintain that each of these particulars would have an exclusive description, in spite of the fact that none of them had a sufficient description. A would have the characteristic of being jealous of B on account

of C. Call this ϕ. B could not have this, since no one can be jealous *of* himself. C could not have this, since no one can be jealous *on account of* himself. Hence B and C both have the characteristic non-ϕ. Now take the characteristic of being jealous of C on account of A. Call this ψ. B has ψ, and, for similar reasons to those mentioned before, C and A have non-ψ. Lastly, if we denote the characteristic of being jealous of A on account of B by χ, it is plain that C has χ and that A and B have non-χ. Thus A is the only particular in the universe which has ϕ, B is the only one that has ψ, and C is the only one that has χ. By hypothesis A, B, and C are the only particulars in the universe, and have no sufficient descriptions. Nevertheless, we see that each will have an exclusive description.

It is clear then that there must be something wrong with McTaggart's argument in § 105, since it claims to show the *necessity* of something which *could* conceivably be false. The argument is very obscurely stated and is not at all easy to follow, but I am afraid that there is no doubt that what I am now going to state in my own words is what McTaggart had in mind. Let A be any particular. Then A must have an exclusive description. If possible, suppose that it has no sufficient description. Then (i) every exclusive description of A must describe it by a certain relation R in which it stands to a certain *other* particular B. And (ii) this other particular B must itself have no sufficient description. For, if B had a sufficient description ϕ, A could be *sufficiently* described as the particular which has R to the only instance of ϕ. Now B in turn must have an exclusive description. Since this cannot be a sufficient description, B must be exclusively described by a certain relation S in which it stands to a certain *other* particular C. And C cannot have a sufficient description. For, if ψ were a sufficient description of C, A could be *sufficiently* described as the particular which has R to the particular which has S to the only instance of ψ. By repeated application of the same considerations we arrive at the following conclusion. If every particular has an *exclusive* description, and if A had no *sufficient* description, there would

have to be an unending series of particulars, B, C, ..., such that none of them had a sufficient description. McTaggart thinks that the endlessness of this series would entail that A had no *exclusive* description. And so the compound supposition that every particular has an exclusive description and that A has no sufficient description entails the conclusion that A has no exclusive description. It thus contradicts itself, and therefore cannot be true. Therefore the proposition that every particular has an exclusive description is inconsistent with there being any particular which lacks a sufficient description. That is, the proposition that every particular has an exclusive description entails the proposition that every particular has a sufficient description.

This is McTaggart's argument, fully and formally stated. If I have not misunderstood it, it contains no less than three gross formal fallacies.

(i) McTaggart assumes that, if A had no sufficient description, any exclusive description of A would have to describe it by a certain relation to a certain *other* particular, B. This is not so. The relation might be to A itself. Suppose, for example, that the universe consisted of two minds, A and B, each of which respected itself and despised the other. Then the property of respecting A would belong to A and to nothing else. It would therefore be an exclusive description of A. Similarly, the property of respecting B would be an exclusive description of B. Thus A could be exclusively described without reference to B, and B could be exclusively described without reference to A, even though neither had a sufficient description. It is true, of course, that A also has the property of respecting itself, and that this involves no reference to any merely designated particular. But then it also does not constitute an *exclusive* description of A, since B also has the property of self-respect. And so it does not constitute a *sufficient* description of A. It cannot therefore be contended that the exclusive, but not sufficient, description "respecting A" could be replaced by "respecting itself", and that this would be a sufficient description. The first description fails to be sufficient, in McTaggart's sense, because it

contains the merely designated particular A; the second description avoids this defect, but fails to be sufficient by failing to be exclusive.

(ii) McTaggart assumes that, if A has to be described by reference to a particular B which is other than A, and if B has to be described by reference to a particular C which is other than B, then C must be other than A. This is, of course, completely fallacious. "C" might be simply another name for the particular of which "A" is a name. Julius Caesar is other than Cicero, and Tully is other than Julius Caesar, but "Tully" and "Cicero" are just two different names of the same eloquent egotist. Thus, even if the series must start, there is no need for it to be endless, except in the sense in which a circle is "endless". My earlier example of a universe consisting of three minds, A, B, and C, of whom A is jealous of B on account of C, B is jealous of C on account of A, and C is jealous of A on account of B, illustrates this possibility. Here the exclusive description of each particular involves a reference to two other designated particulars, but there are only three particulars altogether.

(iii) Even if the series had to start, and had then to continue without end and without recurrence, McTaggart's conclusion would not follow. His conclusion is that A would have no exclusive description. But, so far as I can see, this is a complete *non-sequitur*. A has the exclusive description of being the only particular that has R to B. How could this be altered by the fact that B has no sufficient description, that its exclusive description must be of the form "having S to C", and that the same must be true, *mutatis mutandis*, of C and of every particular in a certain endless and non-recurrent series? Even if we accepted both the false premises which McTaggart tacitly assumes, the only conclusion which could legitimately be drawn is the following. "If every particular has an exclusive description, and there were any particular A which lacked a sufficient description, then there must be an endless and non-recurrent series of particulars starting with A and *all* lacking sufficient descriptions". Of course, if you object to such an unending and non-recurrent series of particulars

simply on the ground of its non-recurrent endlessness, you would be justified in concluding from this that, if every particular has an exclusive description, no particular can lack a sufficient description. But McTaggart has not the slightest objection to endless and non-recurrent series of particulars, as such. His argument is that the non-recurrent endlessness of this series would prevent *A* from having an exclusive description, which it must have. And this is simply false.

To sum up. (i) There is no reason to accept the Dissimilarity of the Diverse. Therefore (ii) there is no reason to accept the premise that every particular must have an *exclusive* description. (iii) Even if every particular had an exclusive description, this would not entail that every particular must have a sufficient description. Thus the Principle of Sufficient Descriptions is nothing but a fallacious inference from a doubtful premise. It may, of course, be in fact true; but not the faintest reason has been given for believing it.

BOOK III

DETERMINATION

> ... with pins of adamant
> And chains, they made all fast; too fast they made
> And durable...
>
> MILTON, *Paradise Lost*, Book x.

ARGUMENT OF BOOK III

In this Book I take together all that McTaggart says in the *Nature of Existence* about the notion of the determination of one quality or fact or thing by another. In the first chapter I consider the notions of Implication and Entailment, and finally pass to McTaggart's notion of Intrinsic Determination. In the second chapter I consider two relations, closely connected with Intrinsic Determination, which McTaggart calls "Presupposition" and "Requirement". The third chapter is concerned with Causation, which McTaggart regards as a special case of Intrinsic Determination. After stating and criticising McTaggart's views on Causation, on the Uniformity of Nature, and on Induction, I venture on an independent discussion of Causation. The fourth chapter deals with a peculiar relation which McTaggart called "Extrinsic Determination". After stating and criticising McTaggart's views as to the nature and range of this relation, I discuss the facts which he has in mind from a somewhat different point of view. The chapter and the Book end with an independent discussion of the common-sense notion of the "nature" of a substance, and the common-sense view that the very same substance, which was in fact in a certain situation and did in fact behave in a certain way, *might* then have been in a dissimilar situation, and *would* then have behaved in a dissimilar way.

CHAPTER XI

INTRINSIC DETERMINATION

McTaggart recognises two and only two fundamentally distinct kinds of Determination, which he calls "Intrinsic" and "Extrinsic" respectively. Closely connected with intrinsic determination are two other notions, of which he makes considerable use, viz., "Presupposition" and "Requirement". He regards Causation as a particular case of intrinsic determination. Closely connected with extrinsic determination are two other notions, which he calls "Manifestation" and "Organic Unity". Neither of them appears to be very important. They are rather intimately bound up with each other, and the latter cannot be explained until we have dealt with the notion of "Groups" and "Compound Particulars", which will form the subject of the next Book of this volume. I propose therefore to defer the treatment of Manifestation for the present, and to deal with it, together with Organic Unity, in Book IV. In Book III I shall first consider Intrinsic Determination; then the other two kinds of connexion which are intimately related to it, viz., Presupposition and Requirement, and Causation. Finally, I shall devote a chapter to Extrinsic Determination.

1. Implication.

McTaggart opens his discussion of Intrinsic Determination in Chap. XII of the *Nature of Existence* by introducing the notion of "Implication". This, he says in § 106, is an "indefinable relation between propositions". He then proceeds to describe the notion by means of the conception of "what could be justifiably asserted"; to discuss the connexion between implication and inference; and to show that the former cannot be defined in terms of the latter. It is curious that McTaggart should proceed in this way, since he holds that there are no propositions, and has tried to prove this in

Chap. II of the *Nature of Existence*. Moreover, his discussion of implication in §§ 106 and 107 seems to me to be, for various reasons, neither clear nor satisfactory. As implication is introduced only in order to lead up to determination in § 108, I think it will save time and trouble if I treat it in my own way, and draw what appear to be the necessary distinctions without reference to §§ 106 and 107. I shall first explain it in terms of propositions, and shall then try to restate the results on the assumption that there are no propositions.

The notion from which we start is that of the falsity of a conjunctive proposition, i.e., the notion of two propositions, p and q, not being *both* true. Now, of course, if p be itself false, the conjunction of p with *any* other proposition whatever will also be false, i.e., if p be false pq will be false, whatever q may be. Similarly, if q be false pq will be false, whatever p may be. Sometimes the *only* known reason why pq is false is that p is known to be false or that q is known to be false. The only known reason why the conjunctive proposition that Charles I died in his bed and Julius Caesar was murdered is false is that it is known to be false that Charles I died in his bed. But this is not always the case. Sometimes a conjunctive proposition pq is false because of some relation between p and q which makes it *impossible* that both should be true. The fact that p and q are related by such a relation can often be seen by direct inspection by a person who does not know that p is false and does not know that q is false. We know, for example, that it is false that the matter at the centre of the earth is wholly solid and wholly liquid, although we do not know that it is false that this matter is wholly solid and do not know that it is false that this matter is wholly liquid. When two propositions are so related that it is impossible for both to be true, we say that they are "mutually inconsistent". We may call a conjunction of two propositions which are inconsistent with each other "an inconsistency".

It is, of course, quite possible that there may be cases in which, though pq is false because p and q are mutually inconsistent, we cannot *see* their inconsistency. In such cases we could know that pq is false only if we knew that p is false

or knew that q is false. But the vitally important fact is that there *are* cases in which we *can* see that p and q are mutually inconsistent without having to know beforehand that p is false and without having to know beforehand that q is false. The importance of this fact is that, if it were not for it, there could be no legitimate inference whatever. If I know that pq is false, and I know that p is true, I know *ipso facto* that q is false. But this is of no use to me for *inferring* that q is false, if my knowledge that pq is false rests on my previous knowledge that p is false or on my previous knowledge that q is false. If my knowledge that pq is false rests on my previous knowledge that p is *false*, I cannot also be in the situation of knowing that p is *true*, and therefore cannot draw the conclusion that q is false. If, on the other hand, my knowledge that pq is false rests on my previous knowledge that q is false, I cannot use it to *infer* that q is false. In the first case one of my premises would contradict my only ground for believing the other. In the second case my only ground for believing one of the premises is that I already know the conclusion which I profess to be going to prove. Suppose, however, that I can see that p and q are mutually *inconsistent*, without needing to know that p is false and without needing to know that q is false. Then, if I know that p is true, I can legitimately infer that q is false. My argument is now neither self-contradictory nor circular. We may sum up as follows. If and only if there are inconsistencies, and we can recognise some of them by inspection, we can make legitimate inferences. And it is quite certain that there *are* inconsistencies, and that we *can* recognise some of them by inspection.

Now there are a great many relations between propositions which make them inconsistent with each other, and can be seen to do so. We can, I think, divide them into two great classes, viz., (i) those which depend *wholly* on the *forms* of the propositions, and (ii) those which depend *partly* on the *content* of the propositions. The two propositions "All men are mortal" and "Some immortal beings are human" are inconsistent, not because of anything in the nature of humanity or mortality, but simply and solely because one is of the form

"All S is P", and the other is of the form "Some non-P is S". The two propositions "The triangle ABC is equilateral" and "The triangle ABC is not equiangular" are inconsistent partly because they are about triangles. A four-sided figure, e.g., a lozenge, could be equilateral without being equiangular. But, although their mutual inconsistency depends partly on their content, it also depends partly on their form. They would not have been inconsistent if the subject of one had been the triangle ABC, and the subject of the other had been the different triangle XYZ. And, so long as the subject of both is the same, it does not matter whether it is the triangle ABC or the triangle XYZ. Let us call the two classes of inconsistencies "logical" and "ontological" respectively. The main business of deductive logic is to discover and classify the most important relations of form between propositions, which give rise to purely logical inconsistencies.

The next step is to restate the above results in such a way that they do not presuppose that there really are propositions, in the unique and indefinable sense discussed in Chap. IV of the present work. We cannot, of course, say that the *fact* that all men are mortal is inconsistent with the *fact* that some immortal beings are human, for it is not a fact that some immortal beings are human. But we could say that a belief that all men are mortal and a belief that some immortal beings are human could not *both* concord with the facts to which they refer. If a belief of the first kind concorded with a fact, that fact would be of such a form that there could be no fact of the right form to concord with a belief of the second kind. And the same would be true if "second" and "first" be everywhere interchanged in the last sentence. There is thus no difficulty in getting rid of the reference to propositions; and, now that this is clear, we can safely go on talking in terms of "propositions" if we find it convenient to do so.

At length we come to the notion of "Implication". The statement that "p implies q" is defined by Russell to mean the same as the statement that "either p is false or q is true". An equivalent definition, which brings it into line with our previous discussion, would be that it means the same as the

statement that "p and not-q are not both true". Let us start with this latter definition. I think it is unfortunate that the word should have been used in Cambridge in this way, since this is not the way in which it is commonly used. This has led to a great deal of misunderstanding, and to tiresome verbal controversies with logicians in Oxford and other places. When "implication" is defined in this way, it follows at once that the proposition that Charles I died in his bed implies the proposition that Julius Caesar was murdered (and equally the proposition that Julius Caesar was not murdered). For, since the proposition that Charles I died in his bed is false, *every* conjunctive proposition which contains this as a conjunct will be false; and so, by the definition, the proposition that Charles I died in his bed will imply *every* other proposition, whether true or false. It also follows at once that the proposition that Julius Caesar was murdered is implied by the proposition that Charles I was beheaded (and equally by the proposition that Charles I was not beheaded). For it is true that Julius Caesar was murdered, and therefore the proposition that Julius Caesar was not murdered is false. Consequently *every* conjunctive proposition which contains as a conjunct the proposition that Julius Caesar was not murdered is false. And so, by the definition, the proposition that Julius Caesar was murdered will be implied by *every* other proposition, whether true or false.

Now McTaggart always objected to this use of the word "implication", and never intentionally used it in this way himself. What most people mean by "p implies q" is obviously that p and not-q are *inconsistent* with each other. This is commonly expressed in Cambridge by saying that p "entails" q. I propose henceforth to use the word "entails" where McTaggart uses the word "implies". With these verbal explanations everything that I have said about inconsistency can be applied, *mutatis mutandis*, to entailment. For example, q can be legitimately inferred from p if and only if the person who makes the inference can see that p and not-q are inconsistent without having to know beforehand that p is false and without having to know beforehand that q is true. If he had

to know beforehand that p is false, his second premise, viz., that p is true, would contradict his only ground for believing his first premise, viz., that p and not-q are not both true. If he had to know beforehand that q is true, his argument would be circular, since his only ground for believing his first premise is his pre-existing belief in the proposition which he professes to be going to infer from it. The only word of warning that is needed here is the following. Whilst "p is inconsistent with q" is equivalent to "q is inconsistent with p", "p entails q" is not equivalent to "q entails p". For "p entails q" means that p and not-q are mutually inconsistent, whilst "q entails p" means that q and not-p are mutually inconsistent.

The statement that "p implies q" is generally written "$p \supset q$". It means (in Cambridge), as we have seen, simply that p and not-q are not both true. The statement that "p entails q" may be written "$p \rightarrow q$". It means, as we have seen, that p and not-q are mutually inconsistent. It is evident that $(p \rightarrow q) \rightarrow (p \supset q)$, but not conversely. There is one other point to notice. If $p \rightarrow q$, then $p \supset q$ is a necessary proposition, i.e., if p is *inconsistent* with not-q, the conjunction of p and not-q is *impossible*. But the converse of this does not hold. The conjunction of p and not-q would be impossible if p were impossible or if q were necessary. Thus the conjunction of $2 \times 2 = 5$ and "Some men are immortal" is impossible, because $2 \times 2 = 5$ is impossible. But, so far as we know, there is no inconsistency between these two propositions, and so we cannot say that $2 \times 2 = 5$ *entails* that all men are mortal. The relations between these various notions may be summed up as follows:

$$\left.\begin{array}{l}(p \rightarrow q) \rightarrow [(p \supset q) \text{ is necessary}] \rightarrow (p \supset q) \\ (p \text{ and not-}q \text{ are inconsistent}) \rightarrow [(p.\ \text{not-}q) \text{ is impossible}] \\ \qquad\qquad\qquad\qquad\qquad\qquad \rightarrow [(p.\ \text{not-}q) \text{ is false}]\end{array}\right\}.$$

It remains to apply this to propositional functions, as distinct from propositions. Let ϕ and ψ be two characteristics. Then the statement that "ϕx *implies* ψx for all values of x" means "It is not the case that there is an x which has ϕ and lacks ψ". The first statement is generally written $\phi x \supset_x \psi x$,

and the second is generally written $\sim(\exists x) . \phi x . \sim \psi x$. This is what Russell calls "Formal Implication". Such a statement is always true if nothing has ϕ, and it is always true if everything has ψ. For example, since there are no frictionless fluids, there are no frictionless fluids with spherical molecules. Equally there are no frictionless fluids with non-spherical molecules. Thus the property of being a frictionless fluid formally implies the property of having non-spherical molecules, and formally implies the property of having spherical molecules. The statement that "ϕx *entails* ψx for all values of x" means that the possession of ϕ is *inconsistent* with the non-possession of ψ. This may be called "Formal Entailment". The statement that ϕx *formally entails* ψx may be written $\phi x \rightarrow_x \psi x$. This, of course, entails that it is *impossible* for any thing to have ϕ and lack ψ; and this entails that there is *in fact* nothing which has ϕ and lacks ψ. Thus we have the following irreversible series of entailments:

$$\left.\begin{array}{l}(\phi x \rightarrow_x \psi x) \rightarrow [(\phi x \supset_x \psi x) \text{ is necessary}] \rightarrow (\phi x \supset_x \psi x) \\ (\phi x \text{ and } \sim \psi x \text{ are inconsistent}) \rightarrow [(\phi x . \sim \psi x) \text{ is impossible}] \\ \qquad \rightarrow (\text{Nothing has } \phi \text{ and lacks } \psi)\end{array}\right\}.$$

We can now distinguish between a "logical inconsistency" between p and not-q and an "ontological inconsistency" between them. In the first case we can say that p "*logically* entails" q. In the second case we can say that p "*ontologically* entails" q. The proposition that all men are mortal logically entails the proposition that all immortal beings are non-human. The proposition that the triangle ABC is equilateral ontologically entails the proposition that the triangle ABC is equiangular.

2. Intrinsic Determination.

McTaggart introduces the notion of Intrinsic Determination in § 108 of the *Nature of Existence*. His statements about it are somewhat confused, and it will be necessary to disentangle what he probably *meant* from the various inconsistent things which he *said*.

Intrinsic determination is said to be a relation between

characteristics. "If it is true that, whenever something has the quality X, something has the quality Y, this involves that, beside the relation between the two propositions 'Something has X' and 'Something has Y', there is a relation between the qualities X and Y." It is this supposed relation between the qualities which McTaggart proposes to call "Intrinsic Determination". He adds that "the quality X will be said to determine intrinsically the quality Y whenever the proposition that something has the quality X implies the proposition that something has the quality Y". There are two remarks to be made about this at the outset. (i) The first statement quoted above makes no explicit mention of implication, whilst the second does. Probably McTaggart thought that the second statement quoted was merely a different verbal formulation of the first, but it is by no means clear that this is so. (ii) It is plain that not *all* entailment could be correlated with a relation between characteristics. Purely logical entailment could not be correlated with a relation between a certain characteristic X and a certain other characteristic Y, since it depends wholly on the forms of propositions and in no way on their special content. If intrinsic determination is a relation between characteristics, which is connected with the relation of entailment between propositions, it must be connected with what I have called "ontological entailment" and not with what I have called "logical entailment". Now it is not at all clear at first sight what McTaggart means to convey by his definition of "intrinsic determination".

(i) Taking the second statement which I have quoted, the ostensible meaning is clear enough. If this statement be interpreted literally, it means that ϕ intrinsically determines ψ if and only if the proposition "There is at least one instance of ϕ" entails the proposition "There is at least one instance of ψ", i.e., if and only if $(\exists x) . \phi x :\rightarrow: (\exists x) . \psi x$.

(ii) But the first statement quoted, which constitutes McTaggart's explicit definition of "intrinsic determination", is not so clear. In that statement he says that ϕ will intrinsically determine ψ, if and only if, *whenever* something

has ϕ, something has ψ. Now what does "whenever" mean in this connexion? Taken literally, it would mean that ϕ intrinsically determines ψ provided that, *at any moment* when something has ϕ, something has ψ; i.e., provided that

$$(\exists x) \cdot \phi(x, t) : \supset_t : (\exists x) \cdot \psi(x, t).$$

And, even if "whenever" is not to be interpreted *temporally*, it surely does imply some kind of possibility of indefinite repetition in various circumstances. This suggests that McTaggart is really thinking of a relation between *propositional functions*, viz., formal entailment, and not a relation between *propositions*.

(iii) When McTaggart begins to give examples he uses phrases which seem inconsistent with his definitions. Thus, at the bottom of p. 111, he says that "the *occurrence* of blueness intrinsically determines the *occurrence* of spatiality". (My italics.) And, at the top of p. 112, he says that the *quality* of one person to be a husband intrinsically determines the *occurrence* in someone else of the quality of being a wife. (My italics, again.) Here we have a mass of verbal inconsistencies. "Intrinsic determination" was defined at the beginning of § 108 as a relation between *characteristics*. Yet in the very same section it is said, in the first example, to relate two *occurrences*, and, in the second example, to relate a *quality* and an *occurrence* of a quality. Now, for McTaggart, a quality is a characteristic and not a fact, whilst an occurrence of a quality is either a fact or an event, and is certainly not a characteristic.

I will now try to unravel this verbal tangle. I think it is certain that McTaggart means intrinsic determination to be a relation between characteristics, and not between facts. And I think that he does intend to mean by it the relation in which ϕ stands to ψ if and only if the proposition "There is at least one instance of ϕ" entails the proposition "There is at least one instance of ψ"; i.e., if and only if

$$(\exists x) \cdot \phi x : \rightarrow : (\exists x) \cdot \psi x.$$

I believe the cause of the verbal confusions to be the following. There is another, and closely connected, relation

between characteristics, which I am going to call "Conveyance", which McTaggart does not explicitly notice or name. Often he is *thinking* of conveyance when he is *talking* of intrinsic determination. This, we shall see, accounts for his statements which introduce the word "whenever". The source of the confusion is that, if ϕ *conveys* ψ, it necessarily follows that ϕ *intrinsically determines* ψ, and we hardly ever know that ϕ intrinsically determines ψ except by inference from knowledge that ϕ conveys ψ. In fact conveyance is much the more important and interesting relation of the two. I will now explain and illustrate, and try to justify, these remarks.

I define the statement that ϕ "conveys" ψ to mean that, if anything has ϕ, it necessarily follows that *that same thing* has ψ; i.e., conveyance is the relation which ϕ has to ψ if and only if $\phi x \rightarrow_x \psi x$. Thus, for example, the characteristic of having shape conveys the characteristic of being extended.

Now it follows logically from $\phi x \rightarrow_x \psi x$ that

$$(\exists x) . \phi x :\rightarrow: (\exists x) . \psi x.$$

If, for example, nothing could have shape without being extended, then it is impossible that something should have shape whilst nothing had extension. Thus the proposition that ϕ conveys ψ entails the proposition that ϕ intrinsically determines ψ. But this entailment is not reversible. It is logically possible that ϕ should intrinsically determine ψ, although ϕ did not convey ψ. Thus the assertion of conveyance is a stronger and more definite assertion than that of intrinsic determination between the same characteristics. Now every instance of intrinsic determination which McTaggart gives is one in which conveyance also holds, and in which our knowledge that there is intrinsic determination is inferred from our knowledge that there is conveyance. It is not at all easy to think of any instance of intrinsic determination which is not inferred from conveyance. This being so, McTaggart sometimes tended to ascribe to intrinsic determination properties which belong only to conveyance.

Let us now consider McTaggart's examples. One is that "the occurrence of blueness intrinsically determines the occurrence of spatiality". Strictly speaking, this should mean

only that, if there were at least one instance of blueness, it would necessarily follow that there is at least one instance of spatiality. Now this may quite properly be expressed by saying that the "occurrence" of blueness in the universe involves the "occurrence" of spatiality in the universe. But, of course, this is much less than we are entitled to assert. What we know is that, if anything were blue, it would necessarily follow that *that very same thing* would be spatial. And this is our only ground for asserting the weaker proposition that, if blueness should occur somewhere in the universe, it would necessarily follow that spatiality would occur somewhere in the universe. Thus we here assert the weaker proposition that blueness intrinsically determines spatiality only because we are entitled to assert the stronger proposition that blueness conveys spatiality.

Now let us consider McTaggart's other example. The quality of being a husband is said to determine intrinsically the occurrence of the quality of being a wife. This again is true, on our interpretation of McTaggart's meaning. It is impossible that something should have the characteristic of being a husband and that nothing should have the characteristic of being a wife. Now here, of course, ϕ *does not* convey ψ, since it is not the case that it is impossible for any term to be a husband without *itself* being a wife. The difficulty is all the other way, as the Emperor Heliogabalus discovered. Nevertheless the proposition that "being a husband" intrinsically determines "being a wife" *is* derived from a proposition about the conveyance of one characteristic by another. It is derived from the proposition that "*being* a husband" conveys "*having* a wife". We will now proceed to generalise this example.

If we represent the relation of being a husband by R, and its converse, the relation of being a wife, by $\breve{R}$, the situation is as follows. "X is a husband" will be represented by $(\exists Y).XRY$. "Y is a wife" will be represented by $(\exists X).Y\breve{R}X$. Then

(i) The proposition that "being a husband" intrinsically determines "being a wife" will be represented by

$$(\exists X, Y).XRY :\rightarrow: (\exists Y, X).Y\breve{R}X.$$

This is simply an instance of the general proposition that, if R be a dyadic relation, and there is a couple of terms related by R, then it necessarily follows that there is a couple of terms related by the converse of R.

(ii) The proposition that "being a husband" conveys "having a wife" will be represented by

$$(\exists Y) . XRY : \rightarrow_X : (\exists Y) . Y\breve{R}X.$$

This is simply an instance of the general proposition that, if R be a dyadic relation, and X has R to something or other, it necessarily follows that there is something or other which has the converse of R to X.

(iii) The proposition (ii) entails the proposition (i), and is not entailed by it. But there is a still stronger and more definite proposition which in turn entails (ii) and is not entailed by it. This is the proposition that, if X is a husband of Y, then it necessarily follows that Y is a wife of X, whoever X and Y may be. This is symbolised by $XRY \rightarrow_{X,Y} Y\breve{R}X$. It is an instance of the general proposition that, if R be a dyadic relation, then, if any pair of terms are related by it in a certain order, the same pair of terms are necessarily related by its converse in the opposite order.

It is not at all clear to me that there are any cases in which we know that ϕ intrinsically determines ψ except by inference from knowledge about the conveyance of one characteristic by another. As we have seen, the relation of conveyance from which we infer that ϕ intrinsically determines ψ may not relate ϕ and ψ themselves. It may relate ϕ to some other characteristic which stands to ψ in some special relation, such as that between "having a wife" and "being a wife". Certainly McTaggart has given no example of intrinsic determination which is known independently of knowledge of conveyance.

CHAPTER XII

PRESUPPOSITION AND REQUIREMENT

McTaggart does not introduce the notion of "Presupposition" until § 183, Chap. XXIII, of the *Nature of Existence*. It is introduced there in connexion with an attempt to prove that the endless divisibility of particulars would conflict with the principle that every particular must have a sufficient description, unless certain peculiar conditions were fulfilled. When we come to deal with this argument, in Chap. XX of the present work, we shall see that it can be stated without using the notion of presupposition. As presupposition is very closely connected with conveyance and intrinsic determination, and as we shall not have any need to mention it again, this seems the best place for discussing and disposing of it.

1. Presupposition.

McTaggart's statements about presupposition are very confused and confusing; but it is quite possible to discover and to state clearly what he has in mind. I think that the verbal obscurities arise here, as they did in his treatment of intrinsic determination, from his failing to distinguish two closely connected relations. The result is that, when he uses the word "presupposition", he sometimes is thinking of one of these relations and sometimes of the other. And, as the two have different properties, he sometimes seems to be making inconsistent statements about a single relation.

The first of these relations relates one characteristic ϕ to another characteristic ψ. I shall express it by saying that ϕ "partially conveys" ψ. This relation then is a dyadic relation between characteristics, which we will call "Partial Conveyance". The second is a relation between a characteristic ϕ, a characteristic ψ, and a particular x. It may be expressed by the statement that "ϕ *presupposes* ψ in the instance x". Presupposition is then a triadic relation. We shall find that it

can be defined in terms of partial conveyance. McTaggart, as I have said, failed to distinguish these two relations, and used the single name "Presupposition" for both of them. He also failed to notice that presupposition, in one of the senses which he has in mind, is a triadic relation, relating two characteristics and a particular. I will now explain and illustrate these notions.

1·1. *Partial Conveyance.* We say that ϕ "partially conveys" ψ when and only when there is a class α of characteristics which obeys the following conditions. (i) α is a class of mutually exclusive characteristics, e.g., the various colours, or various shades of the same colour. (ii) ψ is a member of α. (iii) If anything has ϕ, then it necessarily follows that this thing has some member or other of the class α. (iv) There is no member of the class α such that, if a thing has ϕ, it necessarily follows that this thing will have *that* member of α. We might represent the statement that ϕ partially conveys ψ by writing a dotted arrow from ϕ to ψ. Thus $\phi \dashrightarrow \psi$. Using the notation of *Principia Mathematica*, the definition of "$\phi \dashrightarrow \psi$" would be as follows. It would mean that there is an α, such that

(i) $\chi, \omega \epsilon \alpha \,.\, \supset_{\chi,\omega} : \chi x \rightarrow_x \sim \omega x.$
(ii) $\psi \epsilon \alpha.$
(iii) $\phi x \rightarrow_x :. (\exists \chi) : \chi \epsilon \alpha \,.\, \chi x.$
(iv) $\sim (\exists \chi) :. \chi \epsilon \alpha : \phi x \rightarrow_x \chi x.$

The following would be an example of partial conveyance. The property of being coloured partially conveys the property of being triangular. For it is impossible to be coloured without having some shape or other, and triangularity is one of the shapes that a coloured thing may have. But it is quite possible to be coloured without being triangular, and the same is true of any shape that we choose to mention. We can call such a class as α a set of "Partial Consequents" of ϕ.

The relation of a determinable, e.g., being coloured, to a determinate which falls under it, e.g., being red, is an instance of partial conveyance. But here a further condition is fulfilled, viz., that, if anything is characterised by any member

of α, it necessarily follows that this thing will be characterised by ϕ. This further condition can hold also in cases where the two characteristics do not stand in the relation of determinable to determinate. For example, having extension partially conveys being triangular. And being triangular, or being of any other determinate shape, conveys having extension. But being triangular, being square, and so on, are not determinates under the determinable of having extension. They are determinates under the different determinable of having shape.

1·2. *Presupposition.* We can now define the statement that "ϕ presupposes ψ in the instance x". This means simply that x is characterised by both ϕ and ψ, and that ϕ partially conveys ψ. Suppose, for example, that a certain particular x is in fact coloured and triangular. Then we should say that being coloured presupposes being triangular in the instance x.

The meanings of our terms are now quite clear. In reading McTaggart we have only to remember that he sometimes uses the word "presupposes" when he is thinking of what we mean by "partially conveys". If he had realised that presupposition is not a two-term relation between characteristics, but is a three-term relation between two characteristics and a particular instance, he would have avoided a great deal of complication and verbal confusion.

We can now consider some propositions which McTaggart asserts about these relations.

(i) He says that presupposition may be reciprocal (§ 184). This is plainly true. Suppose that x is square and has an area of one square inch. The property of being square partially conveys the property of having an area of one square inch; and, since x in fact has this area, being square presupposes, in the instance x, having an area of one square inch. But having an area of one square inch also partially conveys being square in shape; since anything that has this area must have *some* shape, whilst there is no shape which such a thing *must* have. Since x in fact is square, having an area of one square inch presupposes, in the instance x, being square in shape. Thus, in the instance x, the presupposition of these two qualities by each other is mutual.

(ii) He says in § 184 that, if X presupposes Y or Z, and Y presupposes S or T, and Z presupposes U or V, then X will presuppose S or T or U or V. There are two comments to be made on this. (*a*) We must substitute for "X presupposes Y or Z" that "Y and Z are a set of partial consequents of X", and similarly throughout the proposition. (*b*) Even so the statement is false. We *can* infer from the premises that anything that had X would have S or T or U or V. And this is part of what is asserted in the conclusion. But we cannot infer, from the fact that what has X need not have Y and that what has Y need not have S, that what has X need not have S. And this is equally part of the conclusion. So McTaggart has simply committed a logical fallacy here. In the same section McTaggart says that, if X intrinsically determines Y, and Y presupposes either U or V, then X presupposes either U or V, *unless* X either directly or indirectly determines one of the two and thus excludes the other. The last proviso shows that he has here seen and avoided the trap into which he fell at the beginning of the paragraph. But even so his statement is not true unless we amend it to the following: "If X conveys Y, and U and V are a set of partial consequents of Y, then U and V are a set of partial consequents of X, *unless* X either directly or indirectly conveys one of the two and thus excludes the other".

1·3. *Total Ultimate Presupposition.* We come now to the notion of a "Total Ultimate Presupposition", which McTaggart develops in § 185. It is evident that the same characteristic ϕ might presuppose in the same instance x a number of different characteristics, ψ, χ, etc. Of course each of these would have to belong to a different set of partial consequents of ϕ, since characteristics which belong to any one set of partial consequents of ϕ would, by definition, be incompatible with each other. Now, if ψ and χ be two characteristics which are both presupposed by ϕ in a certain instance x, there are three possible kinds of relation between ψ and χ.

(i) It might be that neither conveys the other. Suppose, for example, that ϕ is the property of being red, ψ the property of being round, and χ the property of being 2 square inches

in area. And suppose that x is in fact red, round, and 2 square inches in area. Then, in this instance, being red presupposes being round, and also presupposes being 2 square inches in area. But a thing might be round and have any area, and it might be 2 square inches in area and have any shape.

(ii) It might be that each conveys the other. Suppose that x is triangular, equilateral, and equiangular. Then, in this instance, being triangular presupposes being equilateral and presupposes being equiangular. Now anything that had either equilateral or equiangular triangularity would necessarily have both.

(iii) It might be that there is a one-sided relation of conveyance between two presupposed characteristics. Suppose that ϕ is the property of being coloured, that ψ is the property of being red, and that χ is the property of being scarlet. And suppose that x is in fact coloured, and red, and scarlet. Then, in this instance, being coloured presupposes being red, and it also presupposes being scarlet. But anything that was scarlet would necessarily be red, though a thing might be red without being scarlet. In this case we say that the presupposed characteristic which conveys and is not conveyed by the other presupposed characteristic is "the more ultimate" of the two.

It is now easy to define the notion of "Total Ultimate Presupposition". Suppose that, in a certain instance x, ϕ presupposes ψ_1, and ψ_2, and ... ψ_n. Then: (i) We are to retain any of these which neither conveys nor is conveyed by any of the others. (ii) Where two of them convey each other, we are to keep one and reject the other. It does not matter *which* of the two we keep and which we reject. (iii) Where two of them stand in a relation of one-sided conveyance we are to keep the more ultimate and reject the less ultimate. Any set of ψ's which remain after these rules have been followed will be a Total Ultimate Presupposition of ϕ in the instance x. Suppose, for example, that x were coloured, red, scarlet, triangular, equilateral, equiangular, and 2 square inches in area. All the other characteristics in this list are presupposed, in this instance, by the characteristic of being coloured. To find a

Total Ultimate Presupposition we should proceed as follows. First, we should reject red, and keep scarlet as being more ultimate. Similarly, we should reject triangular in favour of equilaterally triangular and equiangularly triangular. Then we should reject one or other, but not both, of these characteristics, since they convey each other. We should have to keep the characteristic of being 2 square inches in area, for this neither conveys nor is conveyed by any of the others. Thus, in the instance x, a Total Ultimate Presupposition of being coloured would consist of the characteristics of being scarlet, being equilaterally triangular, and being 2 square inches in area. An alternative Total Ultimate Presupposition would be the same list with equiangularly triangular substituted for equilaterally triangular.

1·31. *The Principle of Total Ultimate Presuppositions.* In § 196 McTaggart asserts that, if a characteristic has a presupposition at all (in a given instance), it must have a Total Ultimate Presupposition (in that instance). I have added the words in brackets, in order to take account of the fact that presupposition is a triadic relation, and that any intelligible statement in which it occurs must make mention of an instance as well as making mention of two characteristics.

I propose to call the proposition stated above "The Principle of Total Ultimate Presuppositions". McTaggart attempts no proof of it, so it must be assumed that he regards it as self-evident. We must now consider whether it is self-evident.

Let us first consider what would be involved if there were a case in which the Principle was not true. Suppose, if possible, that, in a certain instance x, ϕ had presuppositions but had no Total Ultimate Presupposition. This would mean that there is an unending series of characteristics, $\psi_1, \psi_2, \ldots$, such that (i) all of them, and also ϕ, characterise x, (ii) ϕ partially conveys each of them, (iii) each conveys the ones that precede it in the series, and (iv) none of them conveys any one that follows it in the series. In this case, if it were possible, ϕ would have presuppositions, but no Total Ultimate Presupposition, in the instance x. Is such a case possible?

There are certain examples in which it looks at first sight as if this supposed state of affairs were impossible. But there are others in which it does not seem *prima facie* impossible. And I think that further reflexion will show that it is not *certainly* impossible even in cases of the first kind. I will now explain, and try to justify, these statements.

(i) It certainly seems extremely plausible to hold that, if a particular x has a determinable characteristic, such as colour, it must have a certain absolutely determinate form of it. Suppose then that ϕ is the characteristic of being coloured, that ψ_1 is the characteristic of being red, that ψ_2 is the characteristic of being scarlet, and so on. Suppose that x is in fact coloured, red, scarlet, and so on. Then, it might be said, it is obvious that this series must end in a certain absolutely determinate shade, which is the colour of x. If so, the property of having this absolutely determinate shade will be the Total Ultimate Presupposition of being coloured in the instance x. There might be no objection to the series of more and more determinate shades being compact, and thus having an infinite number of terms, like the series of ratios consisting of 1/2 and 1/1 and all the ratios between them arranged in order of magnitude. But, it will be said, it must have a last term, like the ratio 1/1 in this series; it must not be endless like the series 1, 2, ... of the integers. I suspect that it was such series of more and more determinate specifications of a determinable which led McTaggart to think it self-evident that there must be a Total Ultimate Presupposition wherever there is a presupposition at all.

(ii) Suppose that a certain particular x has the property of having a certain characteristic ϕ at some time within a certain period τ. Then it must either have ϕ for the whole period, or have it for less than the whole period. Suppose it has ϕ for less than the whole period. Then it must have ϕ for more than half the period or for not more than half the period. Suppose that it has ϕ for not more than half the period. Then it must have ϕ for more than one quarter of the period or for not more than one quarter of the period. Now consider the series of characteristics "having ϕ for less than τ", "having ϕ for not

more than $\tau/2$", "having ϕ for not more than $\tau/4$", and so on without end. Each of them conveys all its predecessors and none of its successors. Each of them is partially conveyed by the property of "having ϕ at some time within the period τ". So, *if* all of them could belong to a particular x, the property of "having ϕ at some time within the period τ" would, in the instance x, presuppose all these other characteristics, and yet would have *no* Total Ultimate Presupposition, since the series is plainly endless. Now, *unless* it were possible for all the members of such a series to belong to a particular, it would be impossible for any particular to have a characteristic at all within a period without having it for some finite time within this period. And, if this were impossible, all continuous change of a particular with respect to any characteristic would be impossible.

Now this would not, of course, have worried McTaggart, who held, on other grounds, that time and change are unreal. But I think that it may quite properly affect us, when we are asked to accept a certain highly abstract and unfamiliar principle as self-evident. We might admit that the principle does seem quite plausible at first sight, and that it does seem at first sight to be confirmed when we reflect on such a series of characteristics as being red, being scarlet, and so on. But we might add that it seems at least as plausible to hold that continuous change is metaphysically possible; and that, having now seen that the truth of the principle would be incompatible with the possibility of continuous change, we must simply suspend judgment about it.

It may be remarked that a precisely similar argument would show that the principle is inconsistent with the possibility of there being a red band which varies continuously in shade from one end to the other. For let the band be of length x, and let s be a perfectly determinate shade of red which occurs somewhere within this band. Then the band will have a series of properties of the following kind, viz., "having the shade s throughout a length less than x", "having the shade s throughout a length not greater than $x/2$", "having the shade s throughout a length not greater than $x/4$", and

so on. Each of these will be presupposed by the property of having the shade s somewhere within the band. Each conveys all that come before it, and is conveyed by all that come after it. And the series must be endless, if the band varies continuously in shade from one end to the other. And so, if the band is continuously shaded, the property of having the shade s somewhere within it presupposes, in the case of the band, an endless series of properties which give rise to no Total Ultimate Presupposition. Here again I would not suggest for a moment that this consequence of the Principle of Total Ultimate Presuppositions refutes the principle. There may be no bands which are continuously variable in shade from one end to the other. I only say that, when we see to what we are committed by accepting the principle, we may reasonably hesitate to accept it. Of course, anyone who still finds it self-evident on reflexion must still accept it and take the consequences.

(iii) It only remains to point out that it seems quite possible to reconcile the doctrine that, if x has a colour at all, it must have a perfectly determinate shade of a certain colour, with the view that the series of more and more determinate shades under a given colour is endless, like the series of integers. Suppose that there is a compact series of perfectly determinate shades. Then to ascribe a relatively indeterminate shade to a particular might simply be to assert that its absolutely determinate shade fell somewhere or other between two shades in this compact series of absolutely determinate shades. Let us take an analogy. To say that a thing is red might be like saying that its length falls between 1/4 and 3/4 inches. To say that it is scarlet might be like saying that its length falls between 3/8 and 5/8 inches. To say that it had the shade of scarlet of a Cambridge Litt.D. gown might be like saying that its length falls between 7/16 and 9/16 inches. In general, to ascribe to it the nth relatively determinate shade in the series might be analogous to saying that its length falls between $1/2\ (1 - 1/2^n)$ and $1/2\ (1 + 1/2^n)$ inches. This series of *ranges* of length would be endless, and yet the thing would have the absolutely determinate *length* of 1/2 inch. Similarly,

a particular x might have an *absolutely determinate* shade of red, and yet the series of *relatively determinate* shades which are presupposed by its being red might be endless. So "being red" would have no Total Ultimate Presupposition in the instance x, though it would have an endless series of presuppositions in that instance.

Now it is only a step from the last suggestion to the suggestion that the notion of *relatively* determinate shades is primary, and that the notion of *absolutely* determinate shades is definable in terms of it. May not the statement that x has a certain perfectly determinate shade of red *mean* that it has an endless series of relatively determinate shades of red, which converges in a certain characteristic way? The notion of absolutely determinate shade seems to me to have the same flavour of artificiality about it which attaches to the notions of points, of instants, of point-event-particles, and so on. Whitehead has suggested a method by which statements involving the latter terms can be replaced by statements about volumes, durations, etc., and their relations. I cannot help thinking that a somewhat similar method must be applied to statements in which the term "absolutely determinate shade of red", and similar terms, occur.

When all the facts and possibilities which I have been mentioning are taken into account, I am not prepared to accept as certain that, in every instance where there is a presupposition at all, there is a Total Ultimate Presupposition. At any rate, it should now be plain that this principle ought not to be accepted light-heartedly and with so little discussion as McTaggart bestows on it.

2. Requirement.

It remains to say something about the notion of "Requirement", which McTaggart introduces in connexion with Presupposition. In § 184 he says that "the nature of presupposition may be expressed not unfairly by saying that X presupposes whatever it requires but does not supply". I think that the following example will make the notion of requirement quite clear. Suppose that a certain

particular has the property of being a conic section. Then this conveys the disjunctive property of being either a circle or an ellipse or an hyperbola or a parabola or a pair of intersecting straight lines. It may be said then that the characteristic of being a conic section "supplies" this disjunctive property. Now suppose that the particular in question is in fact a circle. Since the property of being a conic section only partially conveys that of being a circle, we say that it "presupposes" circularity in this instance. Now, it seems to me, what the property of being a conic section has here failed to "supply" is the *differentia* between the generic characteristic of being a conic section and the specific characteristic of being a circle. This *differentia* is the characteristic of being a section perpendicular to the axis of the cone. Thus, it seems to me, the correct statement would be, not that being a conic section in this instance requires *being circular*, but that in this instance it requires being perpendicular to the axis of the cone. It supplies the property of being a section in *some* direction or other; it fails to supply the determinate direction; and yet in any particular instance the direction must be determinate. Thus what it requires in any particular instance is surely the determinate direction of the section. So I should say that being a conic section *supplies* being either a circle or an ellipse or an hyperbola or a parabola or two intersecting straight lines, that in this instance it *presupposes* being circular, and that in this instance it *requires* being a section perpendicular to the axis of a cone.

On this interpretation the notion of requirement would cease to apply where there is no question of a *differentia*, as, for example, in the case of the determinable "being coloured" and the determinate "being red". Suppose that a certain particular is extended. I should say that this supplies being red or blue or green or yellow or white or black. Suppose that this particular is in fact red. Then I should say that being extended in this instance presupposes being red. But there is nothing of which I could say that it was *required* in this instance by being extended.

CHAPTER XIII

CAUSATION

McTaggart does not state his views about Causation until Chap. xxv of the *Nature of Existence*. According to him Causation is very closely connected with Intrinsic Determination—indeed, the former is a special case of the latter. I propose therefore to deal with this part of his doctrine here. I shall also consider along with it his views on Induction and the Uniformity of Nature.

1. McTaggart's View of Causation.

McTaggart's doctrine of causation falls into two parts. He begins, in § 208 of the *Nature of Existence*, by making certain statements about causation, which he somewhat rashly thinks that everyone would admit. Then, in § 209, he passes on to other statements, which he holds to be true but admits to be not generally accepted. We will now take the two stages in turn.

1·1. *The "non-controversial" Part.* McTaggart mentions three features which he thinks everyone would admit to be part of the meaning of "causality". I will quote his own words for the first two of them. (i) "It is a relation of determination, and of what we call *intrinsic* determination." (ii) "It holds only between existents." (iii) In spite of certain appearances to the contrary, which are due to linguistic usage, it is really a relation between qualities. All these statements are somewhat ambiguous, and the arguments by which they are supported are somewhat shaky. There is no need, however, to criticise his expressions in detail, for there is very little doubt as to what McTaggart *means*, as distinct from the sometimes inconsistent things that he *says*. His meaning can be collected quite easily from his examples and his comments on them. The only difficulty is to express it clearly, which he has unfortunately failed to do.

In order to formulate his theory satisfactorily we must first introduce the second-order characteristic of "having a certain characteristic ϕ at a certain moment t". I will denote the proposition that x has ϕ at t by the symbol $\phi(x, t)$. ϕ may itself be highly complex. It might, for example, be the characteristic of drinking alcohol on an empty stomach. Now suppose it were the case that, if any particular x had ϕ at any moment t, then x would have a certain other characteristic ψ at a certain moment t' which stands to t in a certain temporal relation T. ψ might itself be a highly complex characteristic. It might, for example, be the characteristic of ceasing to be in contact with a certain body which is moving with a certain velocity. The temporal relation T might happen to be that of simultaneity, or that of preceding by so much, or that of following by so much. The supposed state of affairs would be symbolised by the formula

$$\phi(x, t) \rightarrow_{x,\, t} :. (\exists t') : t'Tt \,.\, \psi(x, t').$$

It is evidently a special case of what we have called "formal entailment". If we denote the characteristic of "having ϕ at t" by ϕ_t, and that of "having ψ at a moment which stands in the relation T to t" by $\psi_{T(t)}$, we can say that ϕ_t *conveys* $\psi_{T(t)}$.

Let us take an example. Let ϕ be the characteristic of being drunk, and let ψ be the characteristic of drinking alcohol. Then, if any individual were drunk at any moment, it necessarily follows that there was an earlier moment at which he drank alcohol. If we now talk of a relation between *characteristics*, we shall say that the characteristic of being drunk at any moment *conveys* the characteristic of having drunk alcohol at an earlier moment. When, and only when, two characteristics are of the special kind mentioned in the above formula, and when one conveys the other, we can say that they are "connected by a causal law". We have already seen that McTaggart often talks of "intrinsic determination" when he means what we call "conveyance"; and I think that he is doing this almost everywhere in his remarks about causation being an instance of intrinsic determination.

Now suppose it is a fact that a certain individual has ϕ at a certain moment, and that such a formula as that stated above holds between ϕ and ψ. Then there will also be the fact that this individual has ψ at the moment which stands in the relation T to the moment at which this individual has ϕ. We then say that one of these facts "causes" the other. Suppose, for example, it is a fact that Jones was drunk at 10 p.m. on Christmas Day in A.D. 1930. Then it necessarily follows that there is also the fact that Jones drank alcohol some time before 10 p.m. on Christmas Day, 1930. We say that one of these facts "causes" the other. And, in this case, we should say that the fact that Jones drank alcohol some time before 10 p.m. on Christmas Day, 1930, caused the fact that he was drunk at 10 p.m. on that day.

I think that the above is a clear and accurate statement of that part of McTaggart's theory of causation which he believes to be non-controversial. It may be summed up as follows. (i) It is only of *facts* that we can say that one "causes" another. (ii) We can say this only of pairs of facts of a certain kind, viz., facts of the form "This particular has ϕ at a certain moment" and "This same particular has ψ at a moment which stands in a certain relation T to the moment at which it has ϕ". (iii) We can say it of such pairs of facts only when the characteristic of having ϕ at any moment conveys the characteristic of having ψ at a moment which has to the first-mentioned moment the relation T. That is, we can say it when and only when these two characteristics are connected by a causal law.

In order to obviate a possible confusion in the reader's mind it is worth while to point out, before going further, that, although, on this view, a causal law is an instance of what is technically called "formal entailment" between two propositional functions, it is not an instance of an entailment which depends purely on the forms of the two propositional functions. It plainly depends in part on the special ϕ and ψ concerned. If "drinking water" or "applying alcohol to the scalp" were substituted for "drinking alcohol" in our example, the two propositional functions would be of the same form

as before; but there would no longer be formal entailment of one by the other. Thus the entailment is of the kind which we called "ontological" and contrasted with "logical" entailment.

Now McTaggart thinks that everyone would agree with him up to this point so soon as purely verbal misunderstandings had been removed. Some people might, indeed, doubt or deny that it is ever *true* to say of anything that it causes anything. But McTaggart thinks that everyone would agree that the analysis of causal statements given above is correct so far as it goes, even if all such statements should be false or doubtful. Is he right in assuming this amount of agreement? I think it is certain that he is not, for two reasons.

(i) Many people who had followed and understood my statement of McTaggart's doctrine would still deny that it is *facts* which are causes and effects. They would say that the only entities which can be causes or effects are *events*, and that an event is not a fact. Of course, if there is an event, there is the fact that such and such an event happened at a certain date and place. But, it might be said, we must no more confuse the event which is Jones's getting drunk with the fact that Jones got drunk than we must confuse the continuant Jones with the fact that Jones existed. No doubt, two events stand in the relation of cause and effect when, and only when, the facts that they occurred stand relations of the kind which McTaggart has been describing. But the causal relation connects the events, and not the facts that these events happened. Such a view is *prima facie* plausible, and I think that a good many people would say that they hold this view and not McTaggart's, when the alternatives were clearly presented to their attention.

(ii) An even more serious objection is the following. A man might agree that cause and effect are always *facts*, and facts of the kind which McTaggart has in view. And yet he might doubt or reject McTaggart's doctrine of the nature of causal laws. McTaggart assumes that, when two characteristics are connected by a causal law, the proposition that one of them

belongs to any particular *entails* the proposition that the other belongs to this same particular. Now this means, for example, that, if being drunk at any time is causally connected with having drunk alcohol earlier, then the presence of the former characteristic is *inconsistent with* the absence of the latter in precisely the same sense in which the presence of shape is inconsistent with the absence of extension. Now there are three remarks to be made about this.

(*a*) McTaggart gives no satisfactory argument in support of this view. The only argument that he gives is that, when two characteristics are causally connected, it is certainly not the case that the occurrences of them are connected merely by *extrinsic* determination. For extrinsic determination, as we shall see, is always reciprocal, and connects every fact with every other fact; whilst causal connexion is often not reciprocal, and connects only certain facts with certain others. This is perfectly true. But what right has he to assume that, because causal connexion would not be an instance of extrinsic determination, it would have to be an instance of intrinsic determination, by which he here means conveyance? He has never given any general definition of "determination", and has never attempted to prove that it has just these two and no other forms. All the examples which he has hitherto given of intrinsic determination of ψ by ϕ have been cases in which the conjoined presence of ϕ and absence of ψ is, and can be seen to be, impossible. Now he admits, and asserts, that we are seldom, if ever, in a position to see this in the case of causal laws. We cannot see that it is *impossible* to be drunk without having previously drunk alcohol, as we can see that it is impossible for a triangle to be equilateral without being equiangular, unless of course we define "being drunk" as "being under the influence of alcohol". And, if we do this, the "causal law" becomes a merely analytic proposition, and the formal entailment which it asserts becomes logical, as distinct from ontological, entailment.

(*b*) Now a great many people would altogether reject this view of the nature of causal laws. They would say that the connexion between being drunk and having previously drunk

alcohol is fundamentally different from the connexion between being an equilateral triangle and being equiangular. In the former case, they would say, the connexion is that of formal implication and not that of formal entailment. The causal law simply is the proposition that, as a matter of fact, there have been, are, and will be no cases of getting drunk not preceded by drinking alcohol, whilst there have been, are, and will be plenty of cases of getting drunk. No doubt there are great difficulties in this view of the nature of causal laws. But there are great difficulties in *any* existing view of the nature of causal laws. And this one is quite certainly held by many intelligent people, including Hume. That it was not held by McTaggart is made quite clear by a remark which he makes in Book IV, Chap. XXIX, § 265, p. 280, of the *Nature of Existence*. He says there: "It is clear...that we are not entitled to hold that every occurrence of X will be accompanied by the occurrence of Z unless we are entitled to hold that Z is intrinsically determined by X". Here intrinsic determination, by which he means conveyance, is sharply contrasted with Russell's "formal implication", and the former is said to be the only legitimate ground for believing in the occurrence of the latter.

(*c*) It is evident that McTaggart's view is that, if being drunk and having previously drunk alcohol really are causally connected, then the connexion between them is precisely the same as that between having shape and being extended. The only difference is *epistemological*. In some cases where the presence of ϕ is inconsistent with the absence of ψ we can see this directly by reflecting on ϕ and ψ, or we can deduce it from other facts which we can see to be necessary. Our knowledge of the connexion is then *a priori*. In other cases where the presence of ϕ is inconsistent with the absence of ψ we cannot see this directly by reflecting on ϕ and ψ, nor can we deduce it from other facts which we can see to be necessary. Our belief in this connexion between ϕ and ψ is then *empirical*. Most, if not all, causal laws are in the latter position. But there is no difference in content between them and laws which can be known *a priori*. If our belief in the law is true at all,

it corresponds in both cases to a fact of necessary connexion. In one case we can see the necessity directly, or can prove it demonstratively. In the other case we cannot. This is the only difference.

Now, whether this view be true or not, it is certainly not universally or even commonly held. Many people would say, not only that they *cannot* see that the connexion between two characteristics which are connected by a causal law is necessary, but that they *can* see that it is *contingent*. In fact the fundamental difficulty about causation is that it seems to involve something more than formal implication and something less than formal entailment, and that it is extremely hard to think of anything that could answer to these conditions. This difficulty McTaggart seems never to have recognised.

1·2. *The "controversial" Part.* We can now pass to that part of McTaggart's doctrine of causation which, he thinks, would not be universally admitted. It is commonly held that, if two facts, A and B, are related by the causal relation, it is always possible to distinguish one as "cause" and the other as "effect". It is further held to be a self-evident *synthetic* proposition that, when the dates in the two facts are different, the cause must be the one with the earlier date and the effect must be the one with the later date. McTaggart's view on this point is quite different. According to him, if two facts, A and B, are related by the causal relation, and if their dates differ, we always call the one with the later date the "effect" and the one with the earlier date the "cause". But this is a mere matter of definition. There is no independent criterion for distinguishing cause and effect. And so, when there is no difference of date between two facts which are causally connected, there is no meaning in calling one "cause" and the other "effect".

If McTaggart's definition of the statement that "A and B stand in the causal relation" be accepted, there is only one feature in the causal relation itself which could conceivably mark out one term as "cause" and the other as "effect". This is the relation of conveyance. In some cases where the

characteristic of "having ϕ at a moment" conveys the characteristic of "having ψ at a moment which stands in the relation T to the moment at which ϕ was had" the conveyance is not reciprocal. For example, "being drunk" conveys "having previously drunk alcohol", but "having previously drunk alcohol" does not convey "being drunk". For, even if it be impossible to be drunk without having previously drunk alcohol, it is quite possible to have drunk alcohol without being drunk. It might then be alleged that, when A and B stand in the causal relation, it is always the case that the characteristic of which one of them is an occurrence conveys and is not conveyed by the characteristic of which the other is an occurrence. And it might be also alleged that the term which is an occurrence of the convey*ing* characteristic is called the "cause", whilst the term which is an occurrence of the convey*ed* characteristic is called the "effect". And, finally, it might be alleged that it is self-evident that the date in the former must be earlier than the date in the latter.

Now McTaggart has no difficulty in showing that there are fatal objections to any such contention. (i) The relation of conveyance is sometimes reciprocal. For example, "being born" conveys "subsequently dying", and "dying" conveys "being previously born". For, so far as we know, it is equally impossible to be born without subsequently dying, and to die without previously being born. (ii) Even when the relation of conveyance happens not to be reciprocal it may run from the characteristic which occurs later to that which occurs earlier. For example, if we adopted the suggestions made in the last paragraph, we should have to say that the fact that Jones is drunk now is the cause of his having drunk alcohol previously. Yet no one would say this.

It is evident that, if McTaggart's definition of the statement that "A and B stand in the causal relation" be accepted, the common view on these points could be maintained only if two conditions were fulfilled. (i) That, whenever A and B are causally related, there is a certain characteristic, *not* involved in the definition of causal relatedness, which is present

in the one and absent in the other. The one that has it is to be called the "cause", and the one that lacks it is to be called the "effect". (ii) That, whenever the dates in *A* and *B* differ, the term which has this characteristic is the one in which the earlier date occurs, and the term which lacks it is the one in which the later date occurs. McTaggart considers two characteristics which have been held to answer to these conditions. The first is that of being active, the second is that of explaining. He dismisses the first, on the ground that there is no reason to believe that activity characterises either *A* or *B* in most cases where *A* and *B* are causally connected. There is, in fact, no reason to think that activity is present in any case except where one of the terms is a volition. And even then he thinks that it is most likely a collateral effect in the way of bodily feeling, and not a characteristic of the cause. He dismisses the characteristic of "explaining", on the ground that, in the only sense in which the earlier term ever explains the later, it is often equally true that the later explains the earlier.

I think there is no doubt that McTaggart's conclusions follow if we accept his definition of the statement that "*A* and *B* are causally related". I have already said that I doubt whether most people would accept his definition. In particular, as I have pointed out, many people would hold that it is always *events*, and not facts, which stand in the causal relation. Surely it is obvious that people who hold the activity-theory cannot believe that causes and effects are facts; for it is nonsensical to call a fact either "active" or "passive". I must also remark that McTaggart's objection to the activity-theory seems to me quite inconclusive. It rests on confusing *activity* with *consciousness of activity*. If there be anything answering to the name "activity", it, and the awareness by anyone of it, must be different. It is therefore not obvious why it, as distinct from the awareness of it, should not occur in non-conscious beings, if it occurs anywhere. It is curious how often this peculiarly silly confusion occurs in the writings of eminent philosophers, and to how many different uses it has been put. No doubt McTaggart's

own view is that there simply is nothing answering to the name "activity", and that what is called "being aware of activity" is merely having organic sensations of certain kinds. This is a possible view; but it is by no means certainly true, and he has given no reason for it.

It seems to me that the paradoxical nature of McTaggart's conclusions, and the fact that they really do follow from his definition of the statement that "A and B are causally connected", may show that his definition does not express the analysis of what most people mean by such statements. But *what* is meant by them; whether what is meant can be analysed, and if so, how; and whether such statements are ever *true*; these are questions to which I do not pretend to know the answers. I shall say what I can about causation on my own account at the end of this chapter; but, before doing so, I will expound McTaggart's doctrines about the Uniformity of Nature and about Induction.

2. McTaggart on the Uniformity of Nature.

McTaggart discusses the Uniformity of Nature in Chap. XXV of the *Nature of Existence*. He takes it to be the principle that the occurrence of any characteristic ϕ conveys that of some other characteristic ψ, and is conveyed by that of some other characteristic χ. The first clause of the principle may be symbolised as follows

$$(\phi) :: . (\exists \psi) :: \phi(x, t) \rightarrow_{x, t} :. (\exists t') : t'Tt . \psi(x, t') \quad \ldots(1).$$

The second clause may be symbolised as follows

$$(\phi) :: . (\exists \chi) :: \chi(x, t) \rightarrow_{x, t} :. (\exists t') : t'Ut . \phi(x, t') \quad \ldots(2).$$

Suppose, for example, that ϕ were the characteristic of being beheaded. Then ψ would be the complex characteristic of having a certain part (viz., the heart) which has the characteristic of ceasing to beat. And T would be the relation of almost immediate subsequence. Again, χ would be the complex characteristic of having a certain part (viz., the neck) which has the characteristic of being struck violently by a sharp instrument. U would here be the same as T, viz., the

relation of almost immediate subsequence. The Uniformity of Nature is the principle that, to *every* ϕ, there is a ψ and a χ related in the way in which the ϕ and χ of our example are related to the ϕ of our example.

McTaggart says, on the top of p. 231 of the *Nature of Existence*, that the principle is not self-evident to him, and that he knows of no way of proving it, though it *may* be true. I should say exactly the same as McTaggart about it.

2·1. *Reciprocal Determination.* It was a curious craze with Hegel, and with many idealistic logicians, like Bosanquet, to maintain that all causal laws, when fully and properly stated, are reciprocal. McTaggart never accepted this view, and, in his commentaries on Hegel, he showed how flimsy are the grounds which have been alleged in its favour. In § 219 of the *Nature of Existence* he reiterates his contention that it is perfectly certain that causal laws are *not* all reciprocal, and he shows that the reciprocity of all causal laws is not entailed by the Uniformity of Nature.

The example which we gave above, about being beheaded, makes it quite plain that causal laws are not all reciprocal. A man's heart could stop beating though he were never at any time beheaded, though no man could be beheaded at any time without his heart ceasing to beat almost immediately afterwards.

The false proposition that all causal determination is reciprocal would be symbolised as follows:

$$\phi\,(x, t) \rightarrow_{x,t} :. (\exists t') : t'Tt \,.\, \psi\,(x, t') :: \supset_{\phi,\psi} :: \psi\,(x, t)$$
$$\rightarrow_{x,t} :. (\exists t') : t'Ut \,.\, \phi\,(x, t') \qquad \ldots\ldots(3).$$

It is quite plain that McTaggart is right in saying that it is not entailed by the Uniformity of Nature, which is the conjunction of the propositions (1) and (2) written down above.

It seems to me that there is something more to be said on this topic. The people who asserted with such passion that all causal determination is reciprocal were, indeed, extremely muddle-headed. But they were not lunatics, and they must have meant something much less sweeping than the patently false proposition (3). What they meant was, no doubt, that,

to every characteristic ϕ, there is *at least one* other characteristic ψ, such that ϕ_t conveys $\psi_{T(t)}$ and ψ_t conveys $\phi_{U(t)}$. This proposition is symbolised as follows:

$$(\phi) :: (\exists \psi) :: . \phi(x, t) \rightarrow_{x,t} :. (\exists t') : t' T t . \psi(x, t') :: \psi(x, t)$$
$$\rightarrow_{x,t} :. (\exists t') : t' U t . \phi(x, t') \quad \ldots(4).$$

Even it does not follow from the Uniformity of Nature. We do, no doubt, commonly assume that, if a number of different characteristics, ϕ_1, ϕ_2, ... ϕ_n, all convey the characteristic ψ, whilst ψ conveys only the disjunctive characteristic ϕ_1-or-ϕ_2-or ... or-ϕ_n, then there must be some factor ϕ, common and peculiar to ϕ_1, ϕ_2, ... ϕ_n, such that ϕ and ψ reciprocally convey each other. In many cases we can discover the common and peculiar factor ϕ, and it *may* be present even in those cases where it has not been discovered. But I think that we must agree with McTaggart, even when reciprocity of causal determination is taken in the present restricted sense in which alone it is not patently contrary to known facts, that it is not self-evident and has never been proved.

3. McTaggart on Induction.

McTaggart deals with Induction in Chap. XXIX of the *Nature of Existence*, beginning at § 264 and continuing to the end of the chapter. The essence of his doctrine is as follows:

(i) No premise of the form "All *observed* instances of ϕ have been instances of ψ", however numerous the observed instances may have been, has the slightest *direct* tendency to support the conclusion that "All instances *whatever* of ϕ are instances of ψ". (I use "are" here as an abbreviation for "have been, are, and will be".) If such evidence lends any support to such a conclusion, it must do so indirectly, viz., by supporting the conclusion that the occurrence of ϕ *conveys* the occurrence of ψ, i.e., that the presence of ϕ is *inconsistent with* the absence of ψ. Now has such a premise any tendency to support the latter kind of conclusion?

(ii) Unless some further premise, which is known *a priori*, be added to the empirical premise, the latter can never give us any ground to suspect the presence of a relation of con-

veyance. McTaggart's conclusion here is undoubtedly correct, but there is a fallacy in the argument by which he supports it on p. 281.

He argues as follows. Suppose that ϕ does *not* in fact convey ψ; that 100 instances of ϕ have been observed; and that they have all been found to be instances of ψ. If the occurrence of ψ be quite contingent to the occurrence of ϕ, there are 2^{100} possible cases for the 100 instances. It might have been the case that *none* of the 100 instances of ϕ were instances of ψ. This gives us one possibility. It might have been the case that one and only one of the instances of ϕ was an instance of ψ. Since this one might have been any one of the 100, this gives us 100 possibilities. It might have been the case that two and only two of the instances of ϕ were instances of ψ. Since these two could have been selected out of the 100 in $\frac{100 \times 99}{2}$ ways, this gives us $\frac{100 \times 99}{2}$ possibilities. Proceeding in the same way, we find that the total number of possibilities is $1 + {}^{100}C_1 + {}^{100}C_2 + \ldots {}^{100}C_{99} + 1$, which is 2^{100}.

Now McTaggart says truly that, in the absence of all other information bearing on the question, each of these possibilities is as likely as any other, so that the probability of any of them is $1/2^{100}$. He then argues that the probability of all the 100 instances of ϕ being instances of ψ is no less than that of any of the other possibilities, on the hypothesis that ψ is quite contingent to ϕ. He concludes from this that the fact that this, and not one of the other possibilities, has in fact been realised cannot suffice to make the hypothesis of contingency any *less* probable than it was to start with, and therefore cannot suffice to make the hypothesis of the conveyance of ψ by ϕ any *more* probable than it was to start with.

In this argument he forgets that the possibility of *all* the instances of ϕ being instances of ψ covers *only one* case; whilst the possibility, for example, of 39 of the 100 instances of ϕ being instances of ψ includes ${}^{100}C_{39}$ possibilities, *each* of which is antecedently as likely to be realised as the one

possibility that all the 100 instances of ϕ are instances of ψ. So it is not true that the possibility of all the 100 instances of ϕ being instances of ψ is as likely to be realised as any of the other possibilities, on the hypothesis of contingency. It is *less* likely to be realised, on this hypothesis, than any other of the possible proportions except 0 per cent. And so it must be admitted that the number of instances of ϕ which have actually been found to be instances of ψ in McTaggart's example is less likely than every other possible number with one exception, on the hypothesis of contingency. And this certainly does reflect *some* discredit on the hypothesis that the occurrence of ψ is quite contingent to that of ϕ.

But, although McTaggart has here made a mistake, he states in the next paragraph what is the essential point in the argument. We may put it in our own way as follows. Unless we know independently something about the *antecedent* probability of contingency as against conveyance in the case under investigation, we cannot say whether the *final* probability of the hypothesis of conveyance is rendered appreciable by the fact that all the 100 observed instances of ϕ were instances of ψ. The very least that we should need to know, in addition to our special observational evidence, is that conveyance does occur *somewhere* in the universe.

(iii) Now we know some cases of conveyance *a priori*. For example, we recognise by mere inspection and reflexion that nothing could possibly have shape and lack extension. But this does not help us much. For the only instances of conveyance which we *know* there to be in the universe are instances in which the fact that this conveys that can be known *a priori*. But we use induction to justify the belief that this conveys that in cases where this fact, if it be a fact, *cannot* be known *a priori*. So our knowledge that there is conveyance in the universe, in so far as it is derived from our *a priori* knowledge of certain specific instances of conveyance, is irrelevant for the purpose of justifying inductive arguments. For it does not give any assignable probability to the hypothesis that there are in the universe instances of conveyance which we cannot know *a priori*. It might well be

that the *only* instances of conveyance which occur in the universe are those which we can know *a priori*.

(iv) McTaggart holds that we can show that there must be in the universe instances of intrinsic determination which we cannot know *a priori*. This depends on his Principle of Determining Correspondence. The argument will be explained and criticised in Book v, Chap. xxii of the present work.

(v) But he thinks that this fact gives little, if any, help to induction. Suppose we positively knew that *every* characteristic conveys some other and is conveyed by some other, this would not give any assignable probability to the hypothesis that conveyance holds between a certain pair of characteristics, ϕ and ψ, where it cannot be seen *a priori* to hold. ϕ might convey, not ψ, but some unobserved characteristic χ. And ψ might be conveyed, not by ϕ, but by some unobserved characteristic ω. The knowledge that ϕ conveys something and that ψ is conveyed by something does not enable us to compare the probability of the hypothesis that ϕ conveys ψ with that of the other possible hypotheses just mentioned.

(vi) Now, as McTaggart says, it is difficult to see how philosophy could do more for induction than to establish the proposition that every characteristic conveys some other and is conveyed by some other. We have already seen that philosophy has not established this, and that there is very little prospect of its doing so. We now see that, even if philosophy were to succeed in doing this, we should not thereby be justified in ascribing any appreciable antecedent probability to any alleged instance of conveyance which could not be seen *a priori* to hold. And we have seen that, unless this can be done somehow, we are not justified in attaching, on inductive grounds, any assignable final probability to any alleged causal law, no matter how numerous and how uniformly favourable the empirical evidence may be. I must confess that I can see no answer to this argument.

(vii) In conclusion, McTaggart points out that, as a matter of fact, we all should assign an extremely high probability to the hypothesis that ϕ either conveys ψ, or is a factor in a

more complex characteristic which conveys ψ, if 100 instances of ϕ had been observed and had all been found to be instances of ψ. This may be just a blind and unreasonable impulse, like that which makes us tend to over-estimate the importance of our own interests or the virtues of our friends or the vices of our enemies. But it is just conceivable that we have some kind of rational insight in some such cases, and that the probabilities really are, and are really seen to be, of the same order of magnitude as we judge them to be, though we do not reach our conclusion by any known process of reasoning and could not assign numerical values to the probabilities. McTaggart declines to commit himself in any way to this alternative. He concludes that no philosophical justification has been given for induction, and that it is difficult to see in what direction such a justification could be sought with any hope of success. In this conclusion he is, in my opinion, certainly right.

There is just one other remark which it seems worth while to make before leaving this topic. On McTaggart's view there is not any such profound ontological dissimilarity as there is on most other views, between causal laws and instances of conveyance which can be seen *a priori* to hold. Both are intrinsically necessary relational facts. And the relation is the same in both, viz., that of conveyance. The primary difference is epistemological. In the case of the laws of nature, human beings cannot see by direct inspection that the relation of conveyance holds between the terms. Nor can they deduce this from premises which they can see to be necessary. No doubt this epistemological dissimilarity must, even on McTaggart's view, be a sign of *some* important ontological dissimilarity. Supposing it to be a fact that the occurrence of impact conveys the immediately subsequent occurrence of motion, there must be some kind of difference between this fact and the fact that having shape conveys being extended, to explain why all human beings can see the necessity of the former whilst none can see the necessity of the latter.

Now it seems reasonable to assume that two ontological factors would be involved, viz., the intellectual powers of the

human mind and the structure of the facts. Necessary facts, which no human being could see on inspection to be necessary, might be seen to be necessary by Martians, and conversely. Again, necessary facts whose necessity can be seen *on inspection* by some beings might have to be *proved* necessary by other beings. And these differences might apply to whole classes of necessary facts. Lastly, if the members of a certain race of intelligent beings can neither see directly, nor prove, the necessity of any of the necessary facts of a certain class, this might arise from one or other of two defects which need not be present in beings of another species. (*a*) The beings in question might know the required premises, and might see their necessity. But they might never have brought together in their minds their knowledge of these premises, or they might not have the power to see the logical connexions between these premises and the set of facts which they fail to recognise as necessary. (*b*) Some or all of the premises needed to prove the necessity of this set of facts might not be known to this race of beings. Even intuitively *a priori* judgments, like "Having shape conveys being extended", cannot be made unless suitable experience provides the stimulus; and this race may never have had the kind of experience which would be needed to give it knowledge of the premises which it lacks.

*4. Independent Discussion of Causation.

Causation, like Substance, has been so fully discussed by such able writers, and presents such extreme difficulties, that one can hardly hope to say anything true and new about it. Nevertheless, after criticising McTaggart's views, I think it would be cowardly not to expose my own reflexions on the subject, for what they are worth, to the criticism of others.

*4·1. *Change.* It is plain that causation is mainly, if not wholly, concerned with change. It will therefore be wise to begin our discussion by trying to clear up the notion of Change.

What do we mean by a "change"? The following would be

clear instances of changes. (*a*) The starting of a process which was not going on before, e.g., a noise starting when there was previously silence or no noise of that kind. (*b*) The stopping of a process which was going on before, e.g., the cessation of a noise which had hitherto been going on. (*c*) A variation in the character of a process which has been and still is going on, e.g., a noise altering in pitch or in loudness.

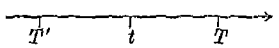
We must notice that a process is not, as such, a change. Suppose that a certain noise starts suddenly, goes on for five minutes without variation in pitch, loudness, tone-quality, or place-quality, and then suddenly stops. The starting and the stopping of the process are changes. But the noise itself, though it is certainly a process, is not, so far as we know, a change.

The next point to notice is that there are changes of various orders. Consider, for example, the following examples: (*a*) a particle resting, (*b*) a particle moving with uniform velocity in a straight line, (*c*) a particle moving with variable velocity in a straight line, (*d*) a particle moving with uniform angular velocity in a circle, and (*e*) a particle moving in an ellipse about a focus in accordance with Kepler's first law of planetary motion. The first is a process which is not, so far as we know, changing in any way. The second is a process in which there is variation of place-quality, but in which the velocity is constant in magnitude and direction. This is an instance of a change of the first order. The third is a process in which the velocity varies in magnitude, though not in direction; and the fourth is a process in which the velocity varies in direction, though not in magnitude. Here we have instances of changes of the second order. In the fifth the velocity varies both in magnitude and in direction. But these variations are not independent of each other, for the area swept out by the radius-vector joining the particle to the focus of the ellipse is proportional to the time. I should therefore be inclined to say, subject to the correction of wiser persons, that this is also an instance of a change of the second order. If the magnitude and the direction of the velocity varied independently of each other, we should have a clear case of a

change of the third order. The general notion of orders of change should now be obvious, even if some of my examples be not perfectly correct.

We must now go into somewhat greater detail, and connect up the notion of change with certain things which we said about processes in Section 1·21 of Chap. VII of the present work.

Let us consider a process, such as a noise. We will represent it by an arrow, with the direction from left to right representing the direction from earlier to later. Consider a moment t, which falls within its duration, and represent this by a point on the arrow. Now consider a series of phases which all start at t and stretch forward for longer or shorter durations. Let us confine our attention to the characteristic of loudness.



Then (*a*) it might be that there is a moment T, later than t, such that every phase of the noise which starts at t and ends before T has zero loudness-range. If so, I should say that "no change in the loudness of this sound *issues from t*". (*b*) It might be, however, that there is a moment T, later than t, such that every phase of the noise which starts at t and ends before T has a finite loudness-range. If so, I should say that "a change in the loudness of this sound *issues from t*". (*c*) It might, further, be the case that, if we consider successively shorter and shorter phases of the noise, all starting at t, and in each case take the ratio of the loudness-range of a phase to its duration, these ratios converge to a finite limit. If so, we shall speak of this limiting ratio as "the *rate* at which the change in loudness of this sound issues from t".

It is plain that the notion of a change "*entering into t*", and the notion of "the *rate* at which such a change enters into t" can be defined in a precisely similar way. We have merely to take now a moment T' which is *earlier than t*, and to consider phases of the noise which all *end* at t and *begin after* T'.

There are evidently four possible cases. (*a*) No change in loudness entering t, and no change in loudness issuing from t. We then say that there is no change in loudness "going on

around t". (*b*) No change in loudness entering *t*, but a change in loudness issuing from *t*. We then say that a change in loudness "*begins at t*". (*c*) A change of loudness entering *t*, but no change of loudness issuing from *t*. We then say that a change in loudness "*stops at t*". (*d*) A change of loudness entering *t*, and a change of loudness issuing from *t*. We then say that a change in loudness is "going on *around t*".

It is always assumed that there is a certain short duration τ, such that, if we take shorter and shorter phases, all starting at *t* and all shorter than τ, the loudness-ranges of these phases will be smaller and smaller, and will approach zero as a limit. The same is assumed to be true, *mutatis mutandis*, of phases which end at *t*. Now the positions of these two zero loudness-ranges on the scale of loudness may be the same or they may be different. We may call the former "the loudness with which this noise issues from *t*", and we may call the latter "the loudness with which this noise enters *t*". Suppose (*a*) that there is no change of loudness going on around *t*, but that the loudness with which the noise enters *t* is *different* from the loudness with which it issues from *t*. We should then say that there is "a sudden change in loudness *at t*". (*b*) Suppose, on the other hand, that there is no change of loudness going on around *t*, and that the loudness with which the noise enters *t* is *the same* as the loudness with which it issues from *t*. Then we should say that the noise is "constant in loudness around *t*". It is obvious that two other cases can arise, parallel to these. (*c*) The noise may be changing in loudness around *t* and may change suddenly in loudness at *t*. Or (*d*) it may be changing in loudness around *t* but may not change suddenly at *t*. Even in the last case the *rate* at which the change of loudness enters *t* may be different from the *rate* at which it issues from *t*. In cases (*a*) and (*c*) we could say that there is "first-order discontinuity at *t*". In case (*b*) we can say that there is "constancy around *t*". In case (*d*) we could say that there is "first-order continuity around *t*, but second-order discontinuity at *t*".

I hope that I have now made the notion of change, and various important conceptions connected with it, tolerably

moment, and innumerable changes in innumerable processes issue from any moment. It might be that the total cause of *each* of the latter contains *all* the former as factors. If so, our proposition would be true, but trivial. It is commonly assumed, whether rightly or wrongly, that any change in any process issuing from a given moment has a total cause which contains as factors a *selection* from the changes which enter into that moment. Our proposition then ceases to be trivial; for it denies that *more than one* selection from the changes which enter into t can be the total cause of any change which issues from t. Let us take an example to illustrate the principle. Suppose that at a certain moment my body begins to make what would ordinarily be called a certain "voluntary movement". Certain changes in my mental processes will enter into that moment. And certain changes in the physico-chemical and vital processes of my body will also enter into that moment. Now it is sensible, if not particularly plausible, to say that the former are the total cause of my movement, and that the latter are causally irrelevant to it. It is sensible, and perhaps slightly more plausible, to say that the latter are the total cause of my movement, and that the former are causally irrelevant to it. It is sensible, and highly plausible, to say that neither is the total cause of my movement, but that both are essential factors in the total cause of my movement. But surely it is self-evidently absurd to say that this mental change is a total cause of this movement, *and* that this bodily change is *also* a *total* cause of this same bodily movement. Taking any particular change, the question which we ask, and to which we know that there must be an answer, is "What is *the* cause of it?", not "What is *a* cause of it?" And the fact that the question is put in this way implies that we hold that every particular change has one and *only one* total cause.

The four propositions mentioned above are the only ones that I can think of which seem to me to be self-evident principles about causation. It will, no doubt, be regarded in some quarters as an act of *lèse majesté* towards the shade of Hume even to have mentioned them. But I would venture to

suggest that we might make better progress in dealing with causation if we were occasionally to stop "thinking of the Old 'Un", and to cease pretending *not* to know certain things which we probably all do know, merely because, on his absurd theory of knowledge, it is difficult to see how we *could* know them. I am extremely pleased to see that Prof. Stout, in his *Gifford Lectures*, has dared to "bell the cat" or "say Boh! to the goose".

Now suppose that certain statements containing the word "cause" or its synonyms express self-evident truths. Suppose that a certain analysis of causal propositions is proposed, and that these statements are replaced by those which would be equivalent to them if this analysis were correct. And suppose that the new statements do not appear to express necessary truths. Then I should say that this would raise a presumption that the proposed analysis was not correct, and that the new statements did not express exactly the same meaning as the old ones. To this argument the following plausible objection might be made. To many people Euclid's axiom of parallels does *not* seem self-evident. To some of these people it *does* seem self-evident that there could be figures which are exactly similar in shape but different in size. Yet these two propositions entail each other. And so, it might be said, there are clear instances of pairs of propositions, one of which is and the other is not self-evident to the same person, which are yet logically equivalent to each other. This objection, though at first sight plausible, is not really relevant to my contention. Euclid's axiom of parallels and the proposition that there could be figures which are exactly similar in shape and different in size are equivalent only in the sense that the combination of each with the other axioms of Euclid entails the other. They are not equivalent in the sense that one is an analysis of the meaning of the other.

Now, if my contention be admitted, the self-evidence of our fourth principle raises a presumption against the correctness of one very common analysis of the statement that a certain particular event B was caused by a certain particular event A. The analysis is as follows. "The statement means (*a*) that B

was an event issuing from a certain moment t with a certain characteristic ψ; (*b*) that A was an event entering into t with a certain characteristic ϕ; and (*c*) that from every moment, past, present, or future, into which there enters an event with the characteristic ϕ, there issues an event with the characteristic ψ." Now it is plain that proposition (*c*) in this analysis is compatible with any number of other propositions of the same form, which differ from it only by the substitution of other characteristics ϕ', ϕ'', etc., for ϕ. And it might be that there entered into the moment t an event A' with the characteristic ϕ', as well as an event A with the characteristic ϕ. If so, it would follow from the analysis, that B was caused by A' *besides* being caused by A. Thus, on this analysis of the statement that "B was caused by A", it is plainly possible that B should have *several* total causes. But, if our principle (iv) be accepted, it is self-evident that B could not have more than one total cause. Hence this principle casts doubt on the correctness of this analysis.

There is one other remark which I had better make before ending this sub-section. I am, of course, well aware that, at a certain stage in the development of the Quantum Theory, it was said that an electron, which had been steadily travelling in a certain orbit round a nucleus, will suddenly jump to another orbit without there being any change entering into the moment from which the jump issues that could be assigned as a factor in causing the jump. I see no objection to physicists using such language when about their own business, if they find them convenient ways of briefly expressing certain complicated facts or hypotheses. But, if the terms "electron", "nucleus", "orbit", "motion", and "jump" are taken literally, I have no hesitation in saying that such statements are, and can be seen by everyone to be, absurd. The right interpretation no doubt is, as the physicists have seen for themselves, that none of these notions, which are taken from our experience of macroscopic phenomena, are adapted, when used in their literal sense, to describe the microscopic world beyond a certain limit of accuracy. It is as if a Martian, who had never perceived any human phenomena but the mass-

movements of bank-holiday crowds, and had made the bold hypothesis that these are aggregates of individuals, should have to formulate his theories about such individuals entirely in terms of concepts derived from his observations on the mass-movements of crowds. We ought rather to be astonished and delighted at the degree to which concepts of macroscopic origin have been found to fit the microscopic world than surprised that a point should have been reached at which the misfit begins to be glaring.

*4·21. *Propositions about Causation which are not Self-evident.* It is just as important to see that certain propositions involving causation are *not* self-evident as to see that certain others are so, especially if there is a close parallelism between some of the former and some of the latter. I shall therefore mention two important propositions which do not seem self-evident.

(i) It does not seem self-evident that every change must have an effect, or that, if it has an effect, the latter must contain a change as an essential factor. Let us take the second point first. Two processes in which there is change may neutralise each other. Both may enter into a certain moment, and their effect may be a process in which no change issues from that moment. This would be the case if the two processes were the motions of equally massive inelastic spheres with equal velocities in opposite directions in the same straight line. In all actual cases there may be empirical reasons for believing that *some* kind of change issues from such a moment, but there seems to be no kind of necessity that this should be so.

As regards the first point, it does not seem self-evidently impossible that there should be a certain moment at which all processes stop and no process begins. Assuming that statements containing thing-names can be analysed without loss of meaning into statements which contain process-names, this would mean that, after this moment, there would "be no more things" and not merely that "all things would have become completely quiescent". If I am right in my positive and in my negative contentions, it follows that there is an important sense in which the proposition "The Universe

began to be" is impossible, whilst the proposition "The Universe will cease to be" is possible. I must point out, however, that, even if it be impossible that the Universe should have begun to be, it is quite possible that the present Order of Nature, i.e., a world of material objects and minds, should have begun to be. All that is asserted is that, if the present order of nature began to be, then there must have been a process going on before the moment at which the present order of nature started, and a change in this process must have entered into the moment from which the present order of nature issued. It is, of course, still more obvious that the present order of nature might cease to be even though the universe never ceased to be.

(ii) Many people believe, rightly or wrongly, that some of their voluntary decisions are not completely determined by causes. Many of such people would admit that it is self-evident that every change that issues from a moment is caused by changes which enter into that moment. Now it is obvious that, when anyone passes from a state of deliberating to a state of having decided on one alternative, a change issues from that moment. If there is any metaphysical argument against indeterminism, it must rest on the apparent inconsistency between the first of these three propositions, and the second and third, which seem obvious. Empirical arguments, one way or the other, seem to me to be almost worthless on the question of determinism and indeterminism.

It seems to me that there need be no inconsistency. The two propositions "Every change is caused" and "Every change is completely determined by causes" are different. The second entails the first, but the first does not entail the second. I will now try to explain the distinction. When I say that a certain change which issues out of t is caused by certain changes which enter into t, all that I mean is that, if such changes as these had not entered into t, then such a change as this would not have issued out of t. To put it in an equivalent way, any moment *from* which a change of *this* kind issued would be a moment *into* which changes of *those* kinds had entered. Now we do not have complete causal determination

unless we can add to the proposition just stated the following proposition: "Any moment *into* which changes of *those* kinds entered would be a moment *from* which a change of *this* kind issued". Now the second proposition is logically independent of the first. It seems to me that, in the case of every change, we *know* that a proposition of the first kind is true; in the case of many changes we have good empirical reasons for *believing* that a proposition of the second kind is true; whilst many people hold, rightly or wrongly, that, in the case of some of their voluntary decisions, they *know* that a proposition of the second kind is false.

How much licence are we allowing to the indeterminist? Let us suppose that a process of deliberation is going on, and that, at a certain moment t, it issues in a decision having the characteristic ψ_1. Let us suppose that this is one of n logically possible alternative decisions, having respectively the characteristics $\psi_1, \psi_2, \ldots \psi_n$. Then the logically possible situations that could issue from t are either that no decision should then be made, or that one or other of these n alternative decisions should be made. Now, if the decision with the characteristic ψ_1 should issue from t, a change with a certain character ϕ_1 will have entered into t. If the decision with the characteristic ψ_2 should issue from t, a change with a certain different characteristic ϕ_2 will have entered into t. And so on for the other alternatives. Now at this stage two views may be taken, and, according as one or the other is taken, the licence allowed to the indeterminist will be less or greater.

(*a*) It might be held that the various ϕ-changes are incompatible, in the sense that, if a change with one of the ϕ-characteristics enters into a certain moment, then no changes with any of the other ϕ-characteristics can enter into that moment. If so, we can argue as follows. "If a change with the characteristic ϕ_1 enters into t, then no changes with any of the other ϕ-characteristics can enter into t. If no changes with any of the other ϕ-characteristics enter into t, no changes with any of the ψ-characteristics except ψ_1 can issue out of t. Therefore, if a change with the characteristic ϕ_1 enters into t, *either* no change issues from t *or* a change with

the characteristic ψ_1 issues from t." To take a concrete example. Caesar decided at a certain moment to cross the Rubicon. We will suppose that the other alternatives were to go on deliberating or to decide at that moment to return to Gaul. Then, on the present hypothesis, the situation was as follows. There was a certain change which entered into this moment, such that the decision to cross the Rubicon would *not* then have emerged *unless* such a change had entered. The entry of this change into this moment *excluded* the entry of a certain other change without which a decision to return to Gaul could not issue. It thus left open only the two alternatives of continuing to deliberate or deciding there and then to cross the Rubicon. It did not leave open the alternative of deciding there and then to return to Gaul. Presumably this is much less than the indeterminist wants.

(*b*) It might be held, on the other hand, that the various ϕ-changes are compatible, and do all in fact enter into the moment t. In that case we should say that the *necessary* conditions of all the alternatives which could possibly issue from t enter into t, but that they are neither severally nor collectively *sufficient* to determine the issue of any one of the alternatives from t. On this hypothesis there was a certain kind of change which entered into t, such that the decision to cross the Rubicon would *not* then have issued *unless* such a change had entered. There was *also* a certain different kind of change which entered t, such that a decision to return to Gaul would not have issued unless such a change had entered. But neither of these changes separately, nor the two jointly, were such that, from any moment into which they entered there would issue a decision to cross the Rubicon. The indeterminist and the determinist can agree that every change is caused, in the sense that it has a set of *necessary* conditions which enter into the moment from which it issues. The determinist will say that these, in every case, together constitute a *sufficient* condition. This is what the indeterminist denies. And, in order to make his position worth maintaining, he will have to add that the necessary conditions of *different* possible alternative changes which might issue from a given

moment are compatible with each other and do in fact all enter into that moment.

There is one other remark to be made. Suppose we take the view that the necessary conditions of different alternative kinds of change which might issue from a given moment are mutually incompatible. Let the entering of an event of the kind ϕ_1 into a moment be a necessary condition of the issuing of an event of the kind ψ_1 from that moment. Then, as I have shown above, it is not only true that the issuing of a ψ_1-change *entails* the entering of a ϕ_1-change into the same moment. It is also true that the entering of a ϕ_1-change *excludes* the issuing of any but a ψ_1-change, and thus entails that, if any change issues, it will be a ψ_1-change. Nevertheless, the relation from ψ_1 to ϕ_1 is profoundly different from the relation from ϕ_1 to ψ_1. The issuing of a ψ_1-change *directly* entails the entering of a ϕ_1-change into the same moment. The entering of a ϕ_1-change, in the case supposed, entails the issuing of a ψ_1-change, if any, only in an *indirect* way. It does this only by *excluding* the necessary conditions of the other alternatives, and not through any direct connexion with the alternative ψ_1. It is one thing to be a sufficient condition of x directly, and it is another thing to be a sufficient condition of x *only* by excluding the necessary conditions of all the alternatives to x.

*4·3. *Analysis of Causal Statements.* We have so far enunciated certain statements, containing the word "cause", which seem self-evident. We have enunciated certain others, containing the same word, which do not seem self-evident. And we have made certain explanatory comments on each. But we have not attempted to analyse the statement that "A causes B", where A and B are particular changes.

The most common view among philosophers nowadays would seem to be that *singular* causal statements, like this, are analysable in terms of *universal* causal propositions, i.e., "laws". Controversy seems now to be almost wholly confined to the analysis of the latter. What I will call the "orthodox" analysis of "A caused B" is as follows. (i) From *any* moment into which there entered changes having the characteristics

ϕ, ϕ' ... , there would issue a change having the characteristic ψ. (ii) From *no* moment into which any such changes as are mentioned in (i) *failed* to enter would a change having the characteristic ψ issue. (iii) A was the entry of changes of the first kind into a certain moment t, and B was the issue of a change of the second kind from the moment t. I think that this is a fair account of the orthodox view. If it be accepted, controversy now turns on two points, one ontological or logical, and the other epistemological. The first is: "What is the right analysis of such statements as (i) and (ii)? In particular, what meaning is to be attached to the words 'would' and 'would not' in them?" The second is: "Taking any analysis of (i) and (ii) that you please, what right, if any, have we to believe any statements of this kind?" Naturally the two questions are closely connected. We do in fact strongly believe many propositions of these kinds. And we have a strong tendency to believe that some such beliefs are justifiable. We should therefore welcome any analysis of such propositions, which was not obviously wrong, which would enable us to see how such beliefs can be justified.

As regards these two questions I can only say that I do not know the answers and that I have not yet met anyone who did. I know of no satisfactory analysis of general laws, and I know of no satisfactory theory of induction. I can best bring out the peculiarity of general laws by the following comparison. Suppose we compare the two propositions "Anything that had shape would have extension" and "Anything that had inertial mass would have gravitational mass". The former corresponds, and can be seen to correspond, to a fact which is necessary. The necessity of this fact is itself necessary, and so on without end. The second, if true at all, corresponds to a fact of which one can only say that "it *is* necessary, but its necessity is contingent". To put it in another way. If the law is true, then "there *could not be* (in the actual world) things which had inertial mass and lacked gravitational mass". Yet, even if the law be true, "there *might have been* (instead of the actual world) a world in which there were things which had inertial mass and lacked gravitational mass". But

on the other hand, "there *could not have been* a world in which there were things that had shape and lacked extension". It may be noticed that in English we have the three sentences: "Nothing has ϕ and lacks ψ", "Nothing can have ϕ and lack ψ", and "Nothing could have had ϕ and lacked ψ". The first expresses a Universal of Fact, the second a Universal of Law, and the third an Absolute Necessity. These remarks are not intended to be any solution of the problem. The notion of a necessity which is contingent, looks like, and probably is, sheer nonsense. But to state the case in this paradoxical way does bring out its peculiarities, instead of softening them down.

These two problems certainly exist, and are certainly of the utmost importance, whether the orthodox analysis of singular causal propositions be right or wrong. I must end by confessing that I feel the gravest doubts as to whether it is right. It seems to me quite certain that, in many cases when I judge that "this caused that", I am not thinking at all about general laws and possible parallel cases. Again, there is a sense of "cause", in which it seems to me self-evident that every change has a cause, and that the cause of a change which issues from a moment contains as essential factors changes which enter into that moment. But, when the orthodox analysis of "A causes B" is substituted, the resulting statement does not seem to me self-evident. This raises a presumption that there is a sense of "cause" to which the orthodox analysis of "A causes B" is not applicable.

Suppose I decide at a certain moment to make a certain movement. Either this movement follows or it does not. If it does, a certain change issues from that moment, with regard to which, it seems to me, I *know* that *this* change would not have issued from that moment unless *that* decision had entered into that moment. It is perfectly true that, at that moment, I *might* have received an electrical stimulation to my muscles or something *might* have affected an efferent nerve, and that if this had happened my body might have moved in a precisely similar way to that in which it did in fact move. There are two remarks to be made about this. (*a*) At most it would show that what I knew was something more hypothetical

than what I claimed to know. What I knew was that, if the other conditions, positive and negative, were as I believed them to be, then this movement would not have issued from this moment unless that decision had entered into it. Perhaps I never positively *know* that I did not receive an electrical stimulus or that some abnormal change did not take place in an efferent nerve just when I made the decision to move in a certain way. But it is obvious that I often have the very strongest reasons for believing that, on occasions when I made such a decision and such a movement followed, I was not being electrically stimulated and that no abnormal change was taking place in an efferent nerve. (*b*) Even though a movement precisely similar to this movement might have followed if there had been a certain kind of electrical stimulation and no decision, there are changes issuing in the actual case which would not have issued in the supposed case. What issues is not merely a physical movement, but a physical movement accompanied by certain characteristic experiences. Some of these experiences would certainly not have issued if the movement had not been due to a voluntary decision. The difference is what would be expressed by the two statements "My arm gave a jerk" and "I moved my arm". In the latter case there is the experience of fulfilled intention, in the former there is the experience of surprised observation.

Suppose next that the willed movement does not follow. I might be paralysed, or my body might be subject to external constraint. It still remains true that certain changes issue from this moment, with regard to which I know that they would not have issued unless this decision had entered into this moment. If I were paralysed, the change which would not have issued unless the decision had entered is a feeling of surprised and frightened frustration. If I were externally constrained, the change which would not have issued unless the decision had entered would be an experience of exerting effort against resistance.

It seems to me then that there are occasions when I know, with regard to a particular change B, which issues from a certain moment t, and a particular change A which enters that

moment, that the former would not have issued from that moment unless the latter had entered into it. I am, of course, under no obligation to assert that I know this on the first of such occasions. It may well be that some experience of B-like changes issuing from moments into which A-like changes entered must have taken place before an occasion arises on which I can know that *this* change would not have issued unless *that* change had entered. I need to have some experiences with counters and beads before I can know that twice two is four, though this is not an inductive generalisation from the experience that two sets of two beads, when mixed together, have made a set of four beads.

The question of general laws seems to me to arise at a later stage. Knowing or believing that B would not have issued from t unless A had entered t, I can ask myself the following question. "Has B a certain characteristic ψ, and A a certain other characteristic ϕ, such that a change with the characteristic ψ would not issue from *any* moment into which a change with the characteristic ϕ did not enter?" And, again, I can ask myself the question: "Has A a certain characteristic ϕ, and B a certain other characteristic ψ, such that from *any* moment into which a change with the characteristic ϕ entered there would issue a change with the characteristic ψ?" Finally we come to believe, rightly or wrongly, a great many general laws of these kinds. And then the process is reversed. In cases where we neither know, nor have any antecedent reason to believe that A caused B we discover that A is a ϕ-change and that B is a ψ-change, where the entry of a ϕ-change and the issue of a ψ-change are believed to be connected by a general law. We then *conclude* that, in the particular case under discussion, A was a necessary condition, or a sufficient condition, or the necessary and sufficient condition, of B.

I may as well confess frankly, in conclusion, that I think it very likely that this is all wrong; that it can be shown to be so; and that I shall change my mind on the subject many times if I live to the allotted span. But it represents what seems to me at the moment to be the most plausible view, and, as such, the reader must take it or leave it.

CHAPTER XIV

EXTRINSIC DETERMINATION

Extrinsic Determination is a highly characteristic notion in McTaggart's philosophy. It is first introduced and defended in §§ 109–13 of the *Nature of Existence*. It is taken up again and extended in Chap. XIX. I shall take the two passages together, and shall state the doctrine in my own way.

1. Statement of McTaggart's Doctrine.

The situation which McTaggart has in mind when he introduces the notion of Extrinsic Determination is the following. Let A be any particular which actually exists and actually has a certain determinable characteristic Φ in the determinate form ϕ_1 at the time t. We often profess to make the supposition that this very same particular A might instead have had Φ in some other determinate form ϕ_2 at t, or that it might have lacked Φ altogether at t. For example, at a certain moment Julius Caesar in fact decided to cross the Rubicon. Admitting this, we often make such suppositions as that Caesar had existed, but had decided instead at that moment to return to Gaul, or that he had instead come to no decision at that moment.

Now I understand McTaggart's contention to be that all such suppositions, if interpreted literally, are internally inconsistent. If A in fact had Φ in the form ϕ_1 at t, then anything that had had Φ in a different form at that moment, or had not then had Φ at all, would have been other than A. If, then, the supposition means what it professes to mean, viz., that A, which in fact had Φ in the form ϕ_1 at t, might have existed and instead have had Φ in the form ϕ_2 at t, or might not have had Φ at all at t, it is inconsistent with itself. It is self-consistent only if it be understood to mean that, instead of A, there might have been another particular A', like A in many respects, but unlike it in that it had ϕ_2 instead of ϕ_1, or did not have Φ at all at t.

This seems to be the first part of the doctrine of Extrinsic Determination. I will leave it uncriticised for the moment, and continue my exposition of the notion. Let f_A and g_A be any two facts about a certain actually existing particular A. For example, f_A might be the fact that A sneezed at 10 a.m. last Friday, and g_A might be the fact that A told a lie at noon last Saturday. Then it is inconsistent to combine the supposition that there is not the fact f_A with the supposition that there is the fact g_A. And this is so even if there be no *intrinsic* connexion, i.e., no conveyance in either direction, between the characteristics which are the predicates of these facts. For the supposition that A, who in fact sneezed at 10 a.m. last Friday, had not sneezed then, is self-consistent only if it means that, *instead* of A, who did sneeze then, there had existed another particular A', similar in many respects to A, who did not sneeze then. If we thus suppose the non-existence of A, we cannot consistently suppose that there are *any* facts about A. Consequently, we cannot consistently suppose that there is the fact that A told a lie at noon last Saturday. We may, of course, consistently suppose that the substance A', which we are supposing to have existed *instead of* A, and not to have sneezed at 10 a.m. last Friday, told a lie at noon last Saturday. But the supposed fact that the supposed A' told a lie at noon last Saturday is different from the actual fact that the actual A told a lie then.

We may put the above argument quite generally as follows. If f_A and g_A be any two facts about any one actual particular A, then it is inconsistent to suppose that one is not a fact and that the other is a fact. For the supposition that any fact about A *is not* is inconsistent with the supposition that A *is*, and is therefore inconsistent with the supposition that there are *any* facts about A. It is clear that this alleged relation between any two facts about any one particular is reciprocal. And it is this relation which McTaggart calls "Extrinsic Determination".

McTaggart states his principle in the form that "no quality of a substance could be different whilst leaving all the others unchanged". And he says that "every quality of a substance

will determine every other quality of that substance, but the determination will be of a very different kind from the intrinsic determination which we have already considered" (p. 113, § 109). These statements are quite inaccurate. Extrinsic determination is not a relation between *characteristics* at all; it is a relation between *facts*. And it is not a relation which relates facts in virtue of the characteristics which are their *predicates*; it relates any two facts which have a common subject, in virtue of their having a *common subject*.

We can now consider the extension of this principle in Chap. XIX of the *Nature of Existence*. McTaggart approaches the subject in a very roundabout way, through the conception of the universe as a substance. The shortest and clearest way of stating the argument seems to be the following.

So far we have considered explicitly only one particular at a time, and the facts about it. But every particular stands in some relation to every other particular. Let A and B be two actually existing particulars. Then there will be some relation R, such that A has R to B. Thus there is a fact f_{AB}, which is a fact about A and also a fact about B. Let g_A be any fact which is about A and not about B. Let h_B be any fact which is about B and not about A. If we suppose that there is not the fact g_A, we cannot consistently suppose that there is the particular A. Therefore we cannot consistently suppose that there are *any* facts about A. Therefore we cannot consistently suppose that there is the fact f_{AB}. But f_{AB} is a fact about B, as much as it is a fact about A. Therefore we cannot consistently suppose that there is the particular B. Therefore we cannot consistently suppose that there are *any* facts about B. Therefore we cannot consistently suppose that there is the fact h_B. Thus we see that, if A and B be any two particulars, and we suppose any fact about one of them *not to be*, we cannot consistently suppose any fact about the other of them *to be*. And this is quite independent of whether there be any relation of conveyance between the characteristics which are predicates of the facts. Thus the relation of extrinsic determination relates, not only any two facts about any one

particular, but also any fact about any one particular with any fact about any other particular. This may be called the "Principle of Universal Extrinsic Determination".

2. Criticism of McTaggart's Doctrine.

I think that the above is an accurate account of what McTaggart means by the relation of "extrinsic determination", and of his reasons for ascribing such an extensive range to it; it remains now to consider whether there is such a relation, and whether, if so, it has this extensive range.

It is evident that everything turns on the assumption, which McTaggart makes, that, if a particular A in fact had Φ in the form ϕ_1 at t, it is inconsistent to suppose that the very same particular might instead have had ϕ_2 at t, or not then have had Φ at all. In fact the fundamental assumption is the following. We may suppose that, instead of the actual particular A, with the actual history h_A, there might have been another particular A', with a partially dissimilar history $h_{A'}$; but we may not suppose that the very same particular A could have existed and had a partially dissimilar history h'_A. Let us first consider why McTaggart believed this, and then whether there is any good reason to believe it.

It appears to me that McTaggart's belief rests on a confusion between two different propositions, which are very much alike in verbal expression, but are quite different in content. The argument will be found at the bottom of p. 112 and the top of p. 113 of the *Nature of Existence*. It amounts to this. The nature of A consists of all the characteristics which A has. If any characteristic in this collection were omitted, or if another were substituted for it, there would be a different total nature. And any particular with a different total nature from A would be a different particular from A.

Now it seems to me that there are two propositions which must be most carefully distinguished from each other, but which are very easily confused. They may be stated as follows: (i) "One and the same particular cannot have each of two different natures"; and (ii) "One and the same particular could not have had one or other of two different natures".

The first of these is obviously true. But it does not entail the second, and it is the second that McTaggart needs in order to establish the Principle of Universal Extrinsic Determination. Another way of putting the two propositions is this: (i) "If A is a particular with a certain nature N, then any particular whose nature differs in the slightest respect from N is a different particular from A"; and (ii) "If A is a particular with a certain nature N, then any particular which had had a nature differing in the slightest respect from N would have been a different particular from A". Here again, the first is obviously true. But it is different from, and does not entail, the second; and it is the second that McTaggart needs.

It seems to me that McTaggart's reason for believing the Principle of Universal Extrinsic Determination was that he failed to distinguish these two different propositions, or thought that the first entailed the second, and then, seeing that the first was obviously true, thought that the second would be universally admitted. Another source of confusion is that McTaggart uses the phrase "the nature of a term" in a very much wider sense than that in which it is ordinarily used. In his sense of "nature" it is part of the nature of a certain penny to be in my pocket at this moment and to be touching a certain shilling at this moment. In the ordinary usage of the term "nature", these characteristics of the penny would not be counted as parts of its nature; but its permanent dispositional property of being soluble in nitric acid would be counted as part of its nature *both* by McTaggart and by common-sense. Now common-sense would probably hold that anything that had had a different nature (in *its* sense) from this penny would have been an other particular than this penny. And the reader, and perhaps even McTaggart himself by inadvertence, is liable to forget how much more sweeping a proposition he is admitting if he grants that any thing that had had a different nature (in *McTaggart's* sense) from this penny would have been another particular.

It seems to me, then, that McTaggart's reason for believing the Principle of Universal Extrinsic Determination was prob-

ably fallacious, and that, if the reader finds himself accepting it without difficulty, he is probably doing so under a misapprehension about the use of the word "nature". Nevertheless, the Principle might in fact be true. So what we have now to consider for ourselves is whether it is ever consistent to suppose that A, which in fact has a certain nature, in McTaggart's very wide use of that term, might instead have had a partially different nature.

Let us begin by considering that part of A's nature which consists of relational properties which are not dispositional, such as being in contact with B at a certain moment, feeling a jealous emotion towards B at a certain moment on account of C, and so on. (It will be noted that these are characteristics of A which would not be counted as parts of A's nature by ordinary people.) Let us raise the question: "Is it ever consistent to suppose that the very same particular A, which in fact stood in the relation R to B at the moment t, might not have stood in this relation to this particular at this moment?"

The first point to notice is that a failure to have the relation R to B at t might arise in two quite different ways. (i) It might arise through the non-existence of B. Since, for example, there are no dragons, I cannot have the relational property of having been bitten by a dragon last Christmas; and, since there are no phoenixes, I cannot have the relational property of having eaten a phoenix's egg for breakfast this morning. (ii) It might consist in the fact that A stood in some different relation R' to B at t. For example, A, which in fact was in contact with B at t, might instead then have been 2 inches away from it. For the present we will confine ourselves wholly to the first form of the supposition.

It is evidently consistent to suppose that A, which in fact stood in the relation R to B at t, might not have had this relational property at this time, provided it be consistent to suppose that A, which in fact co-existed with B, might have existed without B having existed. So the next question is whether such a supposition as this is ever self-consistent. It would seem to be self-consistent if the following conditions are fulfilled. (i) That it is consistent to suppose that B, which

in fact existed, might not have done so. (ii) That B is not a part of A. (iii) That A is not a state of B, i.e., that B is not a continuant in which A is an occurrent. (iv) That the natures of A and B are not such that the existence of A conveys the existence of B. It is, I think, quite clear that the last three of these four conditions may be, and in fact often are, fulfilled. Any pair of human minds, for example, would fulfil them; and McTaggart would certainly have admitted this. We have therefore only to consider the first condition. Is it ever consistent to suppose that a particular which in fact did exist might not have existed?

It appears to me that the question is ambiguous, and that, in the only sense in which it has a meaning, it must be answered in the affirmative. If "B" is a genuine proper name, which it could be only for a speaker who was acquainted with the particular which he designated by the name "B", *both* the sentences "B is" and "B is not" would be quite meaningless. And, if so, both the sentences "B might not have been" and "B could not have failed to be" are surely quite meaningless too. But that particular of which "B" is for somebody a proper name may have one or more exclusive descriptions. Suppose that ϕ is one of them. Then the two statements "There is an instance of ϕ" and "There is no instance of ϕ" are both quite intelligible. Supposing that the first of them is in fact true, then it is intelligible to raise the question whether the fact that there is one and only one instance of ϕ is necessary or contingent. And the answer is that all such facts, so far as we can see, are contingent.

Before going further I will illustrate the distinctions which I have been drawing, and try to justify the assertions which I have been making. Some people, including McTaggart, hold that each human self is sometimes acquainted with itself. Most people, including many of the former, hold that no human self is ever acquainted with any other self. Let us suppose, for the sake of illustration, that both these views are true. (We shall have to discuss this question elaborately in Volume II of the present work.) Now, if the reader will excuse this lapse into autobiography, I will tell him that, as a

small child, I gave myself the name of *Kippie*. On the present supposition, when I uttered sentences about myself, beginning with an utterance of the word "Kippie", this word was often, if not always, *for me* a proper name of a certain particular. To anyone who heard and understood these utterances the word "Kippie" in them could not, on the present supposition, have been a proper name. Suppose, for example, that I said: "Kippie is feeling tired". Any hearer must have interpreted the utterance descriptively. He might, for example, have understood it as: "The self for whom 'Kippie' is a proper name of itself is feeling tired".

Now suppose that anyone but myself had raised the question: "Granted that Kippie exists, could I consistently make the supposition that he had not existed?" He must mean something of the following kind by his question: "Granted that there is in fact one and only one particular which has the property of being a self for whom 'Kippie' is a proper name of itself, can I consistently suppose that there might have been no particular with this property?" Plainly the answer is in the affirmative. The supposition is not *self*-contradictory, like the supposition that there might have been a triangle with four angles. And it does not entail the contradictory of some necessary proposition, as the supposition that 2 might have had a rational square-root would do. For myself, on the other hand, I simply cannot raise the question so long as I use the word "Kippie" as a proper name. For, if "Kippie" be used as a proper name, the two sentences "Kippie exists" and "Kippie does not exist" are alike totally devoid of meaning; and so the two sentences "Kippie might not have existed" and "Kippie could not but have existed" are mere verbiage, and cannot express genuine suppositions.

To complete the illustration, let us take another example, from theology this time, instead of from autobiography. Suppose that the Ontological Argument had been valid. Then it would be inconsistent to suppose that there was no particular answering to the description of "having all positive perfections". Suppose, further, that every actual particular, except the Most Perfect Being, had an exclusive description

of such a kind that the fact that there was something answering to the description "possessor of all positive perfections" entailed that there was something answering to each of these exclusive descriptions. Then it would have been inconsistent to suppose that there might not have been particulars answering to these exclusive descriptions of the actual particulars. But the Ontological Argument is plainly invalid; and, even if it were not, there is no reason to accept the further proposition which I supposed for the sake of illustration.

Let us now apply these results to the question under discussion. Let it be a fact that A stands in the relation R to B at t. We have seen that, if certain conditions be fulfilled which often are fulfilled, it is consistent to suppose that A might not have had R to B, provided that it is consistent to suppose that B might not have existed. We have just seen that the question whether B might not have existed is ambiguous.

(i) If "B" occurs as a proper name in an utterance of the sentence "B might not have existed", this utterance is meaningless, and therefore cannot express any supposition. The same remarks would apply to an utterance of the sentence "B could not have failed to exist", and to an utterance of the sentence "B does in fact exist". Under these circumstances an utterance of the statement "A might have failed to have R to B, because B might have failed to exist" is meaningless. Let us take an example. Suppose that "A" and "B" were proper names which I gave to two sensa in my visual field, and that A was adjoined to B. Then, so long as I used "A" and "B" strictly as proper names, I should be expressing absolutely nothing by uttering the sentence "A might have failed to be adjoined to B, because B might not have existed".

(ii) If "B" occurs descriptively in an utterance of the sentence "B might not have existed", the case is altered. The sentence is then equivalent to one of the following kind: "There is in fact a particular which has a certain property ϕ_B (which includes the property of being an object of acquaintance to someone, and being called 'B' by him). But this property ϕ_B might have had no instance". Such sentences

as this are intelligible, and they often express judgments which accord with facts. Under these circumstances an utterance of the sentence "*A* might have failed to have *R* to *B*, because *B* might have failed to exist" means the same as an utterance of the sentence "*A*, which in fact has *R* to the only instance of ϕ_B (a property which includes the property of being an object of acquaintance to someone, and being called '*B*' by him), might have failed to do so, because ϕ_B might not have had an instance". Such sentences as this are intelligible, and, so far as one can tell, quite often true. Let us take an example. Suppose that I give the proper name "*A*" to a certain flash in my visual field. Suppose that Smith gives the proper name "*B*" to a certain bang in his auditory field. Suppose that I utter the sentence: "*A* was earlier than *B*, but it might not have been, because *B* might not have existed". "*B*" cannot be used as a proper name by me in this utterance, since I am not acquainted with any of Smith's auditory sensa. What I mean would be more accurately expressed by uttering the following sentence: "*A* was earlier than the bang in Smith's auditory field which he called '*B*'; but it might not have had this property, since there might have been nothing which had the compound property of being a bang in Smith's auditory field and being called '*B*' by him". With this interpretation my statement is obviously true.

We can now sum up our conclusions on this topic. In the sentence "*A* has the relation *R* to *B* at *t*" the word "*B*" may occur as a pure proper name, or it may not. If it does, the sentence "*B* might have failed to exist" is meaningless, because all sentences with "*B*" as subject and "existence" as predicate will be meaningless. It will therefore be meaningless to say "*A* might have failed to have *R* to *B*, because *B* might have failed to exist". In ninety-nine cases out of a hundred, however, "*B*" will not occur as a pure proper name. The original sentence then means what would be more accurately expressed by a sentence of the form "*A* has the relation *R* at *t* to the only instance of a certain characteristic ϕ". And it is intelligible, and often true, to say that *A* might

have failed to have R to the only instance of ϕ, because ϕ might have failed to have an instance.

The upshot of the discussion is this. A particular A may have relational properties of the form "standing in the relation R to an instance (or the only instance) of ϕ". These will be parts of its "nature", in the wide sense in which McTaggart uses that term. Now it is consistent to suppose that ϕ, which in fact has instances, might have had no instances. If so, A would have lacked these relational properties which it in fact has. It is therefore consistent to suppose that the "nature" of a particular might have been poorer than it in fact is, through the lack of certain relational properties which it in fact has.

Let us now consider the application of these results to the argument by which the Principle of Universal Extrinsic Determination is supposed to be established. I will begin by reminding the reader of the argument. Let g_A be a fact about A and not about B, and let h_B be a fact about B and not about A. Then the argument is as follows. (i) There will be some relation between A and B, and therefore there will be some fact, f_{AB}, which is about both A and B. (ii) If g_A be supposed not to have been, A must be supposed not to have existed. (iii) If A be supposed not to have existed, f_{AB}, being a fact about A, must be supposed not to have been. (iv) If f_{AB} be supposed not to have been, B, about which f_{AB} is a fact, must be supposed not to have existed. (v) If B be supposed not to have existed, h_B, which is a fact about B, must be supposed not to have been. Therefore, if any fact about A be supposed not to have been, every fact about B must be supposed not to have been.

Now the first step to be specially noted is (ii). The sentence "A must be supposed not to have existed" is meaningless if "A" be used as a proper name. It has a meaning only if A is known by description as the only instance of a certain characteristic ϕ_A. Thus, in order that the second step of the argument may not be mere gibberish, we must assume that the fact g_A is a fact of the form "The only instance of ϕ_A has ψ"; and we must assume that f_{AB} is a fact of the form

"The only instance of ϕ_A has R to B". The third step in the argument will then be as follows: "If it be supposed that ϕ_A had had no instances, then the fact that the only instance of ϕ_A has R to B would not have been". This is valid. The fourth step will then take the following form: "If we suppose that there had not been the fact that the only instance of ϕ_A has R to B, we must suppose B not to have existed". Now there are two remarks to be made about this. (*a*) If "B" be used as a pure proper name, the latter part of this sentence is meaningless. It has a meaning only if B is known by description as the only instance of a certain characteristic ϕ_B. Thus, in order that the fourth step in the argument may not be mere gibberish, it must take the following form: "If we suppose that there had not been the fact that the only instance of ϕ_A has R to the only instance of ϕ_B, then we must suppose that ϕ_B had had no instance". And this is simply untrue. Suppose, for example, that it is a fact (as it well may be) that the silliest woman in Bloomsbury is an admirer of the author of *Ulysses*. If there had been no one answering to the description of "the silliest woman in Bloomsbury", there would not have been this fact about the author of *Ulysses*. But this would have been perfectly consistent with there being a particular answering to the description "the author of *Ulysses*". All that would have happened would have been that the "nature" of this particular would have been the poorer, through the lack of a certain relational property, viz., that of being admired by the silliest woman in Bloomsbury, which is in fact contained in it.

Thus the argument by which McTaggart attempts to prove the Principle of Universal Extrinsic Determination in Chap. XIX of the *Nature of Existence* must be rejected. For, even if we accepted the earlier steps in it, the fourth step is either meaningless verbiage or the expression of a false proposition.

So far I have argued only that the nature of a particular might ha orer than it in fact was, in a certain way which I ined and defined. But might it not also have bee a similar way, than it actually was? My natur c ntain the relational property of having

eaten a phoenix's egg, since there are no phoenixes. But it is consistent to suppose that there might have been birds answering to the description of "phoenixes", that they might have laid eggs, and that I might have eaten one of these eggs.

It must be noted that there is one difference between the supposition that the nature of A might have been poorer than it in fact was and the supposition that this nature might have been richer than it in fact was. If we suppose that the characteristic ϕ, to instances of which A stands in the relation R, had had no instances, we *must* in consistency suppose that A had lacked the relational property of standing in the relation R to instances of ϕ. If I suppose that there had been no hens, I must in consistency suppose that I should have lacked the property of having eaten hens' eggs. But, if I suppose that ϕ, which in fact has no instances, had had instances, I am not obliged in consistency to suppose that A would have stood in a certain relation R to any of them. I can consistently suppose that there might have been birds answering to the description of "phoenixes", and that they might have laid eggs; but I am not forced to go on to suppose that I should have eaten a phoenix's egg.

We can now pass to the following question. Let A and B be two particulars, and let A stand in a certain relation R (e.g., that of contact) to B at a certain moment t. Is it consistent to suppose that A and B might both have existed, and that A should not have stood in the relation R to B at t, but should have stood then in a certain other relation R' (e.g., that of being 2 inches to the right) to B? There is no doubt that we do often make suppositions which we express by sentences of this form.

Now it is very important to notice that, in the vast majority of cases in which such sentences are uttered, neither the speaker nor the hearer is acquainted with the particulars which are being mentioned, and therefore neither "A" nor "B" is functioning as a genuine proper name either to the speaker or the hearer. In all such cases what is expressed by the sentence under consideration would be more accurately expressed by a sentence of the following form. "Though the

only instance of ϕ_A in fact stands at the moment t in the relation R to the only instance of ϕ_B, yet it is consistent to suppose that ϕ_A and ϕ_B should have had only one instance each, and that the only instance of ϕ_A should have stood at t in the relation R' to the only instance of ϕ_B, instead of standing in the relation R to the latter." Now, unless the presence of ϕ_A in anything *entails*, either directly or by conjunction with necessary facts, the presence in the same thing of the property of standing in the relation R to the only instance of ϕ_B, there surely can be no inconsistency in such a supposition.

Let us next consider one of the extremely rare cases in which either the speaker or the hearer of such a sentence is acquainted with both the particulars which are being mentioned. I do not know of any clear instance in which *both* speaker and hearer are acquainted with *both* terms. An example in which the speaker would be acquainted with both terms is provided if a man were to say of a certain pair of sensa in one of his visual fields: "This is adjoined to that". In such a case I should assert that *both* the sentences "This *might not* have been adjoined to that" and "This *could not but* have been adjoined to that" are quite meaningless. The first would have a meaning only if a meaning could be attached to the sentence "There might have been This and That, yet the two might not have been adjoined". Now there is sense in saying that there is, or is not, that there might have been, or might not have been, instances of a given characteristic. But I can attach no meaning to sentences in which these predicates are conjoined with pure proper names of particulars. As regards the second of the two sentences, my reason for saying that it is meaningless is the following. I understand what is meant by saying that the presence of a certain *characteristic* in anything entails or excludes the presence of a certain other characteristic in that thing, or in any other thing that stands in a certain relation to that thing. But I can attach no meaning to sentences in which a "necessity" or "impossibility" is ostensibly predicated without reference to the conveyance or exclusion of one characteristic by

another. Briefly, it seems to me that "necessary" and "contingent", though mutually exclusive, are not collectively exhaustive predicates of facts. Facts must first be divided into "modal" and "non-modal"; then modal facts, and they alone, can be exhaustively and exclusively subdivided into necessary and contingent. And the sort of facts which can properly be expressed by sentences of the form "This stands in the relation R to that" are non-modal facts, if "This" and "That" function as pure proper names of particulars.

We can now sum up the whole matter as follows. Consider any particular which in fact has a certain characteristic C. Then there are two cases to be distinguished, viz., (a) where I am acquainted with this particular, and (b) where I am not acquainted with it, but know it only as the sole instance of a certain characteristic ϕ. In the first case I can intelligibly suppose that it might not have had C, provided that C is a characteristic of the form "having R to an instance (or all instances, or the only instance) of ψ". For I can intelligibly suppose that ψ, which in fact has instances, might not have had any. But, if C be a pure quality, or a relational property of the form "having R to B", where "B" is for me a proper name of another particular with which I am acquainted, I cannot intelligibly suppose that the former particular, which in fact has C, *might not* have had C. I equally cannot intelligibly suppose that this particular, which in fact has C, *could not but* have had C. Neither necessity nor contingency has any application here, just as neither oddness nor evenness has any application to numbers like e or π or $\sqrt{2}$.

In the second case it is always intelligible to make the supposition that ϕ might have had one and only one instance, and that this *might not* have been characterised by C, though in fact the one and only instance of ϕ *is* characterised by C. The supposition can be rejected if and only if ϕ conveys C, i.e., if it is impossible for anything to have ϕ and lack C. Even in the case where I am acquainted with the particular under consideration I may also know one or more exclusive descriptions of it. Although I cannot intelligibly suppose that *this* particular might have lacked any quality q which it in

fact had, I can intelligibly suppose, with regard to any exclusive description of this particular which does not convey q, that it might have had one and only one instance and that this might have lacked q.

I am inclined to think that we are liable to entrap ourselves in the following argument: "This, which I am acquainted with, is the only instance of ϕ, and it has ψ. The only instance of ϕ might have lacked ψ. Therefore this, which I am acquainted with and which has ψ, might have lacked ψ". The fallacy here arises through the ambiguity of the second premise. The second premise is true only if it means "ϕ might have had only one instance, and this might have lacked ψ". The argument tacitly assumes that "the only instance of ϕ" mentioned in the second premise would have been the same particular as "the only instance of ϕ" mentioned in the first premise. And we have no right to assume any such identity between the actual only instance and a merely possible only instance of ϕ. Thus we are led from premises which, when properly interpreted, are intelligible and may be true, to a conclusion which is not false but meaningless.

How far does the conclusion which we have now reached differ from McTaggart's Principle of Universal Extrinsic Determination? Our conclusion may be restated in the following form. Let F be any fact which can properly be expressed by a sentence of the form "This has ψ at t", where (a) "This" functions as a pure proper name, and (b) ψ is not a property of the form "having R to an instance (or every instance, or the only instance) of χ". Then the sentences "This might not have had ψ at t" and "This could not but have had ψ at t" are equally devoid of meaning, and therefore cannot express any supposition that could possibly be made. When we use such sentences to express genuine suppositions, they cannot be interpreted literally. In all such cases what is really happening is the following. We are taking some exclusive description ϕ of this particular, and are supposing with regard to ϕ that it might have had only one instance and that this might have lacked ψ. Such a supposition is perfectly legitimate, unless ϕ conveys ψ. Finally, one may suspect that such

suppositions are so often expressed by sentences of the form "This might not have had ψ" through the following confusion. It is thought that, from the premises "This is the only instance of ϕ" and "The only instance of ϕ might have lacked ψ", one can obviously infer the conclusion "This might have lacked ψ". We have pointed out that the confusion arises through an ambiguity in the second premise. In order to justify the inference it would have to be taken to mean "The actual only instance of ϕ might have lacked ψ". But the meaning in which it is true is, not this, but "ϕ might have had only one instance and this might have lacked ψ".

Now, although this is considerably different from anything that McTaggart said, I am not sure that, if it had been put to him, he might not have accepted it as expressing the essentials of what he had in mind in his doctrine of Extrinsic Determination. It is true that, in his final statement, this relation appears as a form of reciprocal *determination* relating any fact about any particular to any other fact, whether about the same or another particular. (Actually he makes it a relation between *qualities*, but we have seen that he must certainly have meant it to be a relation between *facts*.) We must remember, however, that he has given no general definition of "determination", and therefore no definite information is conveyed by his statement that this relation between facts is an instance of "determination". On our view there is a reciprocal relation between any two facts that can properly be expressed by sentences of the form "This has ψ" and "That has χ", where "This" and "That" function as pure proper names, and ψ and χ are not of the form "having R to an instance (or to every instance, or to the only instance) of ω". The reciprocal relation between any two such facts is that they both have the characteristic of being *non-modal*. Both are such that it is equally meaningless to say that their contradictories are possible and to say that their contradictories are impossible. If McTaggart meant more than this by saying that such facts "extrinsically determine" each other, I cannot see that he was justified.

But, if he meant no more than this, I am inclined to think that what he had in mind was true and important.

It is perfectly clear, from §§ 142 and 143 of the *Nature of Existence*, that he believed himself to have shown that there is absence of contingency where most people think that there is contingency, and that he believed this to be quite independent of the question of the existence and range of causal determination. Thus, he remarks in the last sentence of Chap. XIX: "We have only to note that, if the absence of contingency *is* an evil, it is an evil which is inevitable and universal". And he says this although, as we know, he is quite uncertain whether every event is causally determined.

Now, on our interpretation also, it is true that there is absence of contingency where most people have thought that there is contingency. But it is equally true that there is absence of necessity where most people have thought that there was contingency. These people were wrong, not because they ascribed the *wrong kind* of modality to the facts which they called "contingent", but because they ascribed modality *of any kind* to facts which are non-modal. The bearing, if any, of these results on the old question of Human Freedom or Determinism will be discussed in Volume II of the present work. Here I will content myself with discussing the following example.

Consider the fact which is expressed by the sentence "Julius Caesar decided at a certain moment to cross the Rubicon". The first point to notice is that, for every speaker and every hearer of an utterance of this sentence, with the possible exception of Julius Caesar himself, the word "Julius Caesar" does not function as a pure proper name. For no one is acquainted with Caesar except Caesar himself. In all such cases therefore the judgment expressed by the sentence is one which would more properly be expressed by a sentence of the form "The only instance of ϕ decided at a certain moment to cross the Rubicon". Now it is perfectly legitimate to take *any* characteristic ϕ, which is an exclusive description of Julius Caesar, and which does not convey the characteristic of deciding to cross the Rubicon at the moment in question,

and to suppose with regard to ϕ that it might have had only one instance and that this might not have decided to cross the Rubicon then. But, if Julius Caesar was acquainted with himself, it would have been meaningless for him, using "*I*" as a pure proper name, to have said "I might not have decided to cross the Rubicon then", or to have said "I could not but have decided to cross the Rubicon then". And it is meaningless for us, who are not acquainted with Julius Caesar, to take any exclusive description ϕ of him, which does not convey the characteristic of deciding to cross the Rubicon when he did, and to say "The actual only instance of ϕ might not have decided to cross the Rubicon when he in fact did so decide", or to say "The actual only instance of ϕ could not but have decided to cross the Rubicon when he in fact did so decide".

*3. The "Nature" of a Continuant.

We explained and criticised McTaggart's definition of the "nature" of a term in § 3 of Chap. v of the present work; but we then deferred considering the notion of "dispositional properties", which seems to be specially important in connexion with the "natures" of continuants. At the end of Chap. vii of the present work we again deferred consideration of the common-sense distinction between the "permanent nature" of a thing and its various actual or possible "situations". McTaggart does not mention or consider these questions at all. Yet they are surely of the utmost importance. The distinction between the nature of a thing and its various situations; between the situation in which it *was* placed at a certain moment and others in which it *might have been* placed instead at that moment; and between how it *actually did* behave and how it *would have* behaved if its situation had been different; is continually drawn in ordinary life and in science. It must correspond to something real, even if it distorts the facts which it claims to express. Philosophy certainly cannot afford to ignore it completely, as McTaggart does. Now this seems to be the most appropriate place at which to treat this question. I will therefore end this chapter

with a few remarks on the subject. I may say that the best treatment of it with which I am acquainted is to be found in Lotze's *Metaphysik*, though I should hesitate to recommend Lotze's writings to a reader who was pressed for time or in search of thrills.

*3·1. *The Popular-Scientific View.* I will begin by trying to state explicitly certain things which we all tacitly presuppose in science and common life when we use the concepts of Cause and Substance.

We all distinguish between a thing and its actual history, i.e., the actual series of states or events of which this thing is supposed to have been the common subject. This distinction is closely bound up with another, which we all draw, viz., the distinction between a thing, with its inner nature and its states, on the one hand, and the external circumstances in which it happens from time to time to be placed, on the other. The external circumstances consist of the standing of this thing in certain relations at certain times to other things which are not parts of itself. We assume that the very same thing, which in fact was in certain external circumstances and in fact had a certain history, *might* have been in dissimilar circumstances and *would* then have had a dissimilar history.

At this point the intimate connexion between the notions of Substance and Cause, which led Johnson to say that they are not two categories but two factors in a single more concrete category, becomes plain. We ascribe to a thing a certain inner nature, and we hold that its history is determined jointly by its inner nature and its external circumstances. Given the inner nature and the actual circumstances, it is assumed, the actual history *could not* have been dissimilar to what it in fact was. And, given the same inner nature and assignably dissimilar circumstances, it is assumed, the history *would necessarily* have been dissimilar in certain assignable respects from the actual history. Thus a Thing is conceived as a store of powers or dispositions. Some of these may not be manifesting themselves at a given moment, though they may have done so in the past and may do so again in the future. Some may never yet have manifested themselves.

And those which are manifesting themselves in a certain way would have done so in an assignably dissimilar way if the external circumstances had been different. A bit of arsenic, for example, is always poisonous, but it may not now be poisoning anyone. The earth is moving round the sun in a certain way, and it would have been moving in a certain different way if the sun had been twice as massive as it is. And so on.

We must now go into further detail about powers or dispositions.

(i) We can divide them into generic, specific, and singular. All bits of matter resist attempts to change their state of motion or of rest. Thus inertia is a *generic* dispositional property of matter. Similarly, retentiveness and the power of association are probably generic dispositional properties of mind. Then there are certain dispositions which belong to all samples of gold (e.g., to melt at a certain temperature at normal pressure) and do not belong to any other kind of matter. These are *specific* dispositional properties of gold. It is probably a specific dispositional property of *human* minds to be capable of seeing formal relations, to desire to do "what is right and reasonable, as such", and so on. Lastly, it may well be that a certain individual A, and no other, has the capacity to fall in love with a certain individual B. This would be an example of a *singular* power or disposition.

(ii) We must next notice that dispositions fall into a hierarchy. A bit of iron which has been put inside a helix in which an electric current circulates acquires the power to attract iron-filings. A bit of copper, placed in similar circumstances, does not. Under certain other circumstances, e.g., if it be sharply hit or heated to a certain temperature, the bit of iron will lose the magnetic property. If we call the magnetic property a "first-order disposition", the power to acquire this property when placed in a helix round which a current is circulating may be called a "second-order disposition" specific to iron. For it is a disposition to acquire the first-order disposition under certain circumstances, and it is common and peculiar to bits of iron. Similarly, the

power to lose the magnetic property when heated or sharply hit will be a second-order disposition of iron. A disposition of the second order is, in general, a disposition to acquire or to lose, under assigned conditions, a disposition of the first order. In the same way we could define dispositions of the third or higher order. The power of learning to talk is a mental disposition of at least the second order, for it is a power to acquire a power of doing something. One of the peculiarities of minds in general, and of human minds in particular, is that they start with very few first-order powers, but rather with powers to acquire powers.

In this connexion it is important to distinguish between two cases, viz., the reversible and the irreversible. In the first case a power can be gained and lost and gained again repeatedly by appropriate changes in the external circumstances. A bit of iron can be magnetised, and demagnetised, and remagnetised, repeatedly. In the second case the substance has *not* the power to regain a certain power which it has lost, or to lose a certain power which it has gained. If you injure a man's brain in certain ways, his mind will lose certain powers, and there is no known way of restoring these powers to his mind.

Now presumably this hierarchy of powers cannot continue indefinitely upwards in the case of any substance. It would seem that any substance must have some powers which are not the joint products of its other powers of higher order and the special external circumstances in which it has been placed. Such powers may be called the "Supreme Dispositions" of the substance in question. So far as we know, retentiveness is a supreme disposition of minds, and electric charge is a supreme disposition of electrons.

A substance can change in respect of its external circumstances, its states, and its lower-order dispositions. Could it change in respect of its supreme dispositions? If such a change were to take place, it would, by definition, be not completely determined by causes. For, if it were so determined, it would have to be determined jointly by some disposition of the substance and by the circumstances in which

the substance was placed. But, if this were so, the disposition which has changed would *not* be supreme, since the disposition which determines the change of it would, by definition, be of a higher order than it. Thus there seem to be three logically possible alternatives. Either (*a*) a substance has no supreme dispositions, and the hierarchy of its dispositions goes upwards without end; or (*b*) it has supreme dispositions, and these cannot change; or (*c*) it has supreme dispositions, and these can change, but the changes of them are not completely determined by causes. I think that, in ordinary life and in science, we tacitly reject the first and the third alternatives and accept the second.

(iii) We must next consider the distinction between "Simple" and "Compound" substances, so far as it is relevant to the subject of dispositions. Some substances are certainly composed of other substances interrelated in some fairly intimate and specific way. It is practically certain that even the smallest bit of matter which we can perceive and on which we can operate is of immense complexity. Now a complex substance will always have some dispositions which do not belong to the substances which are its constituents. Thus water boils, under normal pressure, at 100° C., whilst neither oxygen nor hydrogen, of which it is composed, has this property. Let us call properties which belong to a compound substance as a whole, and not to any of its constituents "Collective Properties". It is, of course, plain that, if there be simple substances, they can have no collective properties.

Now it is theoretically possible that there should be collective properties of two different kinds, which I will call "Reducible" and "Emergent". A collective disposition is *reducible* if the presence of this property in a compound substance is logically entailed by the dispositions which its constituents manifest in *other* circumstances and the special relations in which they stand to each other in *this* substance. All the characteristic properties of a clock, for example, are reducible, since they are entailed by the properties which brass, steel, etc., manifest in other circumstances, and by the special forms into which these materials are shaped and the

special relations in which they are set to constitute a clock. But it is possible that there may be collective dispositions which are not, in this sense, reducible. Common salt, for example, is certainly a complex substance composed of sodium and chlorine; but nothing that is known of the behaviour of sodium in other circumstances, and of the behaviour of chlorine in other circumstances, and of the mutual relations of the two elements in salt, entails that this combination of them will have the characteristic "salty" taste. By an "emergent" disposition I mean a collective disposition which is not reducible, in the sense defined and illustrated above. Whether there be any such properties, or whether it be merely our present imperfect knowledge which makes it seem as if there were, is a question of detail into which we need not enter here and now. It is enough to say that it is plainly *possible* that some collective dispositional properties should be emergent; though it is the natural and proper ambition of scientists to show, with regard to as many collective properties as possible, that they are really reducible even though they have seemed to be emergent.

Modern physics does not differ from mediaeval physics in having dispensed with dispositions or "faculties". Its advantage, in this connexion, over mediaeval physics consists in the following closely connected points. (*a*) It has shown that there is very strong reason to believe that many substances, which seem to be simple and homogeneous (e.g., water, salt, etc.), are in fact complex and heterogeneous; being composed of simpler substances, which can occur singly or in other combinations, interrelated in a certain characteristic way. This makes the properties of such substances to be certainly collective, and therefore possibly reducible. (*b*) It has shown that these simpler substances are of a very few kinds, and that the immense variety of kinds of material substance is due to differences in the number, spatial relations, and motions of substances of these few kinds. (*c*) It can often plausibly derive many very different dispositions of a compound substance from a single hypothesis about its components, their arrangements, and their motions; and can predict from this hypo-

thesis further dispositional properties, which had not hitherto been suspected but are found to be present on further investigation. (*d*) Until lately physical science enjoyed what I can only describe as an extraordinary bit of luck, which, like that which made England so prosperous in the nineteenth century, is now deserting it. Experimenting with samples of matter which are enormously complex, it found certain laws governing their effects on each other in the way of starting, modifying and stopping each other's motions. It boldly and unthinkingly assumed that these laws would apply also to the imperceptible components of these immensely complex perceptible substances. To a most amazing extent this draft on the unknown was honoured by Nature. But we have now exhausted our overdraft; and we have to realise that, beyond a certain point, concepts and laws derived from observing extremely complex substances do not apply to their simpler and imperceptible components. The only surprising thing is that we should all have been so surprised when this at last happened.

Poor dear Psychology, of course, has never got far beyond the stage of mediaeval physics, except in its statistical developments, where the labours of the mathematicians have enabled it to spin out the correlation of trivialities into endless refinements. For the rest it is only too obvious that, up to the present, a great deal of Psychology consists mainly of muddle, twaddle, and quacksalving, trying to impose itself as science by the elaborateness of its technical terminology and the confidence of its assertions.

It is now time to consider the connexion or want of connexion between the various pairs of opposites which I have distinguished, viz., supreme and lower-order dispositions, reducible and emergent properties, and simple and compound substances. At any given stage of scientific knowledge certain substances are taken as simple, and their properties are therefore taken as non-collective and so irreducible. At one time the atoms of the various chemical elements were supposed to be in this position; now the electrons and protons have ousted them. The ideal would presumably be to have

one and only one ultimate kind of substance, but it is not self-evident that this ideal must be realised in nature. On the other hand, I think that we do tacitly assume that there must be simple substances, and that all other substances must be built out of these; though we do not assume, with regard to any kind of substance which is at a given time the simplest known, that *it* is in fact simple.

It is plain that all the dispositions of any simple substance would have to be accepted as so many independent brute facts about it, and must be incapable of any kind of explanation. To this extent there is an analogy between the dispositional properties of a simple substance and the emergent properties, if there be any, of a compound substance. But there is an important difference. Although the emergent properties of a compound substance could not be explained, in the sense of being *inferred* from the properties which its constituents have manifested in other combinations and from their special interrelations in this substance, yet they are *subject to laws*. There will be the law that *any* substance composed of such constituents so related to each other will have such and such an emergent property. The peculiarity of these laws is that they are ultimate, and cannot be inferred from anything else. The laws are brute facts, but there *are* the laws. But the dispositions of a simple substance could not be subject to laws even of this kind. Since a simple substance has no components and no structure, there cannot even be an ultimate and non-deducible law connecting the properties of such a substance with each other by connecting them all with its structure and components.

On the other hand, it is not necessary that all the properties of a simple substance should be supreme, in the sense in which I defined the term "supreme properties". There is no reason why a simple substance should not have a certain property p under certain circumstances, which changes into the property p' under certain other circumstances. If so, neither p nor p' would be supreme properties in my sense, for the property of losing p and gaining p' under certain circumstances would be a property of higher order than p and p' themselves. Let us take

an example. So far as I know, my mind is a simple substance. It has gained the power of repeating the multiplication table. Under certain conditions it would lose this power. Therefore this power is not a supreme property of my mind, though the power of learning and forgetting may be so.

It remains to remind ourselves of a remark which was made in Section 1·21 of Chap. VII of the present work. We know what we mean by the generation or the destruction of a compound substance. It is generated when certain simpler substances come into certain characteristic determinate relations to each other; it lasts so long as they remain in the same, or approximately the same, mutual relations; and it is destroyed when they cease to stand in these relations to each other. These are processes which are subject to ordinary causal laws, with which science can deal. But the generation or destruction of a simple substance seems to be something quite unintelligible to the human mind; it falls altogether outside the ordinary notions of change and causation. It does not, of course, follow that it could not happen. Nor does it follow that we could not discover and state the circumstances under which it does happen, if it does.

The fact is that we are again faced with three alternatives, as we were in the case of supreme properties. Either (*a*) there are no simple substances; or (*b*) there are simple substances, and they are all eternal or sempiternal; or (*c*) there are simple substances which are generated and annihilated, but their generation and annihilation are unique processes which involve a unique kind of "causation". I think that common-sense, if pressed, would reject the first alternative as impossible and the third as intellectually humiliating, but would feel rather uncomfortable if one were to be so ungentlemanly as to say openly that this commits it to accepting the second.

It is now possible to explain what common-sense and science understand by the "inner nature" of a substance. They mean primarily the collection of all its supreme dispositional properties. If the substance in question be, so far as we know, simple, there is an end of the matter for the present. If, on the other hand, we have reason to believe that

it is complex, there is more to be said. Many of its supreme dispositional properties may be inferable from the natures of its components and the mutual relations in which they stand within the compound substance. In such cases it would probably be said that the "inner nature" is the property of being composed of components of such and such natures interrelated in such and such ways, together with any supreme dispositional properties which are emergent, i.e., not inferable from the former property.

Now I think that science and common sense would regard the following three propositions as self-evident. (i) Every substance has a set of supreme dispositional properties, each of finite order. This is little more than asserting that every substance has a definite inner nature. (ii) No substance can change in respect of any of its supreme dispositional properties. This again is largely a matter of definition, viz., the definition of "continuing to be the same substance". If a case arose which seemed to conflict with the present principle, we should say that what had happened was that "one substance had been annihilated and another substance of a different kind had been generated in its place". (iii) Any substance whose inner nature had differed in any respect from that which S in fact has would necessarily have been a different substance from S. It does seem clearly nonsensical to say that what is in fact a bit of gold might instead have been a bit of silver or a potato or a kangaroo; whilst it does not seem clearly nonsensical to say of *this* bit of gold, which is in fact now on my table, that it might instead have been on the floor.

*3·2. *Critical Discussion of the above View.* I think that the last sub-section contains a reasonably clear and accurate account of the meaning which we attach in ordinary life and science to the phrase "the nature of a substance", and of the propositions which we believe about the natures of substances. It remains to consider briefly whether it is internally coherent.

I have already given my reasons for doubting, in company with McTaggart, whether the sentence "This, which in fact

stood in the relation R to that at t, might instead have then stood to that in the relation S" has any meaning if "this" and "that" be used as pure proper names. But we are almost certainly not acquainted with the substances about which we profess to be making such statements, and so our "this" and "that" are not functioning as proper names. It may be, then, that such statements, when properly interpreted, have a good meaning. There is, however, another difficulty in taking such statements literally, which we have not yet considered. Our objection to taking these statements literally was quite independent of questions about *causation*; our objection was that, in such statements, modal predicates were ascribed to subjects which are not capable of modality. We have now to consider the bearing of the doctrine of universal causal determination upon the legitimacy of such suppositions.

Suppose that we are considering a material thing, and saying of it that *it* might have been in different circumstances from those in which it in fact was, and that *it* would then have had an assignably dissimilar history from that which it in fact had. And suppose we want this statement to be taken literally. The most important circumstances of a material thing are its relationships of contact, separation, etc., to other material things. Now is it possible for anyone who accepts the laws of mechanics to say literally that the very same thing which was in fact in contact at a certain moment with certain other things might instead have stood in different spatial relations to the very same things at that moment? The position of anything at any moment is supposed to be completely determined by its previous position and velocity, and its previous spatial relations to other things, and the natures and previous states of itself and other things. No doubt we can say consistently that this thing *would have been* now in such and such a different spatial position *if* it had previously stood in such and such different spatial relations to other things. But this merely pushes the question of the legitimacy of this kind of supposition further and further back in time. And, in the end, we seem unable to give any clear meaning to the supposition that this very thing might

now have been differently related to the same things, unless we think of this thing as being created and suddenly put into the pre-existing system of nature at a certain time and place. No doubt, if this very same thing could have been "launched into existence" in a different time or place from that in which it in fact was, it would now be in different spatial relations to the same things. But is there really any sense in this supposition? Can we really think of substances being shot into the course of nature at certain places and dates? And, if we can, what sense is there in saying that the very same substance, which in fact began its career at a certain time and place, might instead have begun at a different time and place? Would not a substance which had started to exist at a different time and place from this one have necessarily been a different substance from this one? The problem is certainly no easier in the case of mental substances. I have sometimes caught myself wondering what I should have been like if my father had not married my mother but had married some other woman. But I always ended by thinking that the question was meaningless.

We may sum up the position as follows. The popular-scientific view of the world ostensibly combines the following four propositions. (i) That any substance might have been in different circumstances at a given moment from the circumstances in which it in fact then was. (ii) That the circumstances of any substance at any moment are completely determined by its nature, the natures of the other substances in the universe, and the previous internal states and external circumstances of it and of them. (iii) That the natures of substances cannot change, and that it is nonsensical to suppose that a substance which in fact has one nature might instead have had a dissimilar nature. (iv) That the "coming to be" and the "passing away" of simple substances is unintelligible and can play no part in science, whilst the "coming to be" and the "passing away" of compound substances is completely determined as to time, place, and the nature of the substance concerned, by previous events. My criticism is that, even if there were no logical objection to the first

supposition by itself, when taken literally, it cannot be taken literally and consistently combined with the other three. Nor is this criticism merely captious. Any mathematical physicist who troubles to think what he is doing must often be puzzled to know what he really means when he talks of "the most probable initial state of a gas", or when, in applying the Principle of Least Action, he compares the various "possible paths" (all but one of which are physically *impossible*) by which a system "might" pass from one actual state to another.

It seems plain then, on several grounds, that the common statement that a certain thing might have been situated otherwise than it was, and would then have behaved otherwise than it did, cannot be interpreted literally. And, if we consider the kind of evidence on which such statements are founded, we can see what interpretation should probably be put upon them. My evidence for saying that *this* might have been in an assignably different situation, and that *it* would then have behaved in an assignably different way, is always of the following kind. I have observed *this* at *various* times in various situations, and noted its behaviour. I have observed *other things*, which closely resembled this, at various times and in various situations, and have noted *their* behaviour. Each observed determinate situation s, and the corresponding determinate behaviour b, are found to fall under a certain general formula $B = f(S)$ connecting the determinables B and S. It is assumed that this formula is characteristic of substances of a certain kind; and that, if at *any* time any substance of this kind were put into a situation which was *any* determinate form of S, its determinate behaviour would be that form of B which is obtained by substituting the given determinate form of S in the formula $B = f(S)$. I believe that the statement that *this* very thing might have been in an assignably different situation from that in which it actually was, and that *it* would then have behaved in an assignably different way from that in which it actually did, is intelligible and consistent with other parts of the popular-scientific view *only* if it be taken as an abbreviation of the above statement about *any* thing of a given *kind*.

Now, if this view be accepted, an important consequence follows. Unless the nature of *this* thing remains constant throughout its history, and unless there are *other* things exactly similar in nature to this, any attempt to say what *this* would have done if its circumstances had been different becomes entirely meaningless. For, if taken literally, such statements are meaningless in themselves and inconsistent with the other parts of the popular-scientific view. And, when interpreted in the only way that seems to make them intelligible and consistent, the interpretation presupposes constancy of nature in individuals and the existence of natural kinds.

Suppose, for example, that, after merely looking at a certain bit of matter, or performing a single simple experiment on it, such as determining its specific gravity, I say "This would dissolve if it were put into *aqua regia*, and would not dissolve if it were put into nitric acid". What exactly do I mean? I believe, from experiments on other bits of matter which looked like this and had the same specific gravity, that these are sufficient signs of the compresence of a whole group of dispositional properties, of which being soluble in *aqua regia* but not in nitric acid is one. I therefore assume that this disposition is present in this bit of matter. I further assume that, if it is now present, it has been and will be so. From this it follows deductively that, if this bit of matter ever was immersed in *aqua regia* it then dissolved; that, if it ever was immersed in nitric acid, it then did not dissolve; that, if it ever shall be immersed in *aqua regia* it will then dissolve; and that, if it ever shall be immersed in nitric acid, it then will not dissolve. The doubtful parts of my belief are (*a*) whether the characteristics which I take to be trustworthy signs of the presence of this dispositional property really are so, and (*b*) whether this dispositional property really is supreme, or whether it may not be a disposition of lower order, like the solidity of water between certain limits of temperature, and therefore susceptible of change. To conclude: When I say that this, which in fact is immersed in nitric acid and is not dissolving, might instead have been immersed in *aqua regia*

and would then have been dissolving, I doubt whether any more is meant than a short summary of facts and beliefs of the kind which have been stated earlier in this paragraph. And I do not think that there is anything further that I can usefully say on this topic at present.

BOOK IV

THE COMPOSITION AND DIVISION OF PARTICULARS

> ... a dark
> Illimitable ocean, without bound,
> Without dimension; where length, breadth, and heighth,
> And time and place, are lost....
>
> MILTON, *Paradise Lost*, Book II.

ARGUMENT OF BOOK IV

In the first chapter of this Book we consider the notion of Groups, and its relations to the notions of Classes and Complexes. We also discuss the nature of Enumerative Judgments, and the facts which correspond to them. We then explain McTaggart's detailed theory of Groups; and try to define the "Content" of a group, and to show its analogy to the logical sum of a class of classes. In the second chapter we explain and criticise McTaggart's doctrine of Compound Particulars, in general, and of the Universe, defined as the all-inclusive compound particular. In the third chapter we discuss the two notions of Manifestation and Organic Unity, which are closely connected with each other and with the Principle of Extrinsic Determination. In the fourth chapter we consider the various ways in which the content of the universe might form a systematic order, and we note McTaggart's conclusion that, so far, we have found no reason to believe that it does form any such order. In the fifth chapter we explain and criticise McTaggart's contention that it is self-evident that every particular is composite; and we compare his doctrine with other views that have been held on this subject. In the sixth and last chapter of this Book we discuss the difficulties which are asserted to be involved in the alleged fact that every particular is composite; and the one assumption which, according to McTaggart, is necessary and sufficient to avoid these difficulties.

CHAPTER XV

GROUPS

In Chap. xv of the *Nature of Existence* McTaggart introduces several interconnected conceptions, which are of the utmost importance in his philosophy. They are intended to lead up to the notion of composite particulars and to the conclusion that all particulars are necessarily composite.

1. Groups, Collections, and Classes.

McTaggart begins by trying to explain what he means by a "Group", and to distinguish it from a "Class". In § 120 a "group" is defined as "any collection formed of particulars, or collections of particulars, or of both". The particulars or collections of particulars which form the collection are called the "members of the group".

McTaggart does not attempt to define the term "collection", nor to prove that there are collections. But it is evident from his remarks in § 122 that his reason for holding that there are collections is that there are facts corresponding to such judgments as "Julius Caesar, and the Albert Memorial, and the last sneeze of Horace Walpole are three". He evidently thinks it obvious that, since there is a fact corresponding to this judgment, there must be something, which may be called "the *collection* composed of Julius Caesar, the Albert Memorial, and the last sneeze of Horace Walpole", to be the subject of this fact. So "collections" might be described as the subjects of those facts which correspond to enumerative judgments in which each term is merely named or exclusively described.

This kind of fact must be contrasted with the kind of fact which corresponds to the judgment "The stations on the Inner Circle between Victoria and Kensington High Street are three". Here we assert of a certain characteristic, viz., that of being a station on the Inner Circle between Victoria

and Kensington High Street, that it applies to three and only three particulars. None of these particulars, which are in fact Sloane Square, South Kensington, and Gloucester Road, is either named or exclusively described. And a person could understand the statement even though he did not know the names of the stations and did not know any exclusive descriptions of them. McTaggart would say that the sort of fact which corresponds to a judgment of this kind is about a *class*, and not about a *collection*. Collections are, I think, what Johnson calls "Enumerations".

It seems to me that facts which appear to be about classes, as distinct from enumerations, are really facts of a peculiar kind about what would ordinarily be called "the defining characteristic of a class". The fact that Jupiter has six moons is a fact about the property of being a moon of Jupiter. It is the fact that this characteristic has the peculiar characteristic of six-fold application. When it is said that a class may have no member we mean that a characteristic may have no application. When it is said that a class may have only one member we mean that a characteristic may have singular application. Every characteristic has *some* "extent of application", including zero-extent as a limiting case; but the determinate extent of application possessed by a given characteristic is, *in general*, contingent. It is not always contingent, however. We can prove, for example, that there *must* be five and only five *kinds* of conic section in a three-dimensional Euclidean space, viz., circles, ellipses, hyperbolas, parabolas, and pairs of intersecting straight lines. But it is contingent that there should be such and such a number of conic sections *of a given kind*, e.g., of circular figures, in the universe. We must distinguish extent of application, which belongs to *all* characteristics, from "polyadicity", which belongs only to relations. We say that temporal priority is a "dyadic" relation, that jealousy is a "triadic" relation, and so on. To say that jealousy is "triadic" means that the fact corresponding to a statement in which "jealous of" occurs as grammatical predicate must, from the nature of the case, involve three terms, viz., one *who* feels jealous, one *of whom*

he feels jealous, and one *on account of whom* he feels jealous. That a given relation should have the degree of polyadicity which it does have is always a necessary fact; that it should have the extent of application which it does have is, in general, a contingent fact. It is impossible that jealousy should have been dyadic or tetradic or anything but triadic, but it is quite contingent whether there be no, or one, or three hundred and seventy-six trios of persons, each interrelated by jealousy.

1·1. *Are there Collections?* This is an extremely difficult question. It seems to me that it arises independently of whether there are purely enumerative facts, and I shall defer the latter question for the present.

It will be sufficient to start with any relational fact in which the relation is symmetrical, e.g., the sort of fact which would naturally be expressed by such a sentence as "A, B, and C are collinear". It is quite obvious that this is altogether different from the kind of fact which is expressed by the sentence "A, B, and C are red". The latter means the same as the conjunctive sentence "A is red and B is red and C is red". But there is no conjunction of three facts, one wholly about A, one wholly about B, and one wholly about C, which could possibly be regarded as what is expressed by the former sentence. Thus the fundamental fact which must be recognised is that there is a collective as well as a distributive sense of "and", and that the former is involved in sentences like "A, B, and C are collinear".

Let us consider a relation, like jealousy, which is not symmetrical. Consider the fact expressed by the sentence "A is jealous of B on account of C". This also cannot be reduced to a conjunction of facts, one about A alone, one about B alone, and one about C alone. But it would not usually be expressed by any sentence of the form "A, B, and C are so-and-so" like, e.g., "A, B, and C are collinear". Nevertheless, this could be done. We could express this fact by the sentence "A, B, and C are interrelated by jealousy in the order $A \rightarrow B \rightarrow C$". It may be doubted, however, as I pointed out in Chap. v, Section 2·34, of the present work, whether the latter sentence really expresses *the same* fact as that which

is expressed by the former and simpler sentence, though it certainly expresses a fact which is *equivalent to* the former. In general we may say that, to every relational fact there is an equivalent fact which would naturally be expressed by a sentence of the form "A, B, C, etc., are interrelated by the relation R in the order $A \to B \to C \to \ldots$", where the "and" is collective and not distributive.

Such considerations as these would naturally suggest that phrases like "A and B and C and ...", which occur as grammatical subjects of such sentences, stand for entities of a peculiar kind, which are the logical subjects of the facts expressed by these sentences. This impression is strengthened by considerations of the following kind. Suppose it is the case that the three dots, A, B, and C "form a triangle", as we say. No doubt the primary fact is that they are interrelated by a certain symmetrical triadic relation. But, when three dots are so interrelated, there is a whole with a certain characteristic visual appearance. It seems to form a unit, and one can talk of its relations to other such units, or to other dots, or to wholes formed of collinear triads of dots, and so on. We end by talking of "the triangle ABC", and regarding it as a particular like the individual dots which compose it. And it would seem arbitrary not to do so, since the dots, on closer inspection, would probably be found to be figures of interrelated smaller dots, and so on.

I will sum this up by saying that there are quite certainly collective *facts*; that linguistic usage suggests that the subjects of these are collective *particulars*; and that certain sets of interrelated terms seem to function as units, and to have qualities and relations of their own. Such considerations have considerable weight in favour of the view that there are entities which may be called "collections", but they are not conclusive. It may be that all sentences in which a certain predicate is conjoined with a collective name or phrase could be replaced without loss or gain of meaning by sentences in which no collective name or phrase appeared and a different predicate was used. To take a very trivial example. Consider the sentence "The line AB intersects the line CD". It is true

that AB and CD are collective phrases, and that it would be nonsense to talk of points "intersecting". Yet we could replace this sentence by "There is a point which is collinear with A and B and is also collinear with C and D". Here no collective name or phrase appears, and the word "intersects" has vanished. Yet the original fact is being expressed. Thus the question whether it is necessary to suppose that there are collections comes to this: "Is it possible to replace *all* intelligible sentences in which collective names and phrases function as subjects, by sentences, with suitably changed predicates, in which no such names or phrases appear?" If this can be done in all cases without loss or gain of meaning, it is not necessary to suppose that there are collections; otherwise, it is. I have shown by a simple example that it can be done in some cases. Whether it could be done in all I do not know.

1·2. *Enumerative Judgments.* McTaggart evidently held that there are purely enumerative judgments, expressed by such sentences as "A and B are two". And he evidently regarded the facts which correspond to such judgments as having a peculiar kind of subject, viz., a collection, a peculiar kind of predicate, viz., a numerical predicate, and an ordinary copula. "A and B are two" would resolve itself into "The collection AB is two-membered". This assigns a quality to a subject, just as "A is red" does. The only peculiarity is in the nature of the subject and the nature of the predicate. And I think that McTaggart holds that the occurrence of purely enumerative judgments would suffice to show that there are collections, even if there were no other evidence for this view, because no other analysis can be suggested of the facts which correspond to such judgments.

Now there are two remarks to be made about this.

(i) Suppose we compare a sentence like "A, B, and C are collinear", which expresses a symmetrical relational fact, with a sentence like "A, B, and C are three". They are of the same grammatical form. They agree in the fact that neither can be replaced by a conjunction of sentences, one about A alone, one about B alone, and one about C alone. In view of

these analogies, it might be suggested that there is a symmetrical triadic relation, which might be called "forming a triad with"; and that the fact which is expressed by "*A*, *B*, and *C* are three" is a symmetrical relational fact, which might be expressed by "*A* forms a triad with *B* and *C*". There would be other such symmetrical relations, such as "forming a dyad with", "forming a quadruplet with", and so on. Their polyadicity would be dyadic, triadic, tetradic, and so on, respectively. It might be suggested that this is an alternative analysis of enumerative facts to that which McTaggart assumes, and that, if it were adopted, there would be no need to admit that there are entities called "collections". Some such suggestion as this was, I think, made to me in conversation many years ago by Mr J. A. Chadwick, though he is not to be held responsible for the particular form in which I have put it.

Even if this analysis of enumerative facts were admitted to be possible, McTaggart might have answered as follows. Granted that the fact that *A*, *B*, and *C* are three were just the relational fact that *A* forms a triad with *B* and *C*, there would still be, corresponding to the latter, the equivalent fact that the collection *ABC* is interrelated by the relation of forming a triad. So we should not have dispensed with collections, since to *all* relational facts there correspond equivalent facts about collections. And it might well be asked what could be meant by saying that a relation was "triadic" or "tetradic" except that *any collection* of terms which it interrelated would have three or four members respectively.

(ii) The second remark which I have to make is that I am extremely doubtful whether there are any purely enumerative judgments, and therefore extremely doubtful whether we can assume that there are such facts as would correspond to such judgments.

(*a*) I do not believe that the sentence "*A*, *B*, and *C* are three", if uttered by anyone to whom "*A*", "*B*", and "*C*" were pure proper names, would express a judgment at all. Suppose that "this", "that", and "the other" were proper

names which I gave to a certain flash, a certain squeak, and a certain itching, which I sensed at a certain moment. Then it seems to me quite inconceivable that, if I happened to utter a sentence of the form "This, that, and the other are three", it could express any judgment that I was making about these sensa. A judgment with a numerical predicate must be an answer to an at least possible question beginning with "How many?"; and I cannot see that a question which begins in this way can have any meaning unless it takes the form "How many *so-and-so's*?".

(*b*) It is plain that the vast majority of judgments with numerical predicates are of the form "There are three *people in the room*", "There are five *kinds of conic section*", and so on. The only sentences which seem to be of the purely enumerative kind and which certainly do express judgments are illustrated by the following examples. If I said "Junius and Sir Philip Francis are two", I might well be expressing a genuine judgment. And another person might be expressing a genuine judgment by the sentence "Junius and Sir Philip Francis are one". It would, of course, be more usual to employ the words "different" and "the same" as grammatical predicates in such cases. Again, supposing that Francis was acquainted with himself, he might have used "I" as a proper name, and he might have uttered the sentence "Junius and I are two", and this might have expressed a genuine judgment.

Now in all such cases, although what are called "proper names" by grammarians are used, we are really concerned with *descriptions*. In our first examples there are two descriptions, viz., the property of being known to one's contemporaries as "Sir Philip Francis", and the property of having written the letters which appeared in the *Public Advertiser* over the signature of *Junius* during the controversies about Wilkes's election and the *Nullum Tempus* business. Each of these properties is believed to apply to one and only one man. The question is whether they are two exclusive descriptions of the same particular, or whether they apply to different particulars. One person takes one alternative and another

takes the other alternative in answer to this question. Even if Francis and Junius be in fact two, there seems no need to postulate something called "the collection of Francis and Junius" in order to deal with the fact which corresponds to this judgment. The fact simply is that two exclusive descriptions, which are believed by some people to describe the same particular, describe different particulars. If, on the other hand, Francis and Junius are in fact one, the fact simply is that two exclusive descriptions, which are believed by some people to describe different particulars, describe the same particular. The question might be put in the form "Is there a particular of which 'being known to its contemporaries as *Sir Philip Francis*' and 'being the writer of certain letters signed *Junius*' are both exclusive descriptions?" The person who says that Francis and Junius are one answers this question in the affirmative; the person who says that they are two answers it in the negative. Another example of a genuine judgment, which could be dealt with on the same lines, is expressed by the sentence "Francis Bacon, William Shakespeare, and the author of *Vortigern* are three". The question simply is whether a certain three descriptions, each of which describes one and only one person, all describe different persons. And this is, of course, a purely empirical question. Many people have thought that the first two of these descriptions described a single person, and some people thought that the last two of these descriptions described a single person.

Supposing Sir Philip Francis to be acquainted with himself, and to have used "I" as a pure proper name when uttering the sentence "Junius and I are two", what he presumably would have meant is that the characteristic of having written the letters signed *Junius* did not apply to *him* though it was an exclusive description of *someone*.

Let us finally consider McTaggart's own example in § 122 of the *Nature of Existence*. He says that it is obvious that there is a group whose members are "the table at which I am now writing, the oldest rabbit now in Australia, and the last medicine taken by Lewis XV", since it is obvious that these

are three particulars. Now here we are explicitly given three descriptive phrases; no one suggests that we are acquainted with the particulars which they exclusively describe, if such there be. It is not in the least obvious that the particulars described by these phrases are three. There may, for example, now be several rabbits in Australia of equal age, all of which are older than any other rabbits in Australia. Lewis XV, at his last gasp, may have swallowed two medicines together, and so on. All that is obvious is the following facts. We are given three phrases, each of which is grammatically of the form of an exclusive description. These are such that, if they were exclusive descriptions, it is obvious that no two of them could describe the same particular. Nothing that could be described as a table could be described as a rabbit or as a medicine. Nothing that could be described as an Australian rabbit could be described as a table or as a medicine taken by Lewis XV. And nothing that could be described as a medicine taken by Lewis XV could be described as a table or as an Australian rabbit. Thus we are entitled to say that, if each of these phrases is (as it claims by its linguistic form to be) an exclusive description of a particular, then each will be an exclusive description of a different particular. And so, since three different phrases have been presented to our attention, they will describe three different particulars, if each does exclusively describe *some* particular or other. I am not arguing against the reality of groups or collections; but it does seem to me that these alleged examples of purely enumerative facts, when examined carefully, have very little bearing on the question.

1·3. *Classes and Complexes.* Of course McTaggart is under no obligation to hold that there are any *mere* collections. It might be that the members of any group G are interrelated in some way in which (a) the members of no sub-group of G are interrelated, and (b) the members of no group which contains G as a sub-group are interrelated. This would mark G out objectively from the rest of the world, and yet leave it possible that there might be many groups similar in their internal constitution to G.

Very often the members of a collection are all instances of a certain characteristic which does not belong to anything else. In that case they may be said to "constitute a class". The members of a certain collection might evidently constitute several different classes, since there might be several different characteristics common and peculiar to them. Consider, for example, the collection whose members are William I, William II, Henry I, and Stephen. They constitute the class of Norman Kings of England, and they also constitute the class of Kings of England between Harold Godwinsson and Henry II.

When the members of a collection have certain qualities, not necessarily the same in all members, and when they are interrelated in certain ways, the collection often receives a special name. It may, for example, be called a "family" or an "army" or a "golf-foursome", according to the qualities of its members and the nature of their interrelations. A collection whose members are interrelated by other relations beside the common possession of certain qualities peculiar to the group may be called a "complex" or a "unity". Just as the same collection may constitute several different classes, so it may constitute several different complexes or unities. The collection whose members are A, B, and C may be at once a family of brothers, a business firm, and a trio interrelated by jealousy from A to B on account of C.

For my own part I am inclined to regard complexes or unities as the common matrix from which *both* the notion of groups or collections and the notion of relations are inseparably correlated derivatives. It seems to me that both these notions turn up together when we attempt to analyse unities which are originally presented to us *en bloc*, and that neither has any clear meaning if considered in complete abstraction from the other and from the common matrix of both.

2. Detailed Account of Groups.

We can now consider the detailed development of McTaggart's theory of Groups. It will be remembered that "groups" were defined as "collections of particulars, or of

collections of particulars, or of both". The first point to discuss is the notion of groups, some or all of whose members are themselves groups.

2·1. *Repeating Groups.* It is evident that a group could not be a member of itself, but there is no objection to its having other groups as members. There is, for example, a three-membered group whose members are the King, the House of Lords, and the House of Commons. This is not only a group; it is also a complex, called "the Estates of the Realm". Now the House of Lords is a group, and so is the House of Commons.

Two members of a group may overlap, and one may even be wholly contained in another. The House of Lords, the House of Commons, and the Cabinet are, for example, a three-membered group, though the Cabinet partly overlaps the House of Commons and partly overlaps the House of Lords and has no members who are not members of one or other of the two Houses. Again the Society called "Trinity College, Cambridge", and the College Council of Trinity, are a two-membered group, though the Council is wholly contained in the College.

McTaggart calls such groups as we have been illustrating "Repeating Groups". He remarks that there will be an endless series of them. Suppose we start with two particulars, A and B. They constitute the group $A \,.\, B$. This is a particular. There will therefore be a group whose members are A and $A \,.\, B$. This may be denoted by $A : A \,.\, B$ or by $A \,.\, B : A$. Then there will be a group whose members are $A \,.\, B : A$ and A. This could be symbolised by $A \,.\, B : A :. A$. It is evident that there is no end to the series of which these are the first few terms. Again, it may be remarked that, at each stage, more and more groups exist. At the first stage there is the one group $A \,.\, B$. At the second there are the three groups $A \,.\, B : A$, $A \,.\, B : B$, and $A \,.\, B : A : B$. At the fourth stage there will be many more.

2·2. *Parts of a Group and Members of a Group.* We can now pass to certain statements which McTaggart makes about the relation of part to whole and its connexion with the

relation of a member of a group to the group. He says, in the footnote to p. 133 of Vol. I of the *Nature of Existence*, that the relation of whole to part is ultimate and indefinable. Then in § 123 he makes the following assertions.

(i) Every member of a group is a part of it. So he evidently assumes that every group is a whole. This might well be questioned. It might be that only those groups whose members are interconnected in certain special ways can properly be regarded as wholes.

When he begins to give examples, he always takes groups whose members are areas interrelated by the very special relation of being adjoined along their boundaries. Thus his favourite example is Great Britain. He is obviously thinking of the area of land which is called "Great Britain" by geographers and historians. Now this might be defined as the group whose members are the areas of land called "England", "Scotland", and "Wales". Of course there is no doubt that *this* group, and groups like it, are wholes, and that their members are parts of them. But can the group whose members are Julius Cæsar, the Albert Memorial, and the last sneeze of Horace Walpole, properly be called a "whole"? Unless it can, its members cannot properly be called "parts" of it.

Again, take the case of repeating groups, e.g., the group whose members are the House of Lords, the House of Commons, and the Cabinet. No doubt the House of Lords and the House of Commons may be said to form a certain whole, viz., Parliament. But is it at all obvious that the group whose members are the two Houses and the Cabinet is a whole?

We may sum up the situation as follows. Either McTaggart means the statement that every member of a group is a part of it to be synthetic or analytic. If he means it to be synthetic, it is highly doubtful; for it is highly doubtful whether *all* groups are wholes, even if it be certain that *some* are. If, on the other hand, it is to be accepted without question, this can only be because the meaning of the terms "whole" and "part" has been extended to include the terms "group" and "member" respectively, so that it becomes true by definition and therefore trivial.

(ii) A group has, in general, parts which are *not* members of it. For

(*a*) Any part of a member of a group is a part of that group. But, unless the group be a repeating group, such a part will not be a member. If "Great Britain" be defined as the group whose members are England, Scotland, and Wales, Middlesex is a part of it, since it is a part of England. But Middlesex is not a member of it. Suppose, however, that we took the three-membered repeating group whose members are England, Scotland, and Middlesex. Then Middlesex is a part of one member, viz., England; it is also a member.

(*b*) Again, any sub-group composed of some, but not all, members of a group is a part of that group. But such a sub-group cannot be a member of the original group unless the latter be a repeating group. Thus the group whose members are England and Wales is a part of Great Britain, but it is not a member of Great Britain. Suppose, however, that we took the repeating group whose members are England-and-Wales, England, and Wales. Then the sub-group whose members are England and Wales is itself a member of the group.

(*c*) Lastly, a group may have parts which overlap two or more of its members without wholly including any of them. Such parts of a group will not be members of it. Suppose that "Parliament" is defined as the group whose members are the House of Lords and the House of Commons. Then the Cabinet, which overlaps the two, but is not wholly included in either, is a part of this group, but is not a member of it.

All these statements are plausible enough, provided that the members of the original group under consideration are so interrelated that this group can reasonably be called a "whole". In other cases they are plausible only if taken as mere matters of definition.

(*d*) McTaggart points out that, if and only if a group had just two members and neither of these had any parts, then the *only* parts of the group would be its two members. But he denies that this case could in fact arise. For all groups are, by definition, collections of *particulars*. And, as we shall see

later, McTaggart denies that there could possibly be any particular which was not composite.

2·3. *The "Content" of a Group.* We come now to an important notion which McTaggart calls the notion of the "Content" of a group. He does not give a formal definition of this term; but he assumes that every group has one and only one content, and he asserts certain propositions about content.

Now I propose to begin by defining "content" for myself in such a way that (*a*) it will have all the properties which McTaggart assigns to his "content", and (*b*) it will be certain that every group has one and only one content. The method which I shall adopt is the following familiar one. I shall first define the statement that a group δ "has the same content as" another group γ. And I shall then define "the content of γ" as the class whose members are all the groups which have the same content as γ. This procedure is, of course, precisely like that by which mathematicians define "the cardinal number of a class α". They first define the statement that "β has the same cardinal number as α". And then they define "the cardinal number of α" as the class whose members are all the classes which have the same cardinal number as α.

Now what is meant by saying that a certain group δ "has the same content as" a certain other group γ? Let us begin with some examples. The group whose members are England, Wales, and Scotland has the same content as the group whose members are the part of England south of Trent, the part of England north of Trent, Wales, the Scottish Highlands, and the Scottish Lowlands. Again, it has the same content as the group whose members are England, Wales, Scotland, the diocese of Ely, and the Border Counties. The notion of identity of content is thus perfectly familiar; all that is needed is to give a formal definition of it.

To do this we need only to introduce the notion of "intersection". A and B are to be said to "intersect" if and only if there is something which is both a part of A and a part of B. (Here "part of" is to be interpreted to include the limiting case of "exactly coinciding with".) Thus intersection

of A and B includes under it the following four possible cases: (i) A and B exactly coincide with each other; (ii) A is contained in B but does not exhaust B; (iii) B is contained in A but does not exhaust A; and (iv) there is something which is a part of A and a part of B, but A is not wholly contained in B, nor is B wholly contained in A.

We can now give the definition of identity of content. "δ has the same content as γ" means "Everything that intersects a member of δ intersects some member or other of γ, and everything that intersects a member of γ intersects some member or other of δ." It is evident that "identity of content", so defined, is a symmetrical and transitive relation, and that every group has this relation to itself. We now define "the content of γ" as the class whose members are all the groups which have the same content as γ. Thus the final definition will run as follows: "The *content* of a group γ is the class whose members are all those groups which fulfil the following conditions, viz., that, if δ be any such group, then (a) every intersector of any member of δ is an intersector of some member of γ, and (b) every intersector of any member of γ is an intersector of some member of δ".

For those who find it useful or interesting to see things stated formally in the notation of *Principia Mathematica*, I add the following remarks. If Π be the relation of part to whole, interpreted so as to include complete coincidence as a limiting case, the relation of intersecting is the relational product of the converse of Π by Π itself. It can therefore be defined as $\breve{\Pi} \mid \Pi$. A little simple manipulation will show that the definition of "δ has the same content as γ" can then be written in the form

$$\breve{\Pi}\text{“}\Pi\text{“}\delta = \breve{\Pi}\text{“}\Pi\text{“}\gamma.$$

And, if we denote the content of γ by the symbol c_γ, our definition of the "content of γ" can be written in the form

$$c_\gamma = {}_{\text{Df.}} \hat{\delta}\{\breve{\Pi}\text{“}\Pi\text{“}\delta = \breve{\Pi}\text{“}\Pi\text{“}\gamma\}.$$

Since every group is identical in content with itself, γ is necessarily a member of its own content. It follows that

every group has content. If it should happen that γ is the *only* group which has the same content as γ, the content of γ would be a class whose only member was γ itself. On p. 135, note 2, of Vol. I of the *Nature of Existence*, McTaggart remarks that, in such a case, the content of a group would be indistinguishable from the group itself. This is a mistake. The content of such a group would, on our definition, be a class whose *only* member is that group. Now a class with only one member must *always* be carefully distinguished from its one member; and the distinction is here particularly obvious, since the one member is a *group*, whilst the one-membered class which is the content of this group could not possibly be a group, for a group must have more than one member.

Suppose now that two terms A and B partially overlap. Let us call the common part C; the part of A which is other than C will be called X, and the part of B which is other than C will be called Y. Then the group whose members are A, B, and C would have the same content as the group whose members were A and B. For any intersector of C would necessarily intersect A or B or both. Thus the content of the group whose members are England, Scotland, and the Border Counties, is the same as the content of the group whose members are England and Scotland. And this rule holds, *mutatis mutandis*, for any repeating group. It is obvious that the group whose members are X, C, and Y would have the same content as the group whose members are A and B. In our example the group whose members are X, C, and Y would be the group whose members are the part of England south of the Border Counties, the Border Counties, and the part of Scotland north of the Border Counties. Corresponding to a group whose members overlap, there will always be a group of the same content whose members do not overlap.

It is worth while to remark at this point that there is a relation between classes, whose members are themselves classes, which is formally analogous to the relation of identity of content between groups. Suppose that κ and λ are two classes whose members are themselves classes, e.g., κ might be the class whose members are the class of Etonians and the

class of Wykehamists, and λ might be the class whose members are the class of Trinity undergraduates, the class of King's undergraduates, and the class of New College undergraduates. Now it happens in some cases that two such classes as κ and λ are so interrelated that, to put it in technical language, "their logical sums" are identical. If κ be a class of classes, its "logical sum" is the class whose members are all the members of each of the classes which are members of κ. Thus the logical sum of the class whose members are the class of Etonians, the class of Wykehamists, and so on, would be the class of English public-schoolboys. Now, if and only if, the logical sums of κ and λ are identical, the following propositions can be proved to be true of them:

(i) If α be any member of κ, then any class which has a member in common with α will have a member in common with some member of λ.

(ii) If β be any member of λ, then any class which has a member in common with β will have a member in common with some member of κ.[1]

Now the relation of "having a member in common" among *classes* is precisely analogous to the relation of "intersection" among *areas* or *volumes*. Thus we could define something in connexion with a *class of classes* which would be formally analogous to what we have defined as the "content" of a *group*. If κ be a class of classes, then the class whose members are all the classes whose logical sums are identical with the logical sum of κ would stand to κ in a relation which is formally analogous to that in which the "content" of a group, as defined by us, stands to the group. This class would, of course, contain κ itself as a member; just as the "content" of a group, on our definition, always contains that group as a member.

2·4. *The Notion of "Sets of Parts" of a Whole.* We come now to a very important conception, which McTaggart defines in § 124 of the *Nature of Existence*. "Any collection of its parts which together make up a whole and do not more than make it up, so that the whole would not be made up if

[1] See Note at end of this chapter for proof.

any of these parts, or of their parts, should be subtracted" is to be called a "Set of Parts" of a whole. He says further that the relation between a whole and any set of parts of it is transitive; i.e., if X, Y, and Z be a set of parts of W, and if A and B be a set of parts of X, C and D be a set of parts of Y, and E, F, and G be a set of parts of Z, then A, B, C, D, E, F, and G will be a set of parts of W. Lastly, he says that all the *members* of any group are a *set of parts* of that group.

All this is quite clear when the original whole is a group whose members do not overlap, like, for example, the group whose members are England and Scotland. It is plain that its members, England and Scotland, are a set of parts of this. It is also clear that the English counties, which are a set of parts of England, and the Scottish counties, which are a set of parts of Scotland, together form a set of parts of the original group. Again, it is clear that the English counties are not a set of parts of it, because they do not suffice to make it up. And, finally, England, Scotland, and the Border Counties are not a set of parts of it, because they more than make it up, although the content of this group is the same as that of the original group.

The Border Counties may be said to be involved twice over in the group whose members are England, Scotland, and the Border Counties. They are involved *explicitly* as a *member* of the group. And they are involved once again *implicitly* as *parts of* other members of the group. For the English Border Counties are involved implicitly as parts of England, the Scottish Border Counties are involved implicitly as parts of Scotland, and these together make up the Border Counties. Now, in the original group whose members are England and Scotland, the Border Counties are involved *only once* and *only implicitly*. That is why England, Scotland, and the Border Counties are not a set of parts of the group whose members are England and Scotland, although the content of these two groups is the same. Similarly, England and Scotland are not a set of parts of the group whose members are England, Scotland, and the Border Counties, though the content of the two groups is the same. For the former group contains the

Border Counties only once and only implicitly; whilst the latter group contains them twice, once explicitly as members, and again implicitly as parts of members.

The general rule can now be stated. If a group β is to be a set of parts of a group γ, it is *necessary* that β should have the same content as γ, but this is not *sufficient*. The two following conditions must also be fulfilled. (*a*) If no term is repeated either explicitly or implicitly in γ, then no term must be repeated either explicitly or implicitly in β. And (*b*) any term which is repeated either explicitly or implicitly in γ must be repeated either explicitly or implicitly in β with neither more nor less frequency.

A term is *explicitly* repeated in a group if some member of the group is itself a group of some of the other members. Thus A is explicitly repeated in the group $A \,.\, B : A$, as, for example, Wales is in the group whose members are Wales and England-and-Wales. A term is *implicitly* repeated in a group if two or more members intersect, and another member is the whole or a part of their intersection. Take, for example, the group whose members are Middlesex, Essex, Kent, Surrey, and the County of London. Here the County of London is implicitly repeated, since it has a set of four non-intersecting parts, one of which is contained in Middlesex, another in Essex, another in Kent, and the fourth in Surrey. In most cases we shall be concerned with groups whose members do not intersect. In that case *any* group with non-intersecting members and the same content as the original group will be a set of parts of the original group; and *only* such a group will be a set of parts of the original group.

Note to Section 2·3 *of this chapter.* I append here for those whom it may interest a proof of the assertion made on p. 297 of the present work that, if and only if the logical sums of κ and λ are identical, then (*a*) any class which has a member in common with any member of κ will have a member in common with some member of λ, and (*b*) any class which has a member in common with any member of λ will have a member in common with some member of κ.

The argument is as follows:

Proposition (*a*) can be written

$$\alpha\epsilon\kappa \,.\, (\exists x) : x\epsilon\alpha \,.\, x\epsilon\beta :. \supset_{\alpha,\,\beta} :. (\exists\gamma, y) : \gamma\epsilon\lambda \,.\, y\epsilon\gamma \,.\, y\epsilon\beta.$$

Whence we can derive in turn

$$\alpha\epsilon\kappa \,.\, x\epsilon\alpha \,.\, x\epsilon\beta : \supset_{\alpha,\,\beta,\,x} :. (\exists\gamma, y) : \gamma\epsilon\lambda \,.\, y\epsilon\gamma \,.\, y\epsilon\beta, \quad \ldots(\text{i})$$

$$\alpha\epsilon\kappa \,.\, x\epsilon\alpha : \supset_{x,\,\alpha} :: x\epsilon\beta \supset_{\beta} :. (\exists\gamma, y) : \gamma\epsilon\lambda \,.\, y\epsilon\gamma \,.\, y\epsilon\beta, \quad \ldots(\text{ii})$$

$$(\exists\alpha) : \alpha\epsilon\kappa \,.\, x\epsilon\alpha :_{s} \supset_{x} :: x\epsilon\beta \supset_{\beta} :. (\exists\gamma, y) : \gamma\epsilon\lambda \,.\, y\epsilon\gamma \,.\, y\epsilon\beta, \ldots(\text{iii})$$

$$x\epsilon s'\kappa \supset_{x} :: x\epsilon\beta \supset_{\beta} :. (\exists\gamma, y) : \gamma\epsilon\lambda \,.\, y\epsilon\gamma \,.\, y\epsilon\beta. \quad \ldots(\text{iv})$$

In Proposition (iv) substitute for β, which may be *any* class, the class whose only member is x, i.e., $\iota'x$.

Then we have

$$\begin{aligned} . \quad x\epsilon s'\kappa \supset_{x} :: x = x \supset :. (\exists\gamma, y) &: \gamma\epsilon\lambda \,.\, y\epsilon\gamma \,.\, y = x \\ &\supset :. (\exists\gamma) : \gamma\epsilon\lambda \,.\, x\epsilon\gamma \\ &\supset x\epsilon s'\lambda. \end{aligned}$$

$\therefore\ x = x \,.\, \supset : x\epsilon s'\kappa \,.\, \supset_{x} \,.\, x\epsilon s'\lambda.$

But $x = x$, by the Law of Identity.

$\therefore\ x\epsilon s'\kappa \supset_{x} x\epsilon s'\lambda.$

$\therefore\ s'\kappa \subset s'\lambda.$

Thus Proposition (*a*) entails that $s'\kappa \subset s'\lambda$.

In exactly the same way we can show that Proposition (*b*) entails that $s'\lambda \subset s'\kappa$.

$\therefore$ Propositions (*a*) and (*b*) together entail that

$$s'\kappa = s'\lambda. \qquad \ldots(\text{I})$$

It remains to prove the converse of this.

$s'\kappa \subset s'\lambda \,.\, \supset :: (\exists\alpha) : \alpha\epsilon\kappa \,.\, x\epsilon\alpha :. \supset_{x} :. (\exists\gamma) : \gamma\epsilon\lambda \,.\, x\epsilon\gamma$ (by definition)

$$\supset :: (\exists\alpha) : \alpha\epsilon\kappa \,.\, x\epsilon\alpha \,.\, x\epsilon\beta :. \supset_{x,\,\beta} :. (\exists\gamma) : \gamma\epsilon\lambda \,.\, x\epsilon\gamma \,.\, x\epsilon\beta$$

$$\supset :: (\exists x, \alpha) : \alpha\epsilon\kappa \,.\, x\epsilon\alpha \,.\, x\epsilon\beta :. \supset_{\beta} :. (\exists x, \gamma) : \gamma\epsilon\lambda \,.\, x\epsilon\gamma \,.\, x\epsilon\beta$$

$$\supset :: \alpha\epsilon\kappa \,.\, (\exists_{\varphi} x) : x\epsilon\alpha \,.\, x\epsilon\beta :. \supset_{\alpha,\,\beta} :. (\exists\gamma, y) : \gamma\epsilon\lambda \,.\, y\epsilon\gamma \,.\, y\epsilon\beta.$$

Thus $s'\kappa \subset s'\lambda$ entails Proposition (*a*).

In the same way it can be shown that $s'\lambda \subset s'\kappa$ entails Proposition (*b*).

$\therefore\ s'\kappa = s'\lambda$ entails Propositions (*a*) and (*b*). ...(II)

Combining (I) and (II), we see that Propositions (*a*) and (*b*) together entail and are entailed by the identity of the logical sums of κ and of λ. Q.E.D.

CHAPTER XVI

COMPOUND PARTICULARS. THE UNIVERSE

Since a group has qualities and stands in relations, whilst it is not a quality or a relation or a fact, it follows from McTaggart's definition of "substance" that, if there be groups, they are "substances", or, as we prefer to say, "particulars". Now the members of a group are all particulars; for a "group" was defined as a collection of *particulars*, or of collections of *particulars*, or of both. And, according to McTaggart, every member of a group is a *part* of that group. It follows from these facts and definitions that, if there are groups, there are particulars which have particulars as parts. Such a particular McTaggart calls a "Compound *Substance*", and we will call a "Compound *Particular*".

The only comment to be made is to remind the reader that McTaggart's definition or description of "substances" or "particulars" is partly in negative terms. Among entities which agree in the purely negative characteristics of not being qualities, and not being relations, and not being facts, and therefore answer to this definition or description, there might be the most diverse varieties. So we must not think, as we are very liable to do, that we are asserting *any positive* resemblance between groups and other particulars, when we give the name "particulars" to both, except the common characteristics of being existend, of having qualities, and of standing in relations. They might in all other respects be as unlike as a sneeze and a quadratic equation, which both agree in not being virtuous and in not being triangular.

1. McTaggart's Doctrine of Compound Particulars.

In § 128 McTaggart makes certain important positive statements about compound particulars, which, if interpreted literally, are sheer nonsense. He says that, whilst every group is a particular, *different* groups may be *the same* particular. And he defends the possibility of this in the following way.

To be the group $X \,.\, Y \,.\, Z$ is one quality, and to be the group $U \,.\, V \,.\, W$ is another quality; and there is no more objection to a single particular P having both these qualities than there is to its being both red and round.

Now all this, if taken literally, is just nonsense and confusion. What does "is" mean in the statement that "every group *is* a particular"? Does it have the same meaning as "is" has in the statement that "every elephant *is* a mammal"? If so, it is plainly impossible that different groups should be the same particular. If every elephant is a mammal, it necessarily follows that two elephants are two mammals. Now the only sense in which McTaggart has established that every group is a particular is the sense in which every elephant is a mammal. If this is the sense in which he is using "is" here, his statement that different groups may be the same particular is quite certainly false. If he is using "is" in some other sense, his statement may be true. But in that case we do not yet know what is meant by saying that every group is a particular, and *a fortiori* we do not know that it is true.

We reach the same difficulty if we start from the other end. We are told that "to be the group $X \,.\, Y \,.\, Z$" is a quality, and "to be the group $U \,.\, V \,.\, W$" is another quality. Now compare this with the statement that "to be red" is one quality and "to be round" is another quality. If "to be" is used in the ordinary sense, such statements mean that "to have redness" and "to have roundness" are two relational characteristics derived from the non-relational characteristics "red" and "round" respectively. Now, if "to be the group $X \,.\, Y \,.\, Z$" has the same kind of meaning, the group $X \,.\, Y \,.\, Z$ will have to be itself a pure quality, like *red* or *round*. But we have been explicitly told that groups are *particulars*, and therefore they cannot possibly be *qualities*. Hence the defence which McTaggart puts up in the first paragraph of p. 139 of Vol. I of the *Nature of Existence* requires that a group should be a *quality*, whilst the position to be defended assumes that a group is a *particular*. *Non tali auxilio, nec defensoribus istis* is the politest comment that one can make.

What is the explanation of all this apparent nonsense? The only possible solution is that the "are" in the statement that several different groups *are* one and the same particular must have quite a different meaning from the "are" in the statement that all groups *are* particulars. In the second statement it is evidently the ordinary copula, which occurs in "all elephants are mammals". In the first statement it must mean "stand in a certain relation S to". It is quite consistent to say that every group is a particular, and that several different groups may stand in a certain relation S to one and the same particular. It is also perfectly consistent to say that "to stand in the relation S to the group $X \,.\, Y \,.\, Z$" is a quality; that "to stand in the relation S to the group $U \,.\, V \,.\, W$" is a different quality; that these two qualities may belong to one and the same particular; and that both $X \,.\, Y \,.\, Z$ and $U \,.\, V \,.\, W$ are themselves particulars. This interpretation makes sense of all McTaggart's statements, and there is no other way of doing so. What, then, is the relation S?

Plainly it is the relation which we might call "being an adequate division of". Its converse is the relation of "being adequately divisible into". What McTaggart ought to have said is that, whilst every group is a particular, and every different group a different particular, several different groups may each be an adequate division of one and the same particular. Or, what is equivalent, one and the same particular may be adequately divisible into each of several different groups. His doctrine, when properly stated, comes then to the following. "Corresponding to every class of groups which have the same content as each other there is one and only one particular, such that *each* of these groups is an adequate division of *that* particular. If α be a class of groups having the same content as each other, and if β be a class of groups having the same content as each other, but the members of α have a different content from the members of β, the particular P_α of which each member of α is an adequate division will be diverse from the particular P_β of which each member of β is an adequate division."

1·1. *Criticisms.* The doctrine, as thus stated, has at least the merit of not being nonsensical. But is there any reason to believe that it is in fact true? Consider any class α of groups which all have the same content as each other. If α contains more than one group, the supposed unique particular P_α, of which all the members of α are adequate divisions, *must* be diverse from *all but one* of the groups which are the members of $\hat{\alpha}$. For they are all diverse from each other. Now it would be completely wanton to identify P_α with one rather than with another of the groups which are the members of α. Hence the only reasonable supposition to make would be that P_α is an *additional* particular, which is diverse from *all* the particulars which are members of α. Now I cannot see the faintest reason to believe that there is always such an additional particular whenever there is a class of several groups which all have the same content. (Of course the group whose members are the members of α is a particular, which is uniquely associated with α and is not a member of α. But *this* could not be the particular P_α which McTaggart has in mind. For *each* group in α is supposed to be an adequate division of P_α. But nothing less than *all* the groups in α *taken together* would be an adequate division of that particular which is the group whose members are all the members of α.)

The fact is that McTaggart makes his doctrine seem plausible to himself only by saying that the particular which corresponds to a class of groups which all have the same content actually *is* each of the groups in this class, and therefore is not something *additional* to them. But we have seen that it is nonsense to say this unless "is" here means "is adequately divisible into". And, with this interpretation, as I have shown, the particular which corresponded to such a class of groups would have to be *diverse from all* of them instead of being *identical with each* of them.

The truth of this matter seems to me to be as follows. In many cases where there is a class of several groups which all have the same content, one of these groups stands out from all the rest because its members have qualities that interest

us or are related to each other in ways which we think important. We may then give a name to the outstanding group, e.g., we may call it "Great Britain". Or, again, we may exclusively describe it, without reference to its members, by some characteristic which it has; e.g., we may describe it as "the largest European Island". We then tend to regard all the other groups which have the same content as this specially selected one as being various adequate divisions of it, and to forget that it is equally an adequate division of each of them.

If we take a class of groups which all have the same content but are all equally fantastic and uninteresting, we have no tendency whatever to believe that there must be a certain particular, outside this class, of which each group in the class is an adequate division. The group whose members are Julius Cæsar's last spoken word and Queen Victoria's last written word has the same content as the group whose members are the syllables of the former and the letters of the latter. But no one is tempted to think that there must be a particular which is diverse from both these groups and which is adequately divisible into each of them. McTaggart has first deceived himself by generalising from examples like Great Britain, where a certain group stands out from all the others which have the same content as itself; and he has then bemused himself still further by confusing "is", in the sense of "is adequately divisible into", with "is", in the sense of "has the quality" and in the sense of "is identical with".

1·11. *Suggested Modification of McTaggart's Doctrine.* In view of the above criticisms we shall have to modify McTaggart's doctrine of compound particulars, which is stated in Chap. XVI of the *Nature of Existence*. I will first state it, and then propose the necessary amendments.

McTaggart's doctrine is as follows. Let α be a class of groups, all of which have the same content. Such a class will always contain an infinite number of repeating groups, i.e., groups some of whose members overlap each other. But it will always contain also non-repeating groups, for there are always non-repeating groups which have the same content as any repeating group. We may therefore divide α into two

mutually exclusive and collectively exhaustive sub-classes, viz., the members of α which are, and those which are not, repeating groups. Now, according to McTaggart, there will always be a certain particular P_α corresponding to such a class as α. And, according to him, P_α will *be each* member of α. All such particulars as P_α are compound particulars, and only such particulars as P_α are compound particulars. Any non-repeating group which is a member of α is a set of parts of the compound particular P_α. But we must not say of any *repeating* group which is a member of α that it is a set of parts of P_α. Thus, for example, there is a certain particular which *is* the group whose members are England and Scotland. This same particular *is* also the group whose members are England, Scotland, and the Border Counties. We *must* say that England and Scotland form a set of parts of this particular, and that the English counties south of the Border Counties, the Border Counties, and the Scottish counties north of the Border Counties also form a set of parts of this particular. But we must *not* say that the group whose members are England, Scotland, and the Border Counties is a set of parts of this particular, because the latter is a repeating group.

We must now modify McTaggart's doctrine, as stated above, in the following respects. (i) In any case we must substitute "is adequately divisible into" for "is". We then reach the following position. Those and only those adequate divisions of P_α which are non-repeating groups are sets of parts of P_α. (ii) Unfortunately, we have seen no reason to believe that there are such particulars as P_α. For (*a*) P_α cannot be identified with *each* of the members of α, as McTaggart proposes, since the members of α are so many diverse particulars. And (*b*) it would be quite arbitrary to identify P_α with *one rather than another* of the members of α. Whilst (*c*), if P_α be held to be *diverse from all* the members of α, there is no reason to believe that there is a particular answering to the description of P_α. (iii) To meet this difficulty I would propose the following amendment. Let us call any non-repeating group a "Compositum", and let only such

groups be called composita. Every different non-repeating group will be a different compositum, whether two such groups differ in content or not. On this definition the group whose members are England and Scotland is a compositum. The group whose members are the part of England south of the Border Counties, the Border Counties, and the part of Scotland north of the Border Counties, is a *different* compositum with the *same content* as the former. The group whose members are England, Scotland, and the Border Counties is not a compositum at all, since it is a repeating group; but it is a particular, and it has the same content as the two composita already mentioned. (iv) Finally, we shall say that *every* non-repeating group which has the same content as a given compositum, and is other than it, is a set of parts of that compositum, and that *only* such a group is a set of parts of that compositum. On this definition the group whose members are England and Scotland is a set of parts of the group whose members are the part of England south of the Border Counties, the Border Counties, and the part of Scotland north of the Border Counties. And the converse of this is also true. But the group whose members are England, Scotland, and the Border Counties is not a set of parts, either of these or of any other composita, since it is a repeating group.

We may remark in conclusion that, on our definitions, if X be a set of parts of Y, then (*a*) X and Y are both groups, (*b*) X and Y have the same content, (*c*) X is a non-repeating group, i.e., a compositum, and (*d*) if Y be also a compositum, then Y will also be a set of parts of X.

2. The Universe.

This imposing subject can fortunately be despatched in a few lines. McTaggart dismisses it in the two and a half pages of Chap. XVIII of the *Nature of Existence*.

He first defines the characteristic of being "a universe". This is defined as the property of being a particular of which all other particulars are parts. He then professes to prove that this characteristic must belong to one, and cannot belong to

more than one, particular. This unique particular can therefore be called "The Universe", and promoted to the dignity of capital letters.

After what has been said in the earlier part of this chapter we cannot rest content with McTaggart's definitions and assertions on this point. In fact, the property of "being a universe", as defined by him, would belong to more than one particular. Let us suppose, for example, that there were three and only three simple particulars, and that all other particulars were groups composed of selections from these and collections of them. Call them A, B, and C. (McTaggart, as we shall see later, holds that there can be no simple particulars. But the question whether the property of "being a universe", as defined by him, is unique in its application does not depend on the acceptance or rejection of this view; and the argument can be stated more shortly in terms of simple particulars.)

Now how many particulars would there be in such a universe, if we exclude the infinite number of repeating groups? Clearly there would be ten, made up as follows: (i) three simple particulars, viz., A, B, and C; (ii) four non-repeating groups whose members are not themselves groups, viz., $A \,.\, B$, $B \,.\, C$, $C \,.\, A$, and $A \,.\, B \,.\, C$; and (iii) three non-repeating groups whose members are a simple particular and a group of the other two simple particulars, viz., $A : B \,.\, C$, $B : C \,.\, A$, and $C : A \,.\, B$. Now McTaggart would, of course, say that $A \,.\, B \,.\, C$, $A : B \,.\, C$, $B : C \,.\, A$, and $C : A \,.\, B$ are one and the same particular, because they all have the same content. If this were so, the *one* particular which is all of them, *would* contain all the other particulars in the universe, viz., $A, B, C, A \,.\, B$, $B \,.\, C$, and $C \,.\, A$. But we have seen that it is nonsense to say that four different particulars literally *are* one and the same particular. And we have also seen that there is no reason to believe that there is a certain additional particular P_α, diverse from the groups $A \,.\, B \,.\, C$, $A : B \,.\, C$, $B : C \,.\, A$, and $C : A \,.\, B$, of which the latter are so many different sets of parts. So there is no reason to believe that there is one and only one particular which contains all other

particulars as parts, and therefore there is no reason to believe that there is anything that could properly be called "*The* Universe".

We could get round this difficulty in the following way. It is the case that there is a "Maximum Content", i.e., a content such that every particular either *has* that content or is a part of *every* particular which has that content. In our example the content of the groups $A \,.\, B \,.\, C$, $A : B \,.\, C$, $B : C \,.\, A$, and $C : A \,.\, B$ is maximal. We might then define "a universe" as a group whose members are all non-repeating groups which have maximum content. With this definition any universe will be a particular, since *all* groups are particulars. And every particular, which is neither the universe itself nor a repeating group of which the universe is a part, will be a part of the universe. For every such particular will be either a member of the universe, and therefore a part of it, or it will be a part of some member of the universe, and therefore a part of the universe.

It is obvious that, on this definition, there is one and only one particular which is a universe. It may therefore be called "The Universe". It must be remarked, however, that, on this definition, the universe is not a compositum. It is a group whose members all completely overlap each other. But each of its members is a compositum, by definition.

In § 136 of the *Nature of Existence*, McTaggart with his eye on other Absolute Idealists like Bosanquet, proceeds to put the Universe in its place. It is true, he remarks, that, to every fact about a part of the Universe, there corresponds a fact about the Universe itself. But, he adds, the fact about the Universe as a whole is no more a fact than the corresponding fact about the part, whilst the latter is simpler and more ultimate. Unless it were true that Smith hates Brown, it could not be true that the Universe has the characteristic of containing a part, Smith, which has the characteristic of hating a certain other part, Brown. And the fact that Smith hates Brown is simpler and more fundamental. For it involves only Smith, Brown, and hatred as constituents; whilst the equivalent fact about the universe involves all these factors, and, beside them, the Universe and the relation of whole and part.

CHAPTER XVII

MANIFESTATION AND ORGANIC UNITY

In this chapter I propose to take together two conceptions, which McTaggart treats separately. One is called "Manifestation", and is treated in Chap. XIII of the *Nature of Existence*. The other is called "Organic Unity", and is treated in Chap. XX. To be quite frank, I must say that both appear to me to be completely trivial, and the discussion of them is, in my opinion, "much ado about nothing".

1. Manifestation.

This is closely connected with the Principle of Extrinsic Determination. I think that the essential point may be put as follows.

We have so far contented ourselves with saying that the nature of any particular is the compound characteristic formed by the conjunction of all its characteristics X, Y, Z, etc. To say that the characteristics X, Y, Z, etc., together form a conjunctive characteristic X-Y-Z-... means simply that there is a common subject which X, Y, Z, etc., all characterise. Now this is true, so far as it goes; but we are in a position to go further in consequence of the Principle of Extrinsic Determination. McTaggart claims to have shown two things: (i) That the nature N which belongs to the particular P cannot *also* belong to any other particular. For every particular must have an exclusive description. (ii) That every fact about P is connected with every other fact about P by extrinsic determination.

Suppose now that the nature of P were compounded of just the three characteristics X, Y, and Z. Then it is by no means the whole truth to say that X, Y, and Z all belong to P, and that no other characteristic, which is not a selection of these, does so. We must add, in the first place, that no other particular beside P is characterised by all the characteristics

X, Y, and Z. And, in the second place, we must add that, if we suppose that any of them *had not* characterised P, we cannot consistently suppose that any of them *would have* characterised P. For the first supposition entails the supposition that P had not been; and, if P had not been, nothing could have characterised it. Thus the supposition of the slightest difference in the nature of P from its actual nature would destroy the only bond of union between the various parts of this nature.

So, although the nature N of P *is* a conjunction of the characteristics X, Y, and Z, it is a much closer unity than this statement, taken by itself, would suggest. And this is so because of the Principle of Extrinsic Determination and the Principle of Exclusive Descriptions. When this additional unity is taken into account we say that X, Y, and Z are not only *parts* of the nature of P, but are also "manifestations" of that nature. P's nature N is manifested in X, it is manifested in Y, and it is manifested in Z.

2. Organic Unity.

In Chap. XX of the *Nature of Existence* McTaggart defines the notion of "Organic Unity", and considers the relation of this concept to others which have played a great part in philosophy, such as Teleology. According to him *every* compositum whatever has organic unity, but this fact is most noticeable in certain special kinds of composita, viz., living organisms and beautiful objects. He then explains why the property of being an organic unity is more noticeable in these cases than in others where it is no less present. Finally, he points out certain common mistakes which, he thinks, have originated from these facts.

2·1. *McTaggart's Account of "Organic Unity"*. We will begin by stating McTaggart's own doctrine. It is closely connected with the notion of Manifestation, which we explained in the previous section of this chapter, and therefore with the Principle of Extrinsic Determination.

Suppose that W is any whole, and that P is any part of it. Then it is part of the nature of W to have the part P. Now

any *part* of the nature of anything is also a *manifestation* of this nature; so the characteristic of having the part P is a manifestation of the nature of W. Of course the nature of W will also be manifested in many other qualities, and some of these will not involve the part P or indeed any part of W. And a selection of such other qualities may constitute an exclusive description of W. Take, for example, that whole which is the largest European island. The nature of this is manifested, *inter alia*, in the quality of having a part, viz., Wales, from which the eldest son of the King of the whole takes his title.

Now, corresponding to the relation of being manifested, which exists between the *nature* of a whole W and the *characteristic* of having a part P, there will be a relation between the whole W itself and the *part* P itself, which may also be called "being manifested". Any part P of any whole W may be called a "manifestation" of W, and we may say that W is manifested in each of its parts.

Now this involves a certain mutual relation among the parts themselves. Suppose that a certain particular P is a member of a certain group γ. P could have failed to be a member of γ in two ways only, viz., by itself having failed to be, or by some other member of the group having failed to be. In either case there would not have been the group γ. Thus it is impossible to combine the supposition that *something* which is in fact a member of a certain group had not been a member of it with the supposition that *anything* would have been a member of it. So no particular which in fact manifests a whole W could have done so unless *all* the particulars which in fact manifest W had done so.

I think that it is important to notice at this stage that, whilst the argument is valid, it would not be right to conclude that no particular which in fact manifests W would have *been* unless all the other particulars which in fact manifest W had *been*. Let P_1 and P_2 be two manifestations of W. P_1 would have failed to manifest W if P_2 had not been, for there would have been no W to manifest. But there is no reason why P_1 should not have been, though P_2 had not been. Thus P_1

might have been, without having been a manifestation of W; and, similarly, P_2 might have been, without having been a manifestation of W. If, however, P_1 and P_2 were a *set* of parts of W, it is impossible that P_1 and P_2 should *both* have been, without both having been manifestations of W.

The various manifestations of any whole W do then stand to each other in the relation that *none* would have manifested W unless *all* had done so. And each is a different manifestation of W, so that they are severally necessary and jointly sufficient to manifest W completely. McTaggart expresses these facts by saying that *every* whole is an "organic unity". He thinks that this is what philosophers have had in mind when they talked of "organic unity" or "inner teleology". They did not think that only living organisms and works of art have organic unity; but they did think that the fact of being an organic unity is more obvious in the case of living organisms and works of art than in other wholes, and this is why they chose the name "*organic*" for such unity.

The reason why this fact is more obvious in such cases is the following. In a living organism a comparatively slight change in one of the parts would kill it or make it diseased, and we regard being alive and in health as objectively important characteristics. In a beautiful picture or symphony a comparatively small change in one of the parts would make it ugly or out of tune, and we regard being beautiful and harmonious as objectively important characteristics. This makes it obvious that, in these cases, the parts are manifestations of the whole; for such a slight change in the parts would so obviously be inconsistent with the whole being the same. To go to the other extreme, the addition or subtraction of a few stones would make very little difference to any characteristic of a heap of stones which we should regard as objectively important. Hence we are liable to overlook the fact that a heap of stones is as much an organic unity as a living organism or a beautiful picture or symphony.

Although the facts which have just been mentioned explain and justify the use of the name "organic unity" for the general notion of the manifestation of a whole by each of its

parts, the associations of the name have led to several serious mistakes. McTaggart enumerates the following.

(i) Because a great deal that happens in a living organism has not as yet been successfully explained mechanically, it is often thought that, when we show that a whole is an organic unity, we *ipso facto* show that its behaviour is not susceptible of complete mechanical explanation. Now this in no way follows from the fact that a whole is an organic unity in McTaggart's sense.

(ii) Many people are tempted to deny that composite particulars are organic unities if they are very unlike organisms or works of art. Yet, on McTaggart's definition, *every* compositum, no matter how unlike an organism it may be in every other respect, will be an organic unity.

(iii) We have just seen that the associations of the name "organic unity" have led philosophers to make mistakes about composita which are *not* organisms. But it also leads them to make a mistake about organisms. In an organic unity, in McTaggart's sense, the whole and the parts are on a perfect equality. Philosophers have realised this, and have been led by association to assert that, in a living organism, the whole is as fundamental as the parts. Now this is certainly a mistake. Any known organism consists of material particles which have existed, and will again exist, out of it and out of all other organisms. And, whilst an organism as a whole begins, lasts for a finite time, and then ends, its ultimate material particles, so far as we know, neither begin nor end in the course of nature. Thus the parts of an organism are in fact more fundamental than the whole.

I will comment on these remarks of McTaggart's before going further.

(i) The third remark, about an organism as a whole being less fundamental than the material particles which are its ultimate components needs a good deal of careful explanation. At first sight it seems sheerly inconsistent. For, according to McTaggart, an organism *is* an organic unity. And, according to him, in *every* organic unity whole and parts are completely *on a level*. Let us assume, as McTaggart is apparently

assuming here, that the material world is composed of a set of ultimate particles, none of which begins or ends in the course of nature. It follows at once that *every* group of ultimate material particles which exists at *any* moment exists at *all* moments. For example, that group of ultimate material particles, which now has the characteristic of being my organism, existed before life began on earth and will exist after all life on earth ceases. But the relations between the members of this group are continually changing, and it is only when they stand in very special relations to each other that the group has the property of being *my* organism or of being *an* organism. There is a moment before which no group had the property of being my organism (unless I existed before my latest birth and had an organism in my pre-natal state); and there is a moment after which no group will have the property of being my organism (unless I should survive the death of my present body and continue to have an organism of some kind); and any group which ever does have the property of being my organism retains that property for a very short time.

McTaggart is therefore inconsistent in saying that an organism is a whole which is less fundamental than its parts. What he ought to have said is that the property of being an organism is a very transitory possession of those wholes which ever possess it; that certain other properties of such wholes are much more lasting; and that there are parts of such wholes which have properties that are very lasting indeed or even sempiternal.

(ii) I do not think that there is any real analogy between the facts which McTaggart mentions about living organisms and beautiful works of art, on the one hand, and organic unities, in his sense, on the other. The facts about living organisms and beautiful pictures or symphonies are these. A whole which had differed very slightly in the nature of its parts from a healthy living organism, or a beautiful picture, or an harmonious symphony, would have been a monster or a corpse, a mere daub or a mere cacophony, respectively. But this is a matter of *intrinsic* determination of the qualities

of a whole by the qualities and the interrelations of its parts, whilst McTaggart's organic unity is a matter of *extrinsic* determination of facts about the parts by the fact that they are all parts of a certain whole. The qualities of a group might be profoundly changed by a slight *rearrangement* of its members. This would suffice to change a group which was a healthy living organism into one which was a corpse, or to change a group which was a beautiful picture into one which was a hideous daub. But this can have absolutely nothing to do with organic unity, in McTaggart's sense; for here we have exactly the same group, with exactly the same members, before and after the slight change of mutual relations which determines the profound change of quality.

(iii) It seems plain to me that what McTaggart calls "organic unity" is something which is certainly a fact and is perfectly trivial, whilst what other people have meant by it is something which would be important but which is probably not a fact. And this is what I find about all the more exciting conceptions which occur in philosophy. I believe that other people who have called a whole W an "organic unity" have meant that W is such that no part of it could *have existed* unless all the other parts had *existed* and had stood to each other in the relations in which they in fact did stand. McTaggart's notion of organic unity is merely that nothing which is part of a whole W *would have been a part of it* if anything else which is a part of W *had failed to be a part of it.* As I pointed out, the former is not proved by the argument which proves the latter. The former would be a most important property of any whole that possessed it, but whether any whole does possess it is highly doubtful. The latter is certainly possessed by all wholes, and is, for that very reason, entirely trivial.

(iv) I cannot help suspecting that McTaggart himself sometimes slips into the belief that he has proved that all wholes are organic unities in the non-trivial sense. For he says that, with his view of organic unity, a whole and its parts are equally fundamental. Now, on the ordinary view of organic unity, this is the case. W could not have existed in the absence of anything which is in fact a part of it. And

nothing which is in fact a part of *W* could have existed unless all the other parts of it had existed and had stood to each other in the relations in which they did in fact stand. Therefore nothing which is in fact a part of *W* could have existed unless *W* had existed. But McTaggart has no right to say that, on *his* view of organic unity, a whole and its parts are equally fundamental. It is true that *W* would not have existed in the absence of anything that is in fact a part of it. And it does follow that nothing which is in fact a part of *W* would have been so if anything else which is a part of *W* had not been so. But this does not suffice to put *W* on a level with its parts. For, so far as this argument goes, any selection of those particulars which are in fact parts of *W* might have existed without the rest, and therefore without *W* having existed.

We can now return to the exposition of McTaggart's views. In §§ 146 and 147 of the *Nature of Existence* he mentions two common sayings about organic unities, both of which are, he thinks, plausible but dangerously misleading.

(i) One statement is that, when a whole is an organic unity, "the whole is in every part". The truth underlying this statement is that each part is essential to the whole, and manifests the whole in a way in which no other part does. But the statement cannot be *literally* true, and the metaphor is liable to mislead. For it sometimes makes people think that an organic unity must be a whole which has a set of parts, each of which is a *conscious being* in whom there is an *idea of* the whole. For, in such cases, and in them only, it is literally true that there is an *idea of* the whole in each part; and, when people see that the statement, that the *whole itself* is in each part, must be metaphorical, they are very liable to think that this must be the fact which the metaphor expresses. If so, they will fail to see that *every* whole is an organic unity, and they will think that only wholes with these very special components and this very special structure can be organic unities.

(ii) The second statement is that, in an organic unity, "the nature of the whole is expressed in every part". This, again,

is wrong; though it does not seem to me that McTaggart gives the right reason for thinking it to be wrong. The nature of a whole is manifested, not in the *parts* of the whole, but in the *characteristics* of the whole which together make up its nature. Now, though some of these characteristics are of the form "having a part of such and such a kind", many of them are not of that form. But the nature of anything needs for its complete manifestation *every* characteristic of which it is compounded. It therefore needs for its complete manifestation, not only every characteristic which refers to any part, but also many characteristics which refer to no part.

2·2. *Organic Unity and Teleology.* In §§ 152 and 153 of the *Nature of Existence* McTaggart points out certain confusions which, he thinks, have arisen through the use of the name "intrinsic teleology" for organic unity. Here he has Hegel, and many of Hegel's followers, in mind. The alleged confusions are as follows.

(i) Although the philosophers in question profess to distinguish sharply between intrinsic and extrinsic teleology, yet, in the course of their arguments, "the associations aroused by the noun have often been too strong for the adjective". In *extrinsic* teleology there is always a certain particular existent, viz., a desire for some end, in the mind of some conscious being. Certain other terms are unified into a complex whole by being used as means to the fulfilment of this desire. Now, when a certain whole is said to be *intrinsically* teleological, the association with *extrinsic* teleology leads people to think that there must be a mysterious something in such a whole, which is other than all the parts, and which unifies them as a desire unifies the terms which are used as means to fulfil it. This is not really involved in the notion of organic unity, and it is regarded by McTaggart as baseless mythology.

(ii) There is a connexion between extrinsic teleology and positive value. An end *may* be desired because it is believed to be good; though it may be desired for other reasons, and though it may not in fact *be* good even if it is thought to be so and is desired for that reason. Moreover, the fulfilment of any desire, whether it be for goodness or for pleasure or for

anything else, is as such pleasant and so is *pro tanto* good. Through association with these facts about the connexion of *extrinsic* teleology with goodness, it is thought that an *intrinsically* teleological system must be good. But really there is no necessary connexion between intrinsic teleology and positive value. Every whole is an organic unity, and this is all that is meant by calling it "intrinsically teleological"; and some wholes are good, others indifferent, and others bad.

(iii) Finally the following climax of error is sometimes reached. (*a*) It is falsely believed that nothing can be desired unless it is believed by the agent to be good. Then (*b*) by confusion between extrinsic and intrinsic teleology, it is mistakenly inferred that any intrinsically teleological whole must have an inner tendency towards goodness. Then (*c*) from the fact that no use has to be made, in the case of *intrinsic* teleology, of external means, it is concluded that this tendency cannot be frustrated. And (*d*) from the fact that the tendency here is not a desire in anyone's mind, it is concluded that it cannot, like desire, be directed to what is mistakenly believed to be good, but must be directed to what really is good. And so the most edifying conclusions are reached about intrinsically teleological unities, and the most exalted emotions are felt towards them, when in fact there is no special connexion whatever between being intrinsically teleological and having positive value.

There is no doubt that, in all this, McTaggart is right on two points. (i) Many idealists have made confusions of the kind which he indicates. Perhaps some of them have been committed by most idealists, though charity bids us entertain a faint hope that no idealist has committed all of them. (ii) What he calls "organic unity" or "intrinsic teleology" *has* no special connexion with value or disvalue.

Since endless pages of twaddle have been written by idealists on the themes of "organic unity" and "intrinsic teleology", it was doubtless of use to point out these facts. And, since McTaggart had a rather specially strong contempt for edifying "uplift", he must have had great fun in elaborating a conception which applies to the most trivial and externally

interconnected wholes and yet has enough likeness to the classical conception of Organic Unity to be plausibly called by the same name. But I cannot help feeling that, after all, this is a caricature of the idealist doctrine, chalked up on the blackboard, while Prof. Bosanquet's back was turned, for the awe-stricken amusement of the rest of the class, and that McTaggart might well have been condemned to write out as "lines" the whole of Goethe's *Faust* or Dante's *Paradiso* if the master had caught him. Seriously, I think it is perfectly certain that, whatever idealists may have meant by "organic unity" or "intrinsic teleology", they did not mean what McTaggart meant by it. I suspect that they meant by an "organic unity" or "intrinsically teleological system" a group whose members are so intimately interconnected that no member could have existed unless all the others had done so, and that no member could have changed places with any of the rest. We cannot prove that there are such wholes; and we cannot prove that all such wholes, and only such, would have great value. Still less can we prove that they would have great *positive* value. But we might be able to see on inspection that, if anything is to have great value or disvalue, it must be a whole which approximates to the ideal limit which this conception attempts to formulate.

CHAPTER XVIII

THE SUBDIVISION OF THE UNIVERSE

In this chapter I am going to take together the contents of Chaps. XIV, XVII, and XXI of the *Nature of Existence*. The question is whether we can show that there must be some natural, intrinsic way of dividing up the content of the universe. And the answer will be that, up to the present, there has been nothing to show that this must be so.

1. Exclusive Common Qualities in Groups.

We must first explain the notion of "Exclusive Common Qualities". This is discussed in Chap. XVII of the *Nature of Existence*.

McTaggart begins by pointing out in Chap. XIV of the *Nature of Existence* that there are (*a*) some characteristics which belong to *all* particulars, e.g., being existend, having characteristics, and so on; (*b*) some which belong to no particular, e.g., that of being President of England in 1919; (*c*) some which belong to only one particular, if they belong to any, e.g., being the most virtuous undergraduate in Trinity in 1932; and lastly (*d*) some which belong to several, but not to all, particulars.

If the Dissimilarity of the Diverse be accepted, and P be a particular, every particular but P has the characteristic of being dissimilar to P, whilst P itself lacks this property. So the characteristic of being dissimilar to P is one that belongs to several, but not to all particulars.

The only remarks that I need make are these. (i) McTaggart has not shown that any characteristic except those which are parts of his definition of "particularity" must belong to all particulars. And (ii) he has to assume both the Dissimilarity of the Diverse and, what he does not notice, that there are at least *three* particulars, in order to show that there is at least

one characteristic which belongs to several, but not to all, particulars.

We can now pass to the treatment of Exclusive Common Qualities in Chap. XVII of the *Nature of Existence*. An exclusive common quality in a group γ would be a characteristic which belongs to every member of γ and to nothing which is not a member of γ. It is, for example, an exclusive common quality in the group whose members are King Edward VI, Queen Mary I, and Queen Elizabeth, to be a legitimate child of King Henry VIII. For this quality belongs to every one of them and to nothing else in the universe.

McTaggart divides exclusive common qualities into two classes. The example which I have given is a member of the first class. The characteristic of being a legitimate child of Henry VIII is one which does not involve in its analysis exclusive descriptions of all the members of the group of Henry VIII's legitimate children, and which equally does not involve in its analysis exclusive descriptions of all particulars which are *not* members of this group. An exclusive common quality in a group γ is "of the first class" if and only if it is either (*a*) simple, or (*b*) such that it does not involve in its analysis exclusive descriptions either of all members of γ or of all particulars which are not members of γ. An exclusive common quality in γ which is not of the first class is "of the second class". Nothing that has so far been established entails that there must be in every group an exclusive common quality of the first class. But it can be proved that there must be in every group at least two exclusive common qualities of the second class. This can be done as follows.

(i) Let γ be any group. According to McTaggart, every particular must have an exclusive description. Suppose that this group has n members, $x_1, x_2, \ldots x_n$. Let $\phi_1, \phi_2, \ldots \phi_n$, be exclusive descriptions of these respectively. Then the disjunctive characteristic of being either ϕ_1 or ϕ_2 or ... or ϕ_n belongs to every member of γ, and belongs to nothing that is not a member of γ.

(ii) No group contains itself as a member. Therefore, if γ be any group, there must be at least one particular which is

not a member of it, viz., γ itself; and of course there may be many others. Each of them will have an exclusive description. Let $\psi_1, \psi_2, \ldots \psi_m$, be exclusive descriptions of the various particulars which are not members of γ. Then the conjunctive characteristic of being not-ψ_1 and not-ψ_2 and ... not-ψ_m, belongs to every member of γ, and it belongs to nothing which is not a member of γ. So, in every group there must be at least two exclusive common qualities of the second class, if we accept the principle that every particular has an exclusive description.

Unfortunately, exclusive common qualities of the second class are not of much interest or importance to us. We seldom know exclusive descriptions of every member of a group, even though we know that there must be such descriptions. If we are dealing with a group which contains an infinite number of members, we cannot possibly know exclusive descriptions of all its members. Again, we could not know that the conjunctive characteristic not-ψ_1 and not-ψ_2 and ... not-ψ_m was common and exclusive in γ unless we knew that $\psi_1, \psi_2, \ldots \psi_m$ were exclusive descriptions of *every* particular which is not a member of γ. We should need to know exclusive descriptions of every non-member of γ, and also to know that no non-member of γ had been omitted from our list. Such knowledge is seldom, if ever, possible to us.

2. Are there Natural Subdivisions in the Universe?

We can now pass to the main subject of this chapter, which is treated by McTaggart in Chap. XXI of the *Nature of Existence*.

A whole may be ordered in at least three ways.

(i) There may be causal relations between its parts. There is this kind of order, e.g., in the solar system, where each planet affects and is affected by the sun and all the other planets through gravitational attraction. We have not succeeded in showing that the universe is a system in which every part is affected by every other part. Still less have we shown that it is a system in which every characteristic of every part is intrinsically determined by and intrinsically determines characteristics of other parts.

(ii) The parts of a whole may be terms in a single series. We have not shown that the universe must have this kind of order. I do not understand why McTaggart should confine himself here to a one-dimensional series. There is such a thing as spatial order, which appears to be at least three-dimensional, and there is the ordering of sounds by pitch, loudness, and tone-quality. However, this does not affect his argument. For we have certainly not shown that the parts of the universe must form a serial order of *any* number of dimensions.

(iii) There might be a single classificatory order, in some division of which every part of the universe would find its place. There might be a hierarchy of genera and species, such that every part of the universe fell into one of these, and such that all parts which fall into a single class in the hierarchy have fundamental and objectively important exclusive common qualities. McTaggart points out that, even if this were so, something more would be needed to make the order complete. The various species which are the immediate divisions of a given genus in this hierarchy might have no intrinsic order among themselves. This is so, for example, with the species lions, cats, leopards, etc., under the genus of feline mammals. If such a set of co-ordinate species did have an intrinsic order among themselves, it is evident that this order would have to be causal or serial, and that it could not be classificatory. The various determinates under the determinable of colour do form a serial order. Again, cats and mice are ordered by the causal relation that cats eat mice whilst mice do not eat cats.

Now we have seen no reason to think that there is a single classificatory hierarchy which classifies all things into Natural Kinds. Nor have we seen any reason to think that there are several such classificatory hierarchies which between them would classify all things into Natural Kinds. McTaggart sums this up in § 157, p. 170, of the *Nature of Existence*, by saying that "we have failed, so far, to find...any grain in substance". It seems, so far as we can tell *a priori*, that it might be like a perfectly homogeneous continuous fluid.

The next point to notice is the following. In some wholes

with which we are acquainted the aspect of unity seems much more important than that of composition. In others the aspect of composition seems much more important than that of unity. At present we cannot be certain that there is anything objective corresponding to this apparent distinction.

When a group is presented to our attention merely by enumerating the members the unity of it may seem trivial as compared with the plurality; but this appearance may be delusive, and a mere consequence of our ignorance. A group whose members were the most virtuous undergraduate in Trinity in 1931, the fattest woman in Liverpool in 1920, and the last person who was expelled from Eton in 1887, seems a very trivial group. Yet they might stand in the relation of son, mother, and father, and they might have profoundly influenced each other. Similar remarks apply to the question whether a system of classification does or does not bring together parts of the universe which have fundamental and objectively important exclusive common qualities. A classification of English towns which joined Cambridge with Oxford and separated Cambridge from Ely would, as McTaggart remarks, seem highly perverse to a man who knew nothing about these towns but their relative geographical position. And yet, to a person who knew more about them, it would seem a perfectly reasonable system of classification.

We have then, so far, seen no reason to suppose that the contents of the universe must all fall into a single system, or into one or other of several systems. We have considered in turn the suggestions that there might be an all-embracing causal system, an all-embracing series of one or more dimensions, and an all-embracing hierarchy of Natural Kinds. And we have seen no *a priori* reason to believe that there is any such system. Nor are we in a position to say whether groups, which seem to us to be composed of intimately interconnected members and to form important kinds of unities, are really more intimately interconnected and unified than others which seem to us to be loose in structure and of slight importance.

CHAPTER XIX

THE ENDLESS DIVISIBILITY OF PARTICULARS

Chapters XXI, XXII, and XXIII of the *Nature of Existence* are the watershed of the system. In the first of them, as we have just seen, McTaggart sums up the results already reached, and points out that, so far, we have failed to find any form of order which pervades the whole universe, and have failed to show that there must be such an order. The universe, for all that we have been able to see to the contrary, might be like a blank sheet of paper, which can be divided up into sets of parts in innumerable different ways, and in which there is nothing to mark out one mode of division as more "natural" or important than another. We have also failed so far to see any reason why some groups should be natural and important classes, whilst others, though equally real, are, or appear to be, quite trivial. In the second of these chapters, which forms the subject of the present chapter of this work, McTaggart asserts and defends the proposition that *every* particular is a compositum, composed of other particulars. He explains this assertion, and argues that, when it is properly understood, it is seen to be a necessary fact.

Now, at first sight, this seems to make the situation even gloomier than before. If every compositum had ultimately been composed of *simple* particulars, i.e., of particulars which are not themselves groups of other particulars, each of these simple particulars would have been a natural unit. But now we are debarred from all hope of finding natural units in this direction. And so we pass to the third of these chapters, where at first the gloom becomes even deeper and the story seems to be incapable of anything but a tragic ending. For McTaggart claims to prove that, although every particular must be composite, yet the supposition that every particular

is composite leads to almost insuperable difficulties. This contention will be dealt with in Chap. XX of the present work.

But, just at this point, when the tragedy seems complete, and when "all is sin and shame", there enters "to the fight and to the rescue", a "Second Adam" in the person of the *Principle of Determining Correspondence*. McTaggart alleges that there is one and only one supposition about the structure of the universe which will reconcile the endless divisibility of all particulars with certain other results which are held to have been demonstrated by earlier arguments. And so, although it is not *self*-evident that the universe must fulfil this condition, and although there is very little in the appearances to suggest that it does, we are justified in concluding that it does. The only way in which this necessary condition can be fulfilled, so far as McTaggart can see, is that the universe should be what he calls a "Determining Correspondence System". And, *if* the universe be a determining correspondence system, it follows that there must be natural units, though there are no simple particulars, and that there must be an intrinsic natural system of classification in which all the content of the universe finds its place. Thus, the endless divisibility of all particulars, and the difficulties to which it gives rise, prove to be, like the fall of the First Adam, a *felix culpa*, without which there could have been no Second Adam to provide "the means of Grace and the hope of Glory". The details of this redemption will be found in Book V of the present work; in the meanwhile we must address ourselves to the less pleasing task of exhibiting the fall of particulars into endless division and apparently hopeless contradiction.

1. McTaggart's Doctrine.

McTaggart holds that it is self-evident on careful reflexion that there can be no particular which is not itself a collection of particulars. It is important to be quite clear as to what this means, and how it is related to other views which have been held about divisibility. (i) It entails that every particular

has an unending series of sets of parts. Let P be any particular. Then it will certainly be a group with at least two members, P_1 and P_2. Call this a "first-order set of parts of P" P_1 will itself certainly be a group with at least two members, P_{11} and P_{12}. Similarly P_2 will certainly be a group with at least two members, P_{21} and P_{22}. Then the group $P_{11} . P_{12} . P_{21} . P_{22}$ will be a set of parts of P. As compared with the group $P_1 . P_2$ we can call this a "second-order set of parts of P". It is plain that, if McTaggart is right, it must lead in precisely the same way to a third-order set, and so on without end. We may sum this up by saying that, if r be any finite ordinal number, any particular P will have a set of parts of higher order than r. (ii) It entails further that, if n be any finite cardinal, any particular P will have a set of parts which contains more members than n. For a first-order set of parts must contain at least two members, a second-order set must contain at least four members, and an rth order set must contain at least 2^r members. And, if n be any finite integer, there is always a finite integer r such that 2^r is greater than n. For 2^n is always greater than n, whether n be finite or infinite. (iii) It entails *a fortiori* that, if n be any finite integer, there are more parts of P than 2^n. For, if we take our series of sequent sets of parts, the total number of parts in all the sets down to and including that of the rth order is $2 + 2^2 + 2^3 + \ldots + 2^r$, which is $2^{r+1} - 2$. And, if n be any finite integer, there is always a finite r such that $2^{r+1} - 2$ is greater than 2^n. I prefer *not* to say that, on McTaggart's view, "every particular has an infinite number of sets of parts and an infinite number of parts". For some people would deny that there are infinite numbers, or would deny that number applies to the class of all the parts, or of all the sets of parts, of a particular, on McTaggart's view. But we can safely state the facts in a negative way. We can say that, on McTaggart's view, there is no finite integer such that there is not a set of parts of P which has more members than this. And we can say that there is no finite integer such that there are not more parts of P than this.

1·1. *Relation of McTaggart's Doctrine to other Theories.*

McTaggart's doctrine must be very carefully distinguished from the doctrine that some particulars are groups of infinitely numerous *simple* particulars, e.g., point-instants. This is the orthodox mathematical view of lines, areas, volumes, durations, etc. A duration, for example, is supposed to be an infinitely numerous group of instants, interrelated in a characteristic way, and each of these instants is supposed to be a simple particular and not a group of particulars. The only analogy between the two views is that both involve classes such that no finite integer is the number of their members. Apart from this the two views are completely opposed. McTaggart denies that there are any particulars which are not groups of particulars. The orthodox view asserts that there are such particulars, and that every compound particular has a set of parts which are all simple particulars. McTaggart does not object to the orthodox view because it involves infinity. He could not consistently do so, since his own view equally involves it; and, in point of fact, he has no objection to the notion of infinite numbers as such. His objection is that it seems self-evident to him that there could be no particulars which are not themselves groups of particulars.

There is, however, a certain point of contact between McTaggart's view and the orthodox mathematical view. The only reason why mathematicians hold that certain particulars are *infinitely numerous* groups of simple particulars is that *these* particulars, at any rate, *seemed* to have parts within parts without end, as McTaggart alleges that *all* particulars do have. Every duration and every extension seemed to have a set of parts which are themselves durations or extensions respectively, and so on without end. This seemed to Leibniz, among philosophers, and to the more philosophic of the mathematicians, to be an impossible state of affairs, if taken to be an ultimate fact. And here McTaggart in a sense agreed with them. For he, too, holds that it leads to a contradiction unless we make a certain supplementary assumption. But Leibniz and the orthodox mathematicians claimed to avoid the supposed contradiction by assuming that every duration

or extension is an infinitely numerous group of simple particulars interconnected in a certain characteristic way, and that every part of a duration or extension is an infinitely numerous sub-group of such a group, whose members are interconnected in the same characteristic way as the members of the whole group. They agreed with McTaggart, though on different grounds, in objecting to parts within parts without end, if taken as an ultimate fact and not supplemented by certain other assumptions. They agreed with him in having no objection to infinity as such. The difference is that they saw no objection to simple particulars, whilst McTaggart thought he could see that no particular could possibly be simple.

1·11. *The Orthodox Mathematical Theory.* Before going further it will be worth while to state the orthodox mathematical theory. McTaggart always puts the two views that a particular has no simple parts and that it has an infinite number of simple parts in sheer opposition to each other. I do not think that he understood the orthodox mathematical theory, and a discussion of the latter will show that the relation between these two propositions need not be that of sheer opposition.

Let us begin by considering the case of a finite straight line AB, on the assumption that it is continuous. It would commonly be said (*a*) that this line has no simple components, and (*b*) that it has an infinite number of simple components, viz., points. If we can explain the meanings of these two statements, and can see the relations between them, we shall understand the meanings and the interconnexions of the two kinds of infinite divisibility which McTaggart distinguishes.

It is, of course, plain that both statements cannot be true if they are really about the same subject and if they really use the word "component" in the same sense. But this is not so, and they are in fact compatible with each other. It is assumed by the orthodox theory that points are unextended particulars, having spatial relations but no spatial parts. The straight line AB consists of the points A and B and all points which are collinear with A and B and between them.

Let us compare points with individuals who pay income-tax and the line AB with the class of income-tax payers arranged in order of the amount of tax that they pay. Then the statement that the line AB consists of the points A, X, Y, ... B is analogous to the statement that the class of income-tax payers consists of the individuals Smith, Brown, ... Robinson. The statement that the line AB consists of the lines AX and XB is analogous to the statement that the class of income-tax payers consists of the class of those whose income-tax is equal to or less than Brown's and the class of those whose income-tax is greater than Brown's. The relation of an individual to a class of which it is a member is, of course, quite different from that of a sub-class to a wider class. We may express the distinction by saying that the class of income-tax payers "comprises as members" the individuals Smith, Brown, etc., but does not "contain them as parts"; whilst it "contains as a part" the class of tax payers whose income tax is greater than Brown's, but does not "comprise this class as a member". On the orthodox view of lines and points we shall say that points are comprised in lines as members of them, but are not contained in lines as parts of them; and we shall say that shorter lines are contained in longer lines as parts of them, but are not comprised in them as members. There is then no inconsistency in saying that the line AB comprises an infinite number of members, which are points, and yet contains no simple parts which are lines.

In actual fact the two propositions are not merely consistent, they are logically interconnected. The line AB is held to comprise an *infinite* number of simple members, which are points, just because it is held to contain no simple parts which are lines. Conversely, AB contains no simple parts which are lines *just because* it comprises an infinite number of simple members which are points. The connexion is as follows. The number of points which are comprised in the line AB is infinite because there is a point comprised in this line between *any* two points comprised in it. And it is because of this very same fact that any line which is contained in AB itself contains shorter lines, and so is composite in precisely the

same sense in which AB itself is composite. For let XY be any line contained in AB. On the present view this means that X, Y, and all points collinear with them and between them are comprised in AB. Now there will be points between X and Y. Let U and V be any two such points. Then, U, V, and all points collinear with them and between them will be comprised in XY and will also be comprised in AB in precisely the same sense. Hence, if XY be any line which is contained in AB, there will be a line UV which is contained in XY and in AB. Consequently, any line which is contained in AB will contain lines which are also contained in AB. And so AB contains no simple parts which are lines, *just because* it comprises simple members which are points, and because between any two of them there is a third which is also comprised in AB. Thus the fact that AB contains no simple parts which are lines depends on the fact that it is composed of simple members which are points and that the number of them is infinite.

It is quite certain that the orthodox mathematical theory, which we have been describing, is internally consistent, and that it accounts for all the admitted facts. If a group consists of an infinite number of simple particulars which form a "compact" series, i.e., a series in which there is a term between any two terms, it will necessarily have a set of parts each member of which is a group of an infinite number of simple particulars which form a compact series. Each of these in turn will necessarily have a set of parts each member of which is a group of an infinite number of simple particulars which form a compact series. And so on without end. So any group which consisted of an infinite number of simple particulars forming a compact series would necessarily be *also* a group which was endlessly divisible into sets of parts in which each part is not a simple particular but a group. McTaggart certainly failed to notice this fact. But, even if he had done so, he could not have accepted the orthodox theory. He would have said that, however self-consistent it may be and however well it may explain the facts, it cannot possibly be true, because its fundamental assumption that there are simple particulars is self-evidently false.

1·12. *Whitehead's Theory.* We must now consider the relation of McTaggart's doctrine to Whitehead's theory about points and instants, which differs profoundly from the orthodox theory. Whitehead's view, stated very roughly, is that points and instants are not particulars and are not simple. If it is taken to be part of the definition of the terms "point" and "instant" that they are simple particulars, we must say that Whitehead rejects, or is completely agnostic about, the reality of "points" and "instants". He holds that all that is known to be true in statements which contain the word "point" or any synonym for it can be expressed by statements which do not contain that word or any of its equivalents. The amended statements will contain the word "volume", or some synonym of it, where "volume" is used in its ordinary literal sense; and they will assert certain complicated relations between volumes.

To state the theory with all the refinements which are necessary in the most general case would involve complications which are irrelevant for the present purpose. The reader will find a simple account of the theory in Chap. I of my book *Scientific Thought*, and he will find the full statement of it in Whitehead's books *The Concept of Nature* and *The Principles of Natural Knowledge*. Competent authorities are agreed that, when "points" are defined in terms of classes of suitably interrelated volumes, as Whitehead defines them, they have all the properties which geometry requires of them.

What would McTaggart have said to this theory? There is nothing in it to which he need have objected. The entities which play the part of "points" in Whitehead's theory are, as we have said, certain groups of volumes, and so they would be particulars in McTaggart's sense. And it is essential to Whitehead's theory to assume that volumes have parts within parts without end. So although, in a certain Pickwickian sense, Whitehead accepts the existence of points, this does not commit him to accepting the existence of simple particulars. So far, then, McTaggart could have accepted, and would presumably have welcomed, Whitehead's theory. Nevertheless, he would have had to object to it if it claimed to be a *complete*

account of the facts. For he would say that there remains the contradiction about a particular having parts within parts without end, and that Whitehead has neither recognised this nor attempted to obviate it. The orthodox mathematical theory at least recognised the difficulty and made a supplementary suggestion which would have obviated it if only the suggestion had not been unacceptable on other grounds. But Whitehead either does not admit that there is any difficulty to be avoided, or, if he does, has suggested no way of getting round it.

I think that we can now safely generalise the result which we have reached in this and the previous sub-section about lines and points. The statement that P has no simple parts, and the statement that P has an infinite number of simple parts, are incompatible only if "part" is used in precisely the same sense in both. Whenever we find such a pair of statements being made by intelligent people who know their own business, such as mathematicians in the pursuit of their studies, we shall find on investigation that the word "part" is not being used in the same sense in both statements and that there is no inconsistency. And we shall find that, whenever one of these statements can be made, the other can also be made, since the two are logically interconnected. Sometimes it is more natural to start from the infinite number of simple members and to derive from it the unending series of composite parts. In other cases it is more natural to start from the unending series of composite parts and to derive from it the fact of comprising an infinite number of simple members. It will be worth while to illustrate these two alternatives before leaving this part of the subject.

In the case of geometry it is much more natural to start from the apparently obvious relation of a larger volume being made up of smaller volumes adjoined at their surfaces, and from the apparently obvious fact that every volume contains parts which are themselves volumes, than from the notion of volumes as classes of infinitely numerous points suitably interrelated. Points do seem to be "artificial" entities with a complicated logical structure, and not plain common-sense

particulars. But they seemed indispensable for geometry, and no one was able to say clearly what they could be if they were not simple particulars. So soon as Whitehead had given his analysis of the geometrical facts which are expressed by sentences containing the word "point", everyone who was competent to express an opinion on the matter felt that he had made a most important contribution to the methodology of geometry and of mechanics. But it is essential to notice that the ultimate philosophical problem of the continuum remained untouched by Whitehead's discovery. For Whitehead's method *assumes* it to be an ultimate fact that volumes are composed of adjoined smaller volumes, and so on without end. Now to many philosophers, e.g., to Leibniz, this seems self-evidently impossible, if taken as an ultimate fact. The *philosophic* ground for assuming that there are simple particulars, called "points", and that any volume is a class of an infinite number of suitably interrelated points, is that this seemed to be the only way of making the endless divisibility of volumes into adjoined smaller volumes intellectually satisfactory.

In the case of arithmetic the opposite course to that taken in geometry seems the natural one to take. We are acquainted with the smaller integers, and we have no difficulty in regarding each of them as a simple entity of a very special kind. We see, on reflexion, that the series of integers is, from the nature of the case, endless in the upward direction. So we *start* here from the notion of an endless series of simple *terms*. We then define a "rational number" as an ordered pair of integers related to each other in a certain way, e.g., 2/1, 1/2, 5/9, and so on. We see that the fact that the number of integers is infinite entails that the number of rationals is infinite. We also see that, when the rational numbers are considered in their order of magnitude, they form a "compact" series, i.e., one in which there is a term of the series between any two terms of it, so that one cannot talk of any term as being "next to" any other. We can then understand the notion of a "segment" of rationals, e.g., those between 1/1 and 1/2 in order of magnitude. We see at once that a segment

is endlessly divisible into adjoined *parts*, which are segments and not rationals, just because it is a compact series whose *members* are rationals and not segments.

Suppose that we compare finite straight lines with segments, points with rational numbers, and the adjunction of shorter lines to form a longer line with the adjunction of a segment which ends in a certain rational to a segment which begins with that rational. Then the whole situation is exactly analogous to that of geometry on the assumption that points are simple particulars, and that lines are compact series of points. The difference is this. In the arithmetical case we start with the notion of integers, then define "rationals" in terms of integers and their relations, and then define "segments" as certain series of rationals. In the geometrical case it is lines, or more strictly volumes, which are *notiora nobis*. The notion of points, and the notion of volumes as classes of infinitely numerous interrelated points, are reached only by abstraction, reflexion, and elaborate intellectual construction.

*1·13. *Prof. Strong's Theory.* The analogy between points and rational numbers, and between lines and segments of rationals, which I have just pointed out, is certainly instructive and helpful, and it is sufficient for the technical purposes of mathematics. But, as in the case of Whitehead's theory, one cannot help doubting whether it does anything towards solving the ultimate philosophical problem of the continuum. If points are to do the philosophical work required of them, they must be particular existents. They must therefore be utterly different in nature from rational numbers. Now, granted that there is no internal contradiction in the notion of a compact series as such, is it compatible with the notion of particular existents that they should form a compact series? One feels no difficulty in the fact that there is a fraction intermediate in magnitude between any two fractions that one chooses to mention, and that therefore no fraction can be said to be "next" in magnitude to any other fraction. Each fraction can be described independently of its place in this series, and therefore the compactness of the series in no way compromises the individuality and

distinctness of each of its terms. But I think that many people would feel that the alleged compactness of the series of points which constitutes a line is incompatible with the kind of individuality and distinctness which the points must have if they are particular existents. This objection is, no doubt, vaguely expressed, and I do not see how to put it more clearly; but I cannot help thinking that there *is* a difficulty here, and that, beautiful and internally consistent as the arithmetical theory of the continuum is, it is doubtful whether it gives a satisfactory account of the physical continuum.

Such difficulties as these would seem to be the motive of a very curious theory, put forward by Prof. C. A. Strong in Chap. IV of his book *Essays on the Natural Origin of the Mind*. The theory may be summed up as follows. (i) There are points, and every point is an unextended particular existent. (ii) There is a relation, which is called the relation of "junction". Each point stands in this relation to *some*, but not to *all* or *most*, other points. If a point P stands in the relation of junction to a point Q, then there can be no third point R collinear with P and Q, such that P has junction with R and R has junction with Q. Thus each point will have certain points which are "next" to it, viz., all those which have junction to it. (iii) Any complex whole $J(P, Q)$, consisting of two points P and Q which stand in the relation of junction to each other, has extension and is an elementary straight line. From the nature of the case no line can be shorter than one which consists of two points related by the relation of junction. (iv) There are series of points, P_1, P_2, P_3, etc. such that P_1 has junction with P_2, P_2 has junction with P_3, and so on. Every straight line which is not elementary consists of such a series as this. (Of course not all such series as this would be straight lines. In order for such a series to be a straight line the elementary lines $J(P_1, P_2)$, $J(P_2, P_3)$, $J(P_3, P_4)$, etc., would have to have the same direction. Prof. Strong does not mention this point.) If a straight line consists of $n + 1$ points, arranged in this way, its length will be n times the length of an elementary straight line. (v) Any

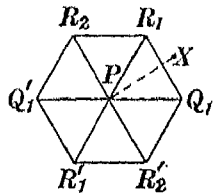
straight line that we can observe is a series of an infinite number of points. A pair of points related by the relation of junction constitute a line whose length is a genuine "infinitesimal".

I think that the above is a fair account of Prof. Strong's theory. He says that he approached it from a consideration of time. Now, as time is supposed to be one-dimensional, there is nothing analogous there to the case of a plurality of lines in different directions. We shall see in a moment that, even if Prof. Strong's theory could be accepted for time, this difference between space and time is fatal to its application to space. I will begin, however, by setting aside the special difficulties which arise in connexion with space.

(i) I have no objection to the theory that, although each point is unextended, a complex whole consisting of two points interrelated in a certain way might have the property of being extended. (ii) I find the notion of an intrinsically minimal extension or duration extremely hard to swallow. If anything seems self-evident, it is that there can be no duration or extension such that it is intrinsically impossible for there to be a shorter duration or extension respectively. (iii) I also find the notion that an infinite number of *equal* lengths or durations should give a finite length or duration, respectively, quite unintelligible. Of course we can all *say* such things, but have we any clear ideas corresponding to our words? Prof. Strong refers to the fact that an endless series may converge to a real limit. But this is quite irrelevant for his purpose. No doubt a series of adjoined lengths of 1/2 inch, 1/4 inch, 1/8 inch, and so on without end, has as its limit a line of 1 inch in length. But this is not a case of adding an infinite number of *equal* lengths; it is a case of adding smaller and smaller lengths, which diminish in accordance with a certain law. Now Prof. Strong's infinitesimal lengths must all be equal, for each is the length of a line composed of two "next" points; and there is no possible reason to suppose that lines composed of different pairs of "next" points would have different lengths, or that these lengths would diminish along a series in accordance with a law. (iv) If I could see how the addition

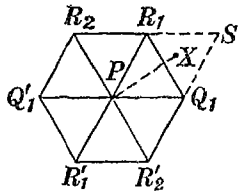
of an infinite number of equal lengths could give a finite length, I might be able to see how different lines, each composed of an infinite number of equal lengths, could differ in length, as they obviously do. I certainly cannot see how this can happen; but I am not sure whether this is an independent objection, or simply a special application of the general objection raised in (iii).

I have perhaps said enough to show that there are grave difficulties in Prof. Strong's theory, whether applied to space or to time. I shall now try to show that it is hopelessly inadequate to deal with the special peculiarities of space. Let P be any point. Let Q_1 be a point which has junction with P. Let Q_1' be the point on the opposite side of P to Q_1 which has junction with P and is such that Q_1', P, and Q_1 are collinear. Place the four points R_1, R_2, R_1', and R_2', so that they form with the points Q_1 and Q_1' the corners of a regular hexagon, as in the figure below.



Then it is obvious that these six points will have junction with P. Also R_1 will have junction with Q_1 and R_2, R_2 will have junction with R_1 and Q_1', Q_1' will have junction with R_2 and R_1', R_1' will have junction with Q_1' and R_2', R_2' will have junction with R_1' and Q_1, and Q_1 will have junction with R_2' and R_1. Now it seems clear to me that, on Prof. Strong's theory, no other points in this plane beside the six at the corners of this regular hexagon could have junction with P. For consider any other point X in the plane. If this has junction with P, the length PX must be the same as the length PQ_1, for this is the natural indivisible unit of length. But, wherever we suppose X to be, its distance from two of the six points at the corners of the hexagon will be *less than*

the length PQ_1. That is, it will be less than the natural indivisible unit of length, which is impossible. So there can be no such point in the plane as X. It follows at once that, through any point there can be three and only three coplanar straight lines, and that they will make an angle of 120 degrees with each other. It also follows that there will be many pairs of points in the plane which are not collinear. For consider the point S in the figure below.



S can be collinear with P if and only if either (*a*) S has junction with P, or (*b*) there is a series of points, U, V, etc., such that U has junction with P, V has junction with U, and S has junction with V, and the direction of all these successive elementary lines is the same. But this condition is incapable of fulfilment. S has not junction with P; no line can start from P in the direction of S; and, if it could, *two* elementary lengths would take one *beyond* S, unless we are prepared to say that the two sides PR_1 and R_1S of the triangle PR_1S are together equal to the third side PS.

Now, if anything seems evident in geometry, it seems evident that lines can be drawn through a point in innumerable directions in any plane, and not only in three directions, and that any two points can be joined by a straight line. Thus Prof. Strong's theory is incapable of dealing with the simplest and most obvious facts of elementary geometry. I do not say that this absolutely condemns it. Geometry and physics are at present in such a strange state that much which has seemed self-evident may be found to need modification. And it may be that Prof. Strong's theory could deal with the modified facts. But he has plainly failed to see that the theory, in the form in which he has stated it, is quite

inapplicable to space, as elementary geometry has hitherto conceived it.

1·2. *McTaggart's Theory of Dimensions.* We have now seen the relations of McTaggart's theory of endless divisibility to certain other important theories which have been held on this subject. We can now continue the exposition of McTaggart's theory. The next point to consider is his notion of "dimensions" in connexion with divisibility: The strict statement of his doctrine is that every particular is divisible *in at least one dimension*. So long as this condition is fulfilled it does not matter if a particular is indivisible in other dimensions.

By a "dimension" McTaggart seems to mean any supreme determinable characteristic, such that the determinates under it form a series. Thus pitch and loudness would be dimensions of any noise. I doubt whether McTaggart would count tone-quality, i.e., the respect in which notes of the same pitch and loudness played on a piano and on a violin differ, as a dimension; for it is doubtful whether the determinates under this determinable form a series. He remarks that he would say that a line has the dimensions of breadth and thickness as well as that of length, though this is contrary to common usage. This is perfectly consistent. We can say that a line has zero breadth and zero depth; and it may well be that our solids are objects which have zero value of a fourth dimension.

Now what exactly is involved in saying that every particular must be divisible in at least one dimension, if "dimension" be defined in this way?

(i) It evidently entails that every particular *has* at least one dimension, i.e., at least one supreme determinable characteristic such that the determinates under it form a series. Now this has never been asserted, much less proved, at any previous point in the book. And no proof is given here. If every particular had a position in a single time-series, the condition would be fulfilled. But McTaggart has no right to assume this, and he does not in fact believe it.

(ii) Let us, however, grant this assumption. What exactly would be meant by saying that the particular P is divisible

in the dimension D but is indivisible in the different dimension D'? It would presumably mean something of the following kind. P has a certain determinate value of D and a certain determinate value of D'. It has a set of parts P_1 and P_2 such that P_1 and P_2 also have the determinable D, but have different determinate values of it, or, if they have the same determinate value of it, have a different value of it from that which P has. On the other hand, the members of every set of parts of P either lack D' altogether, or, if they have D' at all, have the same determinate value of it as P itself has. Suppose, for example, that P is a finite straight line. Then it has a certain finite length, a certain orientation, a certain position, and zero breadth. If P_1 and P_2 be any set of linear parts of P, they will have the same orientation as P, and they will have the same breadth as P, viz., zero. The line is therefore indivisible in the dimensions of orientation and of breadth. But the lengths of P_1 and P_2, though they may happen to be the same as each other, cannot either of them be the same as the length of P. And the positions of P_1 and P_2 cannot be the same as each other, nor can either of them be the same as the position of P. So the line is divisible in the dimensions of length and of position.

McTaggart uses this doctrine of dimensions to answer an objection which, he thinks, might plausibly be made against his dogma of the endless divisibility of all particulars. It might be alleged that geometry shows that there must be points, and that these must be indivisible particulars. McTaggart answers that the utmost that geometry could show is that there must be particulars which are indivisible in the three spatial dimensions of length, breadth, and depth. The use of points in geometry would be quite unaffected if they were endlessly divisible in some non-spatial dimension, e.g., duration, and so geometry as such has nothing to say against McTaggart's doctrine that every particular must be divisible in *at least one* dimension. Moreover, the fact, if it be a fact, that geometers have had a clear idea of a point as a spatially indivisible particular, without thinking of it as divisible in any other dimension, does not prove that a com-

pletely indivisible particular really is conceivable. The only property of a point which interested geometers was its *spatial* indivisibility; they simply did not have any occasion to consider the question whether points might have non-spatial dimensions and be divisible in at least one of these. McTaggart holds that, if the question had been brought to their notice, they would have seen that, if points are particulars which are indivisible in all their spatial dimensions, they *must* have some other dimension in which they are divisible.

2. Is McTaggart's Principle self-evident?

It is obviously futile to attempt to *prove* or to *disprove* that a principle is *self-evident*. All that can be done by those who find it self-evident is to take care that other people shall really be contemplating *it*, and not confusing it with something else which is not self-evident. All that can be done by those who do not find it self-evident is to suggest causes which may have made it appear so to other people. We will begin by considering what McTaggart has to say with a view to removing possible misunderstandings and putting his readers in a position to judge for themselves.

(i) McTaggart devotes a good deal of space to showing that perception and introspection never reveal simple particulars to us. Everything that we sense or introspect appears as having duration. And, on reflexion, we see that anything which had duration would be divisible into successive phases. Thus, whether there be simple particulars or not, there is nothing that we are acquainted with either by sensation or by introspection to suggest that there are such particulars. This, I think, is true. People who have held that there are simple particulars have done so because they were persuaded by arguments. They have done so because it seemed to them impossible that any particular should be a group of groups of groups...without end unless it were *also* a group of an infinite number of simple particulars, as on the orthodox mathematical theory. Some people have held also that certain facts about memory, recognition, etc., imply that selves must be simple particulars. Probably no one has ever held that

there are simple particulars because he was acquainted with particulars which appeared to him to be simple; and, if anyone ever had held it for that reason, his position would have been a very weak one.

(ii) If endless divisibility *without* simple particulars involved a contradiction, and if also it were self-evident that there can be no simple particulars, the human mind would be faced with an insoluble antinomy. But McTaggart claims to show that the difficulties involved in the notion of endless divisibility can be solved, by the Principle of Determining Correspondence, without postulating simple particulars.

(iii) The fact, which McTaggart claims to have established, that there must be simple *characteristics*, and that every characteristic which is not simple must have an ultimate total analysis into characteristics which are simple, is no ground for thinking that there must be simple *particulars*. For characteristics and particulars are so utterly unlike in nature that no argument by analogy from one to the other would have any weight. Moreover, the argument by which McTaggart professes to prove that there must be simple characteristics, resting as it does on the notion that every characteristic must "have a meaning", would plainly have no application to particulars.

(iv) It might be objected that, if the doctrine that there can be no simple particulars were really self-evident, it would hardly be such a novelty in philosophy as it is. McTaggart answers that it is much less novel than it seems at first sight. Many philosophers who have asserted that there are simple substances took the word "substance" in a much narrower sense than McTaggart, and did not mean to assert that there are particulars which are not themselves groups of particulars. These philosophers meant by "substances" continuants, as distinguished from occurrents. What they meant to assert was that there are continuants which are not groups of continuants. They did not deny that their "simple substances" had a plurality of successive total states. Nor did they deny that each total state was internally complex, and composed of a plurality of contemporary occurrents. In fact Leibniz,

who is regarded as the typical believer in "simple substances" most strongly asserted both these propositions. Now, on McTaggart's view, each total state of a continuant is a particular; each occurrent in any total state is a particular; and *every* particular is to be called a "substance". So it is possible that even Leibniz would have admitted that there can be no simple "substances" in McTaggart's sense of the word.

In §§ 168–70 of the *Nature of Existence* McTaggart mentions three reasons which ought to make us cautious in accepting his principle of the impossibility of simple particulars. (i) It is always dangerous to accept any proposition as self-evident, especially when there is not a universal consensus of expert opinion in its favour. (ii) He thinks that, if we accept this principle as a premise, very desirable consequences can be derived from it, and that, unless we accept it, these consequences cannot be proved. This may, he admits, have biassed him in favour of the principle. (iii) It must be admitted that, even if there were simple particulars, we could not possibly imagine what they would be like. For we are certainly not acquainted with anything that appears on inspection to be a simple particular, and therefore we have no experience on which to base an image of such a particular. Now there is always a danger of thinking that what is unimaginable is inconceivable, in the sense that the existence of such a thing is self-evidently impossible. And we might be making this mistake when we say that it is self-evidently impossible that there should be simple particulars.

Having honestly warned us of these possible sources of error, and having told us that he has done his best to guard against them himself, McTaggart says that, nevertheless, it does seem to him impossible that there should be a particular which is not itself a group of particulars. Let us now address ourselves directly to the question which McTaggart has presented so clearly and so fairly for our consideration.

In § 171 of the *Nature of Existence* McTaggart tries to make us see that there could not be simple particulars by pointing out that, if there were simple particulars, they would lack

certain characteristics which, he alleges, we can see that any particular must have. (i) We are to ask ourselves whether "a substance could be made without a filling of some sort, and whether there could be any filling for a substance except a set of parts". Or, to put it in another way, "we may reflect that, if a substance had no parts, there would be nothing inside it, and we may ask ourselves whether the conception of a substance with no inside is tenable". (ii) A simple substance, from the nature of the case, could have no internal structure, since to have "internal structure" means to have parts which are interrelated in *some* way, whether it be closely or loosely. Is it conceivable that there should be a substance with *no* internal structure even of the loosest kind? (iii) A simple substance could have no history and no duration. For, if it persisted through time, it would be divisible in the temporal dimension. If a simple substance were in time at all, it would have to occupy a single indivisible instant. Is it conceivable that there should be a substance which was in time and yet had no history and no duration?

Now the first remark to be made is to remind the reader once more of the extremely wide sense in which McTaggart uses the word "substance". It is to cover both continuants and occurrents. It is therefore necessary that McTaggart should make us see, not only that there could not be simple *continuants*, but also that there could not be simple *occurrents*. Now consider the three questions which he asks us to put to ourselves. As regards the first, the terms "filling" and "inside", are plainly metaphorical, and it is so difficult to see what literal meaning to attach to them that they do not help me in the least to make up my mind on the question. "Filling" calls up nothing in my mind but an image of my dentist stopping a tooth. And "inside" merely arouses vague images of stomach-ache. As regards the second question, even if I grant that it is difficult to conceive of a continuant which had no internal structure, I do not find the same difficulty about an occurrent. Is there any "internal structure" in a uniform noise? But a uniform noise is a "substance" in McTaggart's sense. Again, granted that every continuant must "have a

history", is it obvious that every event in the history of a continuant must itself have a history? Is it not, on the contrary, quite plain that events do *not* have histories? Yet the states of continuants will be "substances" in McTaggart's sense. Lastly, granted that every continuant must endure throughout a finite time, is it at all obvious that every state of a continuant must do so?

Let us now go more into detail. There are two complications to be noticed. (i) McTaggart always assumes that what is called a "continuant" is a group, and that what would be called "adjoined successive total phases in the history of the continuant" are a set of parts of it. And he further assumes that what would be called a "total phase in the history of a continuant" is a group, and that what would be called "contemporary occurrents in a continuant" are a set of parts of a total phase of that continuant. (ii) In order to make the impossibility of simple particulars obvious to us, McTaggart constantly appeals to considerations about duration, history, etc. Yet in point of fact he holds that no particular can have duration or temporal position, that there can be no change, and therefore that nothing has a history. Thus all such appeals can be only *argumenta ad homines*, and it is very difficult to see what weight to attach to them if we grant McTaggart's contention that duration, temporal position, and change are delusive appearances. I will take these two points in turn.

(i) For the present we will leave out of account the fact that McTaggart denies the reality of time and change. Probably most people who admit the reality of time would agree that it is self-evidently impossible that there should be an instantaneous continuant. Every continuant must persist through some duration. It must have a history, long or short, monotonous or variegated. This history, whether long or short, variegated or monotonous, consists of adjoined successive phases. Each such phase consists of adjoined successive phases, and so on without end. So, if the successive phases in the history of a continuant be particulars, the history of any continuant will have a set of parts which are adjoined successive phases and are particulars. And so on

without end. If, further, a continuant be *identified with* its own history, it will follow that every continuant has a set of parts, each of whose members has a set of parts, and so on without end. It will follow that there can be no simple *continuants*. It must be noted that this is valid, even as an *argumentum ad hominem*, only if we accept the premise that a continuant can be identified with its own history. It must further be noted that, even on this assumption, it will not show that there are no simple particulars *at all*, which is what McTaggart wants us to admit. I will now justify this latter criticism.

We have seen that there is no inconsistency between a particular having a set of parts whose members have a set of parts, and so on without end, and its *also* having a set of parts whose members are an infinite number of simple particulars. This was, I hope, made clear when we discussed the orthodox mathematical theory of the endless divisibility of lines, areas, and volumes. If the history of a continuant had a set of parts whose members were a compact series of successive instantaneous events, it would necessarily *also* have a set of parts whose members are adjoined successive phases of finite duration. Each of these phases would necessarily have a set of parts whose members were shorter adjoined successive phases, and so on without end. So, even if the successive phases of the history of a continuant were a set of parts of the continuant itself, it would not follow that the continuant might not *also* have a set of parts whose members are instantaneous particulars forming a compact series.

And so we are brought to the question: "Granted the reality of time, is it possible that there should be instantaneous particulars which are not divisible in any other dimension and are therefore simple? McTaggart would presumably say that he can see that this is impossible. Now the first remark which I would make is that it seems to me that *duration*, or that dimension, whatever it may be, which is perceived as duration, is the *only* dimension that is relevant to the question. If there is any objection to instantaneous particulars, it is that they would have no *duration*. If this is an objection, it

will not help them in the least to be divisible in other dimensions. And, if this is not an objection, there is no need for them to be divisible in other dimensions. Consider, for example, a flash of colour. This has some duration and some spatial extension. Now suppose we raise the question: "Could there be an instantaneous coloured flash?" It does seem plain that, if anyone denied this to be possible, it would be no answer to point out that even an instantaneous flash might be spatially extended and therefore divisible in the spatial dimension. The only conceivable objection to the possibility of an instantaneous flash is its *instantaneousness*. The only conceivable objection to the possibility of a punctiform flash is *punctiformity*. No one who objected to the possibility of a particular which was indivisible in one of these dimensions would be satisfied by being told that such a particular might be divisible in the other. Yet, on McTaggart's view, he ought to be satisfied, provided there is *at least one* dimension in which a particular is divisible, no matter what that dimension may be, even though the particular is indivisible in every other dimension. It seems to me then that the objection which many people would feel to the possibility of instantaneous particulars has very little bearing on McTaggart's principle that every particular must be divisible in *some dimension or other*, no matter what.

Now, when I reflect, I cannot see any clear impossibility in the notion of an instantaneous event. The worst that I can say of it is that it is unfamiliar and has a rather "artificial" flavour about it. But, seeing that instantaneous events, if such there be, could neither be perceived nor imaged, this unfamiliarity and this flavour of "artificiality" are exactly what we might expect to find in the notion of instantaneous events.

The next point to be noted is that McTaggart's identification of a thing with its own history cannot possibly be accepted. Granted that every thing has a history, and that every history is divisible into successive phases within phases without end, it does not follow that the thing itself is divisible in the temporal dimension. It is plainly contrary to common

sense to say that the phases in the history of a thing are parts of the thing. I have discussed this subject in Chap. VII of the present work, and I may refer the reader to Section 1·21 on *Processes and Things*. I suggested that there is not a special class of particulars to which the name "things" or "continuants" applies. If so, the question of temporal divisibility can arise only about events or processes, and we have already discussed it in that connexion. But, if we reject this suggestion, and hold that there is a special class of particulars to which the name "things" or "continuants" applies, it is plain that the relation of these particulars to time is quite different from the relation of events or processes to time. They would "persist through" periods of time, whilst processes "go on for" periods of time. Granted that no continuant could be instantaneous, it might be equally true that no continuant could have temporal extension. Both of these alternatives may apply only to events or processes. If so, the endless temporal divisibility of the history of a continuant would be compatible with the complete indivisibility of the continuant itself.

(ii) It is plainly rather unfortunate that duration, which is the one characteristic in respect of which it is plausible to hold that every particular must be endlessly divisible, should be a characteristic which McTaggart regards as delusive. This might not matter very much if the characteristic in respect of which every particular is endlessly divisible were the real characteristic which we misperceive as duration. According to McTaggart there is a real non-temporal series which we misperceive as a series of events. Anyone who was persuaded that every particular must be divisible in respect of duration might be willing to substitute for duration that non-temporal dimension, whatever it may be, which we misperceive as duration. But, unfortunately, this would not be permissible on McTaggart's theory of time. This is stated by anticipation in the footnote on p. 182 of the *Nature of Existence*, and it is worked out in elaborate detail in Vol. II of that work. It is quite certain that the characteristic in respect of which all particulars are endlessly divisible is *not*, on McTaggart's view,

the characteristic which is misperceived as duration. And it is quite certain that, on McTaggart's view, there *are* particulars which are *indivisible* in that dimension which is misperceived as duration. (See *Nature of Existence*, Vol. II, §§ 537–41 inclusive, and § 621.) Thus we have the curious situation that a particular may be indivisible in the dimension which is misperceived as duration, and yet that duration is the one dimension in regard to which it seems plausible to hold that every particular must be endlessly divisible.

*3. Some further Remarks on Divisibility.

I hope that the considerations which I have brought forward in the above discussion will suffice to give pause to anyone who may be inclined to accept the endless divisibility of all particulars as self-evident. Before leaving the subject I propose to add a few further remarks on divisibility.

Let W be any compound particular. Then, at any moment t_r at which W exists, it consists of a certain group of particulars, $p_{r1}, p_{r2}, \ldots p_{rn}$, interrelated in a certain characteristic way, which we will denote by s_r. If the compound particular W exists from the moment t_1 to the moment t_m, its history may be represented by the following table.

$$\begin{aligned} w_1 &= s_1 (p_{11}, p_{12}, \ldots p_{1n}) \\ w_2 &= s_2 (p_{21}, p_{22}, \ldots p_{2n}) \\ &\ldots\ldots\ldots\ldots\ldots\ldots \\ w_m &= s_m (p_{m1}, p_{m2}, \ldots p_{mn}) \end{aligned}$$

Here the various s's will be either the same characteristic determinate form of a certain determinable relation S, or they will be a sensibly continuous series of different determinates under such a determinable relation. The p's which occupy corresponding positions in the successive rows may represent a single persistent particular; or they may represent different particulars, which enter the whole, play their part in it for a short time, and then leave it and are replaced by similar particulars which play a similar part. The first alternative is approximately illustrated by such a compound

particular as a watch; the second is approximately illustrated by such a compound particular as a living organism.

Now, if at any moment any particular which then formed a part of *W* had not existed, *W* would not have existed. And, even though at a certain moment all the particulars which in fact formed parts of *W* had existed, yet *W* would not have existed unless they had then been interrelated in precisely the way in which they then were in fact interrelated. This is summed up in the statement that every compound particular is existentially dependent on the existence and the interrelations of those particulars which are its parts.

Let us suppose that it is logically possible that each of the particulars which in fact are parts of *W* at a certain moment should have existed even though the other particulars which are parts of *W* at that moment had not existed. And let us further suppose that, even though all the particulars which in fact are parts of *W* at a certain moment had existed, yet they might have then been interrelated in a different way from that in which they in fact were interrelated. Most people would be inclined to say that this condition is fulfilled, for example, if *W* is a watch, and the *p*'s are its wheels, hands, spring, etc. Then we could say that *W* "stands in a *one-sided* relation of existential dependence on those particulars which are its parts". Let us call any compound particular which stands in a relation of one-sided dependence on those particulars which are its parts an "Extrinsic Unity".

Even when it is *logically* possible that some of the particulars which are parts of a whole *W* might have existed in the absence of the other particulars which are parts of *W*, this may be *causally* impossible. And, even when it is *logically* possible that the particulars which are so interrelated as to form the whole *W* might have been differently interrelated, this may be *causally* impossible. It is, so far as one can see, logically possible that that particular which is my brain might have existed now even though that particular which is my heart had not existed. But it would seem to be causally impossible that the one should have existed if the other had not existed and if the two had not stood in much the same

relations to each other as actually do hold between them. I propose to call compound particulars of the sort which I have just been considering "Organic Compounds". And I propose to call those extrinsic unities which are not organic compounds, in the sense just explained, "Mechanical Compounds".

Now there is, *prima facie*, one other alternative. W might be a whole of such a kind that it is *logically* impossible that any particular which is in fact a part of W should have existed unless all the other particulars which are in fact parts of P had existed also. And it might be *logically* impossible that those particulars which are in fact related in such a way as to be parts of W should have been interrelated in any other way. In such a case, though the whole is still existentially dependent on those particulars which are its parts, the relation of existential dependence would no longer be one-sided. For if P be in fact a part of W, P could not have existed unless all the other parts of W had existed and had stood to each other and to P in precisely the relations in which they in fact stand in the whole W. Hence P could not have existed unless it had been a part of W, and it could not have existed unless it had occupied precisely that position in W which it does in fact occupy. Thus the relation of existential dependence between whole and parts would in this case be *reciprocal* and not one-sided. Let us call any compound particular which stands in a relation of reciprocal dependence to those particulars which are its parts an "Intrinsic Unity".

If we accepted the Newtonian theory of substantival Absolute Space, any region of Absolute Space would be a compound particular of the kind which I have called an "intrinsic unity". Consider, for example, a cubical region of Absolute Space. This is a particular. And it is a compound, composed, *inter alia*, of eight smaller cubical regions adjoined along their faces. Now it is logically impossible that any of these smaller cubes should have existed without all the rest, for it is logically impossible that there should be "holes" in Absolute Space. And it is logically impossible that these smaller cubes should have existed and should not have been

adjoined exactly as they are in fact adjoined. For it is logically impossible that any region of Absolute Space should have had a different position or orientation from that which it in fact has.

To sum up. There would seem to be two fundamentally different kinds of compound particular conceivable, viz., extrinsic and intrinsic unities. And there would seem to be two different kinds of extrinsic unities conceivable, viz., mechanical compounds and organic compounds. I would add that it seems to me likely that, when Spinoza maintains that only the *modes* of Extension are divisible, and that the *Attribute* of Extension is indivisible, he is thinking of those facts about substantival Absolute Space which would make it an instance of an intrinsic unity.

Now, when people say that it is inconceivable that there should be compound particulars whose parts are compound particulars and so on without end, I suspect that they are thinking of extrinsic unities. What they find inconceivable is that there should be particulars which stand in a relation of one-sided existential dependence on other particulars which themselves stand in a relation of one-sided dependence on other particulars, and so on without end. But, granted that this state of affairs is impossible, it seems to me that they are not justified in concluding that there must be simple particulars, as Leibniz did. For the difficulty would be avoided equally well if the series ended with intrinsic unities, i.e., with compound particulars, such as regions of Absolute Space would be, which stand in a relation of *reciprocal* dependence to the particulars which are their parts. Unless the notion of intrinsic unities can be shown to be impossible they remain an alternative to the assumption of simple particulars.

The "billiard-ball" atoms of the old-fashioned physics would be organic compounds and not intrinsic unities. It is inconsistent with the laws of nature that a fragment of one of these little "billiard-balls" should have existed without the rest of it, and it is inconsistent with the laws of nature that these two fragments should not have been adjoined to form a complete little "billiard-ball". But there is no logical im-

possibility in either of these suppositions. This was expressed by saying that the atoms were "physically indivisible" but "geometrically divisible without end". Thus this kind of atom could not be taken as an ultimate unit from a philosophical point of view.

It would be quite possible, however, for anyone who accepted the theory of substantival Absolute Space to accept the "billiard-ball" atom in one sense, and yet to deny that the atoms are compound particulars of the kind just described. Let us suppose that there are certain absolutely determinate qualities q_a, q_b, ... etc., which are capable of pervading regions of Absolute Space. Let us suppose that at every moment there are n non-intersecting spherical regions of Absolute Space, each of radius a, pervaded by the quality q_a. Let us further suppose that at no moment are any regions of Absolute Space except such spherical regions and their parts pervaded by the quality q_a. Denote the regions thus pervaded at any moment t_r by the symbols a_{r1}, a_{r2}, ... a_{rn}. Lastly, let us suppose that the regions are so related that the symbols can be arranged in a table of rows and columns, as given below, such that each column has the property stated in the next sentence.

$$
\begin{array}{l}
\ldots\ldots\ldots\ldots\ldots\ldots \\
a_{-11}, a_{-12}, \ldots a_{-1n} \\
a_{01}, a_{02}, \ldots a_{0n} \\
a_{11}, a_{12}, \ldots a_{1n} \\
\ldots\ldots\ldots\ldots\ldots\ldots
\end{array}
$$

Regions whose symbols occur in the same column are to be either (i) identical, in which case we shall talk of a certain atom as *resting*; or (ii) are to intersect each other if their symbols occur in rows that are near together in the table, and are to have more and more in common in proportion as the rows in which their symbols occur are nearer together in the table. In the latter case we shall talk of a certain atom as *moving*. Strictly speaking, what "rests" or "moves" will be the quality q_a. Precisely similar conditions are to hold, *mutatis mutandis*, for the other qualities, q_b, q_c, etc., and the

regions which they pervade. Thus we shall have "different kinds of atom" with, perhaps, different characteristic radii, a, b, c, etc.

On such a view as this there would be a perfectly good sense in which the structure of the physical world is atomic, and the atoms are finite spheres. And yet the atoms would not be particulars which are organic compounds, as they would be on the more usual form of this theory. To say that an atom is physically indivisible, but geometrically divisible without end, would have the following meaning. It would mean that it is a law of nature that the quality q_a always pervades non-intersecting spherical regions of Absolute Space of radius a, and never pervades anything but such regions and their parts; but that there is no kind of logical necessity about this fact. And each such sphere, being a region of Absolute Space, is an *intrinsic* unity, having parts within parts without end, but standing to its parts in a relation of *reciprocal* dependence.

CHAPTER XX

THE IMPLICATIONS OF ENDLESS DIVISIBILITY

In Chap. XXIII of the *Nature of Existence* McTaggart considers whether the doctrine that every particular has parts within parts without end is or is not compatible with everything else which is known *a priori* to be true of particulars. He tries to show that it can be reconciled with certain propositions, which he claims to have deduced from *a priori* premises, if and only if certain conditions, which he enunciates, are fulfilled. He therefore concludes that, in some way or other, these conditions are fulfilled. And this, as we shall see, is an absolutely essential stage in the construction of his system.

The reader must be warned at the outset that the conclusion is not easy to state accurately and briefly, that the argument is abstract and difficult to follow, and that consequently a considerable effort of attention will be demanded of him. McTaggart starts by introducing and attempting to define the relation which he calls "Presupposition". He then conducts the main argument in terms of this notion. His account of Presupposition is, as we have already seen, extremely confused in statement. I have tried to clear up the confusions in Chap. XII of this work. Fortunately, it is quite possible to state McTaggart's main argument here without using the notion of Presupposition at all. I propose therefore to put the argument in my own way, and to show that it is invalid. It will save time and trouble in the long run if we start by making certain preliminary explanations, and introducing and defining certain technical terms. By this means we shall be able to deal with the difficulties piecemeal, and finally to state the argument without intolerable prolixity.

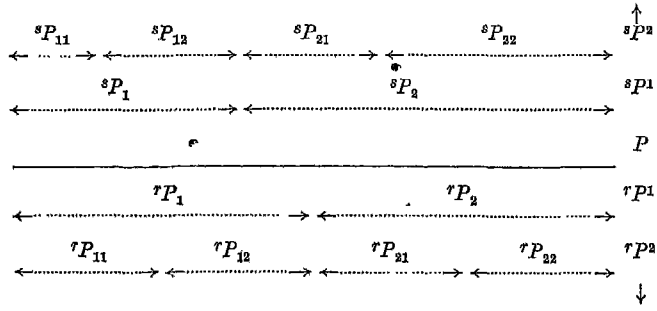
1. Preliminary Explanations and Definitions.

(*a*) Consider any particular P. According to McTaggart, this will necessarily have parts. Let $^{r}P_1$ and $^{r}P_2$ be two parts

which exactly make up P without overlapping each other. We will call the group ${}^{r}P_1 . {}^{r}P_2$ a "First-order Set of Parts of P". There will, of course, be innumerable other sets of two parts of P which will equally be first-order sets of parts of P, e.g., ${}^{s}P_1 . {}^{s}P_2$.

Now ${}^{r}P_1$ and ${}^{r}P_2$ will themselves be particulars. Each will therefore have parts. Let ${}^{r}P_{11}$ and ${}^{r}P_{12}$ be a first-order set of parts of P_1. And let ${}^{r}P_{21}$ and ${}^{r}P_{22}$ be a first-order set of parts of ${}^{r}P_2$. Then the group ${}^{r}P_{11} . {}^{r}P_{12} . {}^{r}P_{21} . {}^{r}P_{22}$ will be a set of parts of P. We will call it a "Second-order Set of Parts of P", and we will say that it is "immediately subsequent to "the group ${}^{r}P_1 . {}^{r}P_2$. There will, of course, be innumerable other second-order sets of parts of P which are immediately subsequent to ${}^{r}P_1 . {}^{r}P_2$. And there will be innumerable other second-order sets of parts of P which are not subsequent to ${}^{r}P_1 . {}^{r}P_2$, but are immediately subsequent to one of the innumerable other first-order sets of parts of P. Let us now consider any *one* series of sequent sets of parts of P. We may denote the successive terms of such a series by ${}^{r}P^1$, ${}^{r}P^2$, ${}^{r}P^3$, ... Any such series as a whole may be denoted by ${}^{r}S(P)$. We will call any such series a "Series of Sets of Parts of P".

The diagram below illustrates these conceptions. In it P is the full line in the middle. Above it are the first two terms of one series ${}^{s}S(P)$ of sets of parts of P. Beneath it are the first two terms of another series ${}^{r}S(P)$ of sets of parts of P:



(*b*) The next point to notice is this. Suppose we have sufficient descriptions of all the members of a certain term ${}^{r}P^n$

in a certain series $^{r}S(P)$. Then we can derive from them sufficient descriptions of all the members of all the terms which precede $^{r}P^{n}$ in the series, and we can derive a sufficient description of P itself. Suppose, for example, that $^{r}P_{11}$ were sufficiently describable as "the only instance of the characteristic ϕ_{11}"; that $^{r}P_{12}$ were sufficiently describable as "the only instance of the characteristic ϕ_{12}"; and so on, *mutatis mutandis*, for $^{r}P_{21}$ and $^{r}P_{22}$, the remaining members of $^{r}P^{2}$. Then $^{r}P_{1}$ could be sufficiently described as "the particular which has a set of parts whose members are the only instance of ϕ_{11} and the only instance of ϕ_{12}". $^{r}P_{2}$ could be sufficiently described as "the particular which has a set of parts whose members are the only instance of ϕ_{21} and the only instance of ϕ_{22}". Now P could be *exclusively*, though not sufficiently, described as "the particular which has a set of parts whose members are $^{r}P_{1}$ and $^{r}P_{2}$". And we could evidently get a *sufficient* description of P by substituting in this exclusive description the sufficient descriptions of $^{r}P_{1}$ and $^{r}P_{2}$ which we have already derived. It is clear that this process is quite general.

(*c*) Now it would seem to be possible that there might be some particulars which could be sufficiently described *only* in this way, i.e., *only* by reference to the sufficient descriptions of a certain set of parts of them. Of any such particular we will say that it is "not sufficiently describable without reference to its successors".

(*d*) On the other hand, in some cases, a particular has at least one sufficient description from which can be derived sufficient descriptions of every member of a certain set of parts of it. A certain particular, for example, might have the characteristic of being a rowing-eight whose aggregate mass is exactly 94·3279 stone. And it might well be that no other particular in the universe has this characteristic. If so, this characteristic is a sufficient description of this particular. From it anyone who knew the invariable structure of a rowing-eight could derive sufficient descriptions of every one of a certain set of parts of it. For every rowing-eight contains one and only one cox, one and only one stroke and so on.

Thus one part could be sufficiently described as "the cox in the only rowing-eight whose aggregate mass is exactly 94·3279 stone"; another part could be sufficiently described as "the stroke in such a rowing-eight"; and so on for all the nine men who are a set of parts of the rowing-eight.

It is plain, however, that most sufficient descriptions of most particulars have not this property. It is, for example, a sufficient description of a certain particular that it is the largest college whose head is not elected by the fellows. But no sufficient description of any of the fellows, or of the members of any other set of parts of this particular, can be derived from this sufficient description of Trinity College, Cambridge.

If a particular has at least one sufficient description from which can be derived sufficient descriptions of all the members of at least one set of parts of it, I shall call it "descriptively fertile". If it has no such sufficient description, I shall call it "descriptively barren". Now suppose that a certain particular were descriptively fertile. Then it might possibly have a certain sufficient description from which could be derived sufficient descriptions of every member of *every* term in an unending series of sets of parts of it. If a particular had a sufficient description of this kind, I should call it a "descriptive ancestor" with respect to this series of sets of parts, and I should call the terms which are subsequent to it in the series its "descriptive descendants". It would, of course, be possible for one and the same term to be an ancestor and a descendant. If there were one which was an ancestor and not a descendant, I should call it a "descriptive progenitor".

2. McTaggart's Arguments.

We are now in a position to deal, in our own way, with McTaggart's arguments. McTaggart claims to prove two propositions. (i) That every series of sets of parts of any particular must contain a term which is a descriptive ancestor. That is, it must contain a term such that the members of this term have sufficient descriptions from which can be derived sufficient descriptions of all the members of all subsequent

terms in the series. (ii) The mode of derivation must not be merely analytic. That is, the description of the members of the ancestral term must not be simply an endless conjunction of descriptions of each member of each of its descendants. From such a description one could, of course, "derive" descriptions of all the members of all subsequent terms, in the sense in which you can "derive" the fact that X is a man from the fact that X is a black man. But this purely analytic kind of derivation, according to McTaggart, is useless for the present purpose. We will now consider the attempted proofs of these two propositions in turn.

2·1. *The Proof of Proposition* (i). The argument divides into three stages.

(*a*) He professes to prove the following proposition. "In any series of sets of parts of a particular P there must be some term $^{r}P_{n}$ such that its members, and the members of all terms which are subsequent to it in the series, are sufficiently describable without reference to their successors."

The argument is this. The series is endless, owing to the endless divisibility of every particular. So, if no member of any term in the series could be sufficiently described without reference to sufficient descriptions of members of its successors in the series, no member of any term would ever be sufficiently described. Yet every particular must have a sufficient description. McTaggart concludes that there must be some term of the series, say $^{r}P^{n}$, such that every member of it and every member of all its successors in the series is describable without reference to its successors.

It is quite certain that this conclusion is much stronger than the premises will warrant. The only conclusion which can properly be drawn from the premises is the following: "Any member of any term in the series must be *either* (α) sufficiently describable without reference to its successors, *or* (β) if not, be sufficiently describable by reference to successors which are themselves sufficiently describable *without* reference to *their* successors". Now this leaves it possible that every term in the series contains *some* members which are not sufficiently describable without reference to their successors. For example,

$^{r}P_{1}$ might be describable only in terms of $^{r}P_{11}$ and $^{r}P_{12}$, which were describable without reference to their successors. $^{r}P_{21}$ might be describable only in terms of $^{r}P_{211}$ and $^{r}P_{212}$, which were describable without reference to their successors. $^{r}P_{221}$ might be describable only in terms of $^{r}P_{2211}$ and $^{r}P_{2212}$, which were describable without reference to their successors. And so on without end. No member of any term in the series need lack a sufficient description, even though each term in the series should have some members which could be sufficiently described only by reference to their successors. So McTaggart's conclusion is unwarranted.

(*b*) The next stage in the argument is as follows: "If no term in the series were a descriptive ancestor, there would be no term whose members *must* be sufficiently describable without reference to their successors". Of course the members of any term in the series might *in point of fact* be describable without reference to their successors, even though no term in the series were a descriptive ancestor. But this would be a purely contingent fact about any such term. And, if it were the case that all the endless series of terms after a certain term in the series were describable without reference to their successors, this would be a contingent conjunction of an endless series of contingent facts. If, on the other hand, a certain term $^{r}P^{n}$ of the series were a descriptive ancestor, it would *necessarily follow* that every member of every term in the series after $^{r}P^{n}$ was describable without reference to its successors.

(*c*) McTaggart thinks that the following two propositions are incompatible with each other. (α) "There *must* be some term in the series such that every member of every term after it is describable without reference to its successors"; and (β) "There is no term in the series such that every member of every term after it *must* be describable without reference to its successors".

Now the first of these propositions is supposed to have been established by the argument in (a). And the argument in (b) is supposed to show that the second proposition is entailed by the supposition that no term in the series is a descriptive

ancestor. So the latter supposition entails a consequence which is incompatible with the result which is supposed to have been established in (*a*). Hence this supposition must be rejected. We are therefore entitled to conclude that some set in the series *is* a descriptive ancestor.

In this argument McTaggart has committed a gross logical fallacy through confusing two entirely different kinds of proposition which are often expressed in English by rather similar sentences. The two kinds of proposition are: (*α*) "There *must be* an *S* which is *in fact P*"; and (*β*) "There is *in fact* an *S* which *must be P*". These two quite different kinds of proposition are often both expressed by the ambiguous sentence "Some *S* must be *P*". The contradictory of the second is, of course, the proposition "There is *in fact* no *S* which is *necessarily P*". This is perfectly compatible with the assertion of the first, viz., "There *must be* an *S* which is *in fact P*".

I will first illustrate the distinction by an example, and will then show how it ruins McTaggart's argument in (*c*). Suppose there were certain pennies in a bag, and that I were to draw them out one by one. Then (*α*) there *must be* some penny which I shall *in fact* draw first. But (*β*) there is *in fact* no penny which I *must* draw first. In the same way we could accept both the proposition which is supposed to be established in (*a*) and the proposition which is alleged in (*b*) to be entailed by the supposition that no term in the series is a descriptive ancestor. That there *must be* some term in the series such that every member of every term after it *is* describable without reference to its successors is a proposition which is quite compatible with there being no term in the series such that every member of every term after it *must be* describable without reference to its successors. There is no more contradiction here than there is between the proposition that there *must be* some man who *in fact was* the last to pass through the turnstile at the National Gallery yesterday and the proposition that there *is in fact* no man who *necessarily was* the last to pass through the turnstile yesterday. Thus, even if we admitted that the argument in (*a*) had proved what McTaggart thought it did, the argument in (*c*) would give us

no right to accept the conclusion that there must be some term in the series which is a descriptive ancestor.

The final conclusion of the chain of arguments which we have been considering may now be summed up as follows. "In order to reconcile the two *a priori* principles that every particular is endlessly divisible and that every particular has a sufficient description, it is necessary and sufficient that every series of sets of parts of any particular should contain a term which is a descriptive ancestor." We have seen that this conclusion is wholly unproved by McTaggart's arguments. Stage (*a*) contains a logical fallacy, and stage (*c*) contains another and much grosser logical fallacy. We should therefore have no ground for holding that every series of sets of parts of any particular contains a term which is a descriptive ancestor, even if we had accepted the two *a priori* principles mentioned above. But in fact we have accepted neither of them. And so, it seems to me, we must regard this absolutely essential stage in the development of McTaggart's system as an invalid inference from uncertain premises.

2·2. *The Proof of Proposition* (ii). Let $^{r}S(P)$ be any series of sets of parts of P. Every member of every term in this series will have a sufficient description, whether anyone happens to know such a description or not. Let C_1 be a sufficient description of $^{r}P_1$, C_2 be a sufficient description of $^{r}P_2$, C_{11} be a sufficient description of $^{r}P_{11}$, and so on for each member of each term of the series. Now it is plain that the property of having the set of parts $^{r}P_1$ and $^{r}P_2$, and the set of parts $^{r}P_{11}$ and $^{r}P_{12}$ and $^{r}P_{21}$ and $^{r}P_{22}$, and so on... belongs to P and to P only. It is therefore an *exclusive* description of P. If we substitute in it sufficient descriptions of the parts, we shall have a *sufficient* description of P. This will be the property of having a set of parts whose sufficient descriptions are C_1 and C_2 respectively, and a set of parts whose sufficient descriptions are C_{11} and C_{12} and C_{21} and C_{22} respectively, and so on.... Such a sufficient description of P would, indeed, be infinitely complex, and no one could possibly know it. But the fact that no one could know it is merely epistemological, and therefore irrelevant for the present purpose. And McTaggart asserts

that the infinite complexity of the description is not in itself an objection to it (§ 192). Now it is obvious that such a sufficient description of P would, in one sense, make P a descriptive ancestor. For it just is a conjunction of sufficient descriptions of all the members of all the terms in the series $^{r}S(P)$, and so it is obvious that a sufficient description of any member of any term in the series can be "derived" from it. Why should we not be content with this?

McTaggart attempts to show in § 194 that this kind of description and this kind of derivation are inadmissible. His argument may be put as follows. If the description of P which we are now considering were *adequate* to provide sufficient descriptions of all P's parts in the series $^{r}S(P)$, it would be *more than adequate*. If we have sufficient descriptions of all the members of any term $^{r}P^{n}$ of the series, we do not also need sufficient descriptions of the members of any of the earlier terms. Suppose, for example, that we have sufficient descriptions of all the members of $^{r}P^{2}$. Let us call them C_{11}, C_{12}, C_{21}, and C_{22} respectively. Then $^{r}P_{1}$ is sufficiently described as the particular which has a set of parts whose members are the only instance of C_{11} and the only instance of C_{12}. $^{r}P_{2}$ can be sufficiently described in a similar way, with C_{21} and C_{22} substituted for C_{11} and C_{12}. And then P itself can be sufficiently described as the particular which has a set of parts whose members answer respectively to these two descriptions. It is thus clear that, if *any* sufficient description of the kind which we are now considering be adequate at all, it will be more than adequate, for the purpose of providing sufficient descriptions of all the parts of P that fall within the terms of the series $^{r}S(P)$. For every term in the series has a successor; and the sufficient descriptions of all the members of *any* term, however low in the series, render the sufficient descriptions of the members of all its predecessors superfluous for the purpose in hand.

Now McTaggart asserts (§ 194) that "It is clear that for every adequate description for any purpose there must be at least one minimum adequate description", i.e., one from which everything that is superfluous for the purpose has been left

out. No proof of this is offered, so presumably McTaggart regarded it as self-evident.

The argument should now run as follows, though this is not precisely the way in which McTaggart puts it. If the description of P which contains sufficient descriptions of all those parts of P which are members of any term of the series $^{r}S(P)$ were *adequate* to provide sufficient descriptions of all such parts of P, then it would either be or contain a minimum description which was just and only just adequate for that purpose. But, as we have seen, it neither is nor could contain a minimum description which is adequate for the purpose. Therefore such a sufficient description of P cannot be adequate to provide sufficient descriptions of all the members of all the terms in the series. But we have proved (Prop. (i)) that either P itself or the members of *some* term in the series must have sufficient descriptions from which we could *somehow* derive sufficient descriptions of all the members of all subsequent terms in the series. Now the descriptions of the subsequent members can be derived from those of the ancestral set only through being analytically *contained in* or synthetically *determined by* the descriptions of the members of the ancestral set. We have now ruled out the former alternative. And so we must accept the latter.

Before attempting to criticise this argument we ought to be quite clear about the meaning of its conclusion. What it really comes to is this. There must be some general rule in accordance with which we can construct, in a uniform way, sufficient descriptions of all members of all terms after a certain term $^{r}P^{n}$ out of sufficient descriptions of the members of $^{r}P^{n}$. This might be compared with the fact that, although the series of digits which expresses the square-root of a number which is not a perfect square is endless, yet there is a general rule by means of which we could determine the nth digit in the series, however great n may be. We shall understand this better when we have studied, in the next chapter, the ways in which this condition can be fulfilled.

What are we to say of McTaggart's argument? If we accept his principle that any description which is adequate for a

given purpose must either be or contain a description which is just and only just adequate for that purpose, we are left with the two following alternatives. Either (α) the characteristic of having a set of parts whose sufficient descriptions are C_1 and C_2 respectively, and having a set of parts whose sufficient descriptions are C_{11} and C_{12} and C_{21} and C_{22} respectively, and so on...is not a sufficient description of P, or (β) it is not adequate to provide sufficient descriptions of all the members of all the terms in the series $^{r}S(P)$ of sets of parts of P. Yet it is surely obvious that, if there be such a characteristic as this, it *is* a sufficient description of P and it *does* provide sufficient descriptions of all the members of all the terms in the series $^{r}S(P)$. Thus we ought either to reject the principle which McTaggart assumes as a self-evident premise in his argument, or to conclude that there is no such characteristic as that which the argument professes to be about. The latter alternative would have served McTaggart's purpose as well as the conclusion which he actually draws. For, if there is no such characteristic, there can be no question of deriving sufficient descriptions of the members of the terms of the series from it. The reader may be left to decide between these two alternatives for himself.

2·3. *McTaggart's Supplementary Argument.* The arguments which we have discussed and rejected are McTaggart's main grounds for believing Propositions (i) and (ii). But he offers a supplementary argument in § 190. I do not think that he would claim that this is demonstrative. At most it might be alleged to give to Propositions (i) and (ii) a probability which approximates to certainty. But, since the demonstrative arguments are complete failures, this attempt to give high probability to the two propositions is not to be despised.

The reasoning is as follows. We have shown, it is alleged, in stage (a) of the proof of Proposition (i) that in any series $^{r}S(P)$ there must be some term $^{r}P^{n}$ such that every member of it, and every member of each of its successors, is sufficiently describable without reference to its successors. Suppose, if possible, that there is no general rule in accordance with which sufficient descriptions of the members of $^{r}P^{n}$'s suc-

cessors can be constructed from the sufficient descriptions of the members of $^{r}P^{n}$. Then the following situation will have to be faced. We shall have to postulate an infinitely numerous set of characteristics, each of which is either a pure quality or a relational property which contains none but universal constituents. Each member of each term of the series subsequent to $^{r}P^{n}$ will have to have one and only one of these characteristics, and the characteristic that belongs to a certain one of these particulars must belong to no other particular in the universe. The fact that such and such a member of such and such a set of parts of P is the one and only possessor of such and such a one of these characteristics will be an ultimate fact, quite unconnected with all the similar facts about other parts of P. Now McTaggart thinks it incredible that, in connexion with every particular, there should be such an infinitely numerous set of ultimate and mutually disconnected facts. And he alleges that if, and only if, the conditions laid down in Propositions (i) and (ii) were fulfilled, this incredible state of affairs would not have to be admitted to occur. It is therefore reasonable to believe Propositions (i) and (ii) with a degree of conviction which is proportional to the incredibility of the proposition which they, and they alone, would allow us to disbelieve.

The only comments which I propose to make on this argument are the following. (α) The argument assumes the conclusion which is supposed to have been established in stage (a) of the proof of Proposition (i). We have seen that this conclusion is not established. (β) Even if to accept Propositions (i) and (ii) were the one and only way of avoiding the conclusion which McTaggart regards as incredible, and even if this conclusion be as incredible as McTaggart asserts, it will not be reasonable to believe Propositions (i) and (ii) with a high degree of conviction unless they have an antecedent probability which is greater than some assigned finite number. I should hesitate to say whether these propositions do or do not fulfil this condition, and I should have no idea how to set about answering the question. (γ) It seems to me rash to assume that the acceptance of Propositions (i) and (ii) is the

one and only way of avoiding the supposedly incredible conclusion, even if we cannot think of any other way of avoiding it. There may be other ways, which neither McTaggart nor we have thought of. (δ) We are moving in such very unfamiliar regions, and the atmosphere is so highly rarefied, that we may reasonably hesitate to say what is incredible and what is not. Is the proposition which McTaggart rejects as incredible any more so than the proposition that every particular has a sufficient description or the proposition that every particular has parts within parts without end? Yet both of these are assumed in the argument.

The conclusion of the whole matter seems to be that McTaggart has neither proved nor shown to be highly probable the two propositions which, as we shall see in the next chapter, are an essential stage in the further development of his system.

BOOK V

DETERMINING CORRESPONDENCE

> Mystical dance! (which yonder starry sphere
> Of Planets, and of Fixed, in all her wheels
> Resembles nearest; mazes intricate,
> Eccentric, intervolved, yet regular,
> Then most, when most irregular they seem).
>
> MILTON, *Paradise Lost*, Book v.

ARGUMENT OF BOOK V

In the first chapter we explain, illustrate, and eventually define, McTaggart's notion of Determining Correspondence. We state, criticise, and reject McTaggart's reasons for holding that the universe is a Determining Correspondence System. In the second chapter we consider the bearing of the Principle of Determining Correspondence on the occurrence and range of causal laws, on the occurrence of groups of particulars with exclusive common qualities of a non-trivial kind, and on the distinction between unities of composition and unities of manifestation. In the third chapter we discuss the various ways in which each member of a set of Primary Parts in a Determining Correspondence Hierarchy can be distinguished from the other members of the same set. In the fourth chapter, which brings Book V to an end, we consider the bearing of the Principle of Determining Correspondence on the unity of the universe, regarded as a single complex particular.

CHAPTER XXI

THE PRINCIPLE OF DETERMINING CORRESPONDENCE

McTaggart thinks that he has proved the following proposition. "Every series $^{r}S(P)$ of sets of parts of any particular P must have a term $^{r}P^{n}$ such that from sufficient descriptions of all the members of $^{r}P^{n}$ sufficient descriptions of all the members of all subsequent terms in the series can be derived in accordance with a general rule."

Now it is *prima facie* possible that we might be able to think of a great number of different ways in which this very abstract condition could be fulfilled. On the other hand, it is *prima facie* possible that we might not be able to think of any way in which it could be fulfilled. On the first alternative so many roads would branch out from this point that McTaggart's philosophy could hardly have reached any definite destination. On the second alternative it would have ended at this point in a blind alley. In fact, however, McTaggart thinks that the condition could be fulfilled if and only if the existent had a certain very special kind of structure, which he proceeds to explain and illustrate in Chaps. XXIV and XXVI of the *Nature of Existence*. This may be expressed by saying that the universe must either be a single "Determining Correspondence Hierarchy" or have a set of parts each of which is such a hierarchy. From this conclusion about the structure of the universe McTaggart derives a great many interesting propositions, positive and negative, about the existent, which could not, he thinks, have been proved in any other way. We must now try to understand what is meant by "Determining Correspondence", and see whether the general condition which McTaggart has laid down could be fulfilled only if the universe is a "Determining Correspondence System". By a "Determining Correspondence System", I mean a whole which is either a single determining correspondence hierarchy

or has a set of parts each of which is such a hierarchy. And by the "Principle of Determining Correspondence" I mean the proposition that the universe is a determining correspondence system. I shall not attempt to follow McTaggart's exposition, but shall treat the matter in my own way and in my own order.

1. General Treatment of the Problem.

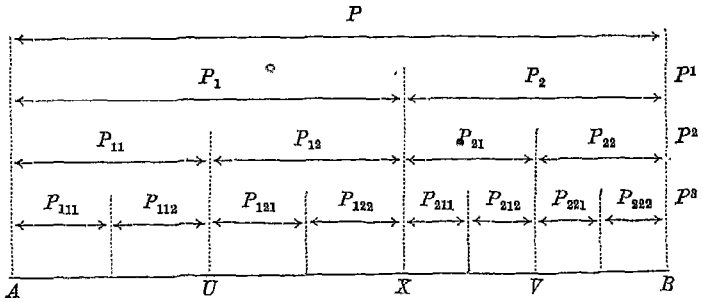
The first point to notice is the following. Any particular P has, as we have seen, an infinite number of different series of sequent sets of parts, ${}^{r}S(P)$, ${}^{s}S(P)$, and so on. Every part of P in any term of any such series will have a sufficient description. Now the condition that, in *every* such series, there must be a term such that from sufficient descriptions of its members sufficient descriptions of all members of all subsequent sets in that series can be derived in accordance with a general rule, can be replaced by the two following conditions. (i) That there must be *at least one* such series of sets of parts of P, e.g., ${}^{r}S(P)$. And (ii) that any part of P which is not integrally a member of any term of this series has a set of parts each of which is a member of some term of this series. Suppose, for example, that the particular X is a part of P, and that it is not a member of any term in the series ${}^{r}S(P)$. Suppose that S has a set of parts whose members are ${}^{r}P_{11}$, ${}^{r}P_{211}$, and ${}^{r}P_{2121}$. If condition (i) be fulfilled for ${}^{r}S(P)$, each of these parts can be sufficiently described by descriptions derived in accordance with a general rule from the descriptions of the members of a certain term ${}^{r}P^{n}$ of ${}^{r}S(P)$. X can then be described as the particular which has a set of parts ${}^{r}P_{11}$, ${}^{r}P_{211}$, and ${}^{r}P_{2121}$. And, on substituting the sufficient descriptions of these parts, we shall get a sufficient description of X. We could say that sufficient descriptions of those parts of P which are members of terms in ${}^{r}S(P)$ are "*directly* derivable" from sufficient descriptions of the members of a certain term ${}^{r}P^{n}$ of ${}^{r}S(P)$, whilst sufficient descriptions of all other parts of P are "*indirectly* derivable" from sufficient descriptions of the members of ${}^{r}P^{n}$. We might call the series ${}^{r}S(P)$ a "Fundamental Hierarchy for P". Any member of

any term of this may be called a "member of a fundamental hierarchy for P". As will be seen in § 200, p. 212, of the *Nature of Existence*, McTaggart explicitly splits up the original condition into a conjunction of two conditions in the way described above.

Henceforth, then, we can confine our attention to fundamental hierarchies.

1·1. *Geometrical Illustration.* I propose now to show by a geometrical example one way in which the conditions might be fulfilled. My illustration, if valid at all, is important as a refutation of two essential doctrines in McTaggart's philosophy. (i) In my example the problem is solved in a way which is different from that which McTaggart alleges to be the *only* way of fulfilling the conditions. For, as I shall explain later, the hierarchy which we obtain by my method is not a determining correspondence hierarchy in McTaggart's sense. (ii) My method solves the problem for the case of a spatially extended particular. Now the reader will find, if he looks at Chaps. XXXIV and XXXV in Volume II of the *Nature of Existence*, that McTaggart's *only* ground for concluding that no particular can *be* spatially extended, although many particulars are *perceived as* being so, is that he thinks that the problem cannot be solved for them. This subject will be treated at greater length in its proper place in Volume II of the present work.

Consider the diagram given below.



Let P be any finite straight line AB, and let it have some sufficient description ϕ which is independent of reference to

its parts. For example, it might be the longest line in the only country which is ruled by a government of class-conscious proletarians. Let AB have a set of two adjoined parts AX and XB. Let AX be red and XB be blue. Call these parts P_1 and P_2 respectively, and call the set of which they are the only members P^1. Then P_1 can be sufficiently described as "the longest red part of the line which is the only instance of ϕ". And P_2 can be sufficiently described as "the longest blue part of the line which is the only instance of ϕ". Now we can get a series of sequent sets of parts of P in the following way. P^2 is to consist of the adjoined halves AU and UX of P_1 and the adjoined halves XV and VB of P_2. Call these respectively P_{11}, P_{12}, P_{21}, and P_{22}. Then P^2 is the group of which these are the only members. P^3 and subsequent sets will be constructed on precisely the same plan. We have now got an endless series of sequent sets of parts of P. It remains to show that we can derive in a uniform way sufficient descriptions of every member of every subsequent term in this series from the sufficient descriptions of P_1 and P_2, the two members of the first term P^1.

Take P_{12}. This can be exclusively described as the half of P_1 which is co-terminous with both P_1 and P_2. On substituting in this the sufficient descriptions of P_1 and P_2 we shall get a sufficient description of P_{12}. P_{12} will be sufficiently describable as "that half of the longest red part of the line which is the only instance of ϕ which is co-terminous both with the longest blue part of this line and with the longest red part of it". P_{11} can be exclusively described as the half of P_1 which is co-terminous with P_1 but not with P_2. This exclusive description can be made into a sufficient description by the same means as before. In the same way, *mutatis mutandis*, P_{21} and P_{22}, the remaining members of P^2, could be sufficiently described in terms of the sufficient descriptions of P_1 and P_2. Now consider a member of P^3, e.g., P_{112}. This can be exclusively described as that half of P_{11} which is co-terminous with both P_{11} and P_{12}. Since P_{11} and P_{12} have already been sufficiently described in terms of the sufficient descriptions of P_1 and P_2, we can get a sufficient description of P_{112} by sub-

stituting these sufficient descriptions of P_{11} and P_{12} in the above exclusive description. And so P_{112} will be sufficiently described in terms of the sufficient descriptions of P_1 and P_2. It is quite clear that in this way any member of any term in the series could be sufficiently described; that the descriptions would involve six and only six characteristics, viz., ϕ, red, blue, longest, *half of*, and *co-terminous with*; and that the derivation follows a general rule. Thus the series illustrated in the diagram would be a Fundamental Hierarchy for the line P. So the first condition is fulfilled in this way.

What about the second condition? There are, of course, innumerable parts of P which are not integrally members of any of the terms in this fundamental hierarchy. It is plain that infinitely many such parts of P would have a set of parts each member of which was a member of some term in this fundamental hierarchy. Whether there would be any parts of P that did not fulfil this condition would depend on the degree of continuity which is assigned to P. But, even if there were such parts, the following would be true of them. If Y were any part of P which did not fulfil this condition, there would always be a part Z of P which did fulfil the condition and which differed in magnitude and position from Y by less than any amount, however small, that we might assign. And so every part of P without exception has one or other of the following three properties. Either (i) it is a member of some term in the fundamental hierarchy, and a sufficient description of it is therefore *directly* derivable from the sufficient descriptions of P_1 and P_2; or (ii) it is not a member of any term of the fundamental hierarchy, but it has a set of parts each of which is a member of some term in the fundamental hierarchy, and therefore a sufficient description of it is *indirectly* derivable from the sufficient descriptions of P_1 and P_2; or (iii) a sufficient description of a part of P which differs by less than any assignable amount from *this* part of P is indirectly derivable from the sufficient descriptions of P_1 and P_2.

To the two reasons which have already been given for holding that this geometrical example is of great importance

in criticising McTaggart's philosophy a third may now be added. It is plain that the method which we have applied to a straight line could be applied to anything that had duration. The example therefore would provide an answer to anyone who might attempt to deny that anything could have duration on the grounds which McTaggart alleges to prove that nothing could have spatial extension. This does not, however, apply to McTaggart's own position. For, although he denies that anything could have duration, the argument which he uses is based on certain characteristic peculiarities of time, and not on the endless divisibility which duration shares with spatial extension.

2. Determining Correspondence.

We can now explain the notion of "Determining Correspondence". McTaggart's account of this will be found in Chaps. XXIV and XXVI of the *Nature of Existence*. He first gives a special form of it in § 197, and tries to show that it is *sufficient* for his purpose. Then in § 201 he argues that the conditions laid down in § 197 are more than sufficient. They could be relaxed in three respects without ceasing to be adequate. So the final formulation of the necessary and sufficient conditions is more general than would appear from the preliminary statement in § 197. I doubt if anyone could get a clear idea of what McTaggart has in mind from the abstract statements in Chap. XXIV. But in Chap. XXVI, §§ 229–35 inclusive, he discusses certain examples; and, by combining the information derived from reflecting on these with the abstract statements in Chap. XXIV, it is quite possible to see clearly and to formulate precisely the notion of Determining Correspondence. It is, unfortunately, a complicated business; and it is almost miraculous that McTaggart, hampered by his very unsatisfactory !-notation, unaided by the resources of symbolic logic, and without diagrams to help the imagination, succeeded in keeping his head so well as he did. It would be of the utmost interest to the psychologist to know how McTaggart's mind worked in these matters; but we are in possession only of the finished product and not of any of the

early rough drafts, so that data for solving this problem are lacking. My impression is that he worked like a very highly skilled lawyer, drawing up a complicated will or conveyance, and not like a mathematician or symbolic logician.

2·1. *McTaggart's Example.* In §§ 234–6 inclusive McTaggart gradually works up to describing a state of affairs which, if it existed, would be an instance of a determining correspondence hierarchy. The best way to understand his meaning is to start from this example and to work backwards. We must remark at the outset that the example would be an illustration of somewhat more rigid conditions than are really necessary. But, once these more rigid conditions are understood, it is quite easy to see in what respects they could be relaxed.

I will now explain the example. (i) Let us suppose that the right analysis of the fact which is commonly expressed by the sentence "The self S is perceiving the object O" is the following. Let us suppose that it is equivalent to saying that there is a particular Ω, which (*a*) is a part of S, and (*b*) stands to O in a unique relation, viz., that of "being a perception of". It is most important to be quite clear that it is *this* relation, and *not* the relation of "perceiving", in the ordinary sense of that word, which McTaggart has in mind throughout the example. He is not considering the relation between a *perceiving mind* and a perceived object, but the relation between a certain state of that mind (which he regards as a part of it), viz., its perception of O, and the perceived object O. (ii) Let us further assume that a self S can contain perceptions of itself and of its own perceptions. (iii) Let us further assume that a self S can contain perceptions of other selves and of their perceptions. (iv) Finally, let us assume that, if Ω be a perception in S of the object O, and o be a part of O, then there can be a part ω of Ω which is a perception in S of o.

McTaggart fully realises that no one could be expected to grant these suppositions without argument. Many people would deny the analysis proposed in (i) of the fact expressed by the sentence "S is perceiving O". Many people would agree with Hume that a self never perceives itself, and

probably some people would go further and deny that a self can perceive its own perceptions. Therefore many people would reject (ii). Supposition (iii) postulates a telepathic relation between one self and another, which hardly anyone would admit to hold between the selves that we know of in their present life. And the notion of a perception having parts which are perceptions of parts of its perceptum is so unfamiliar that no one could be expected to accept (iv) without a good deal of explanation and persuasion. In point of fact McTaggart thinks that he can justify all these suppositions, and he professes to do so in Chaps. XXXVI and XXXVII in Vol. II of the *Nature of Existence*. His attempts to do this will be treated in their proper place in Vol. II of this work. For the present purpose, however, so long as the four suppositions are severally intelligible and jointly consistent, it does not matter whether they are in fact true or not. For our only business with them here and now is to use them to construct an example of a state of affairs which, *if* it existed, *would be* an instance of a determining correspondence hierarchy. Let us then grant, for the sake of argument, that there might be selves answering to these suppositions, and that they might have perceptions of the kind supposed.

To make the example as simple as possible let us consider two and only two minds P_1 and P_2 answering to the above conditions. I shall call any perception *in* either of these minds *of* either of them a "first-grade perception". Thus P_1's perception of P_2 would be a first-grade perception. I shall call any perception *in* either of these minds *of* any first-grade perception in either of them a "second-grade perception". Thus P_1's perception of his own perception of himself would be a second-grade perception; so, too, would P_2's perception of P_1's perception of P_2. Perceptions of any lower grade can be defined in a similar way.

Now suppose that P_1 and P_2 were to form a "mutual admiration society" P. Since two minds have no parts in common, P_1 and P_2 would be a set of parts of P. And any part of either P_1 or P_2 would be a *part* of P, though not of course a *member* of P.

The rules of this "mutual admiration society" are to be as follows.

(i) P_1 is to contain a part P_{11} which is a perception in it of itself. It is to contain no other part which is a perception of itself.

(ii) P_1 is to contain a part P_{12} which is a perception in it of P_2. It is to contain no other part which is a perception of P_2.

(iii) The parts P_{11} and P_{12} are not to overlap each other, and between them they are completely to exhaust the content of P. That is to say P_{11} and P_{12} are to be a set of parts of P_1.

(iv) Exactly similar remarks are to be true, *mutatis mutandis*, of P_2. That is, P_2 is to contain one and only one part P_{22} which is a perception in it of itself; it is to contain one and only one part P_{21} which is a perception in it of P_1; and the parts P_{21} and P_{22} are to be a set of parts of P_2.

(v) It follows that the first-grade perceptions P_{11}, P_{12}, P_{21}, and P_{22} will be a set of parts of P.

(vi) P_1 is to contain one and only one part P_{111} which is its perception of P_{11}. It is to contain one and only one part P_{112} which is its perception of P_{12}. It is to contain one and only one part P_{121} which is its perception of P_{21}. It is to contain one and only one part P_{122} which is its perception of P_{22}.

(vii) Of these second-grade perceptions in P_1 the group whose members are P_{111} and P_{112} is to be a set of parts of P_{11}, whilst the group whose members are P_{121} and P_{122} is to be a set of parts of P_{12}. This rule may be stated in words as follows: "Each first-grade perception in P_1 is to have a set of parts whose members are P_1's second-grade perceptions of those first-grade perceptions which are a set of parts of the self which is the object of this first-grade perception in P_1".

(viii) Exactly similar remarks are to be true, *mutatis mutandis*, of P_2. That is, P_2 is to contain one and only one part P_{211} which is its perception of P_{11}; one and only one part P_{212} which is its perception of P_{12}; one and only one part P_{221} which is its perception of P_{21}; and one and only one part P_{222} which is its perception of P_{22}. Of these P_{211} and P_{212} are to constitute a set of parts of P_{21}, and P_{221} and P_{222} are to con-

stitute a set of parts of P_{22}. The rule will be the same as that stated at the end of (vii) with "P_2" substituted for "P_1".

(ix) It follows that the four second-grade perceptions P_{111}, P_{112}, P_{121}, and P_{122} are a set of parts of the self P_1; and that the four second-grade perceptions P_{211}, P_{212}, P_{221}, and P_{222} are a set of parts of the self P_2. Hence these eight second-grade perceptions are a set of parts of P.

(x) P_1 is to contain one and only one part P_{1111} which is its perception of P_{111}; one and only one part P_{1112} which is its perception of P_{112}; one and only one part P_{1121} which is its perception of P_{121}; and so on to P_{1222} which is its perception of P_{222}.

(xi) These third-grade perceptions in P_1 are to be distributed according to the following rule, which is analogous to the rule formulated in paragraph (vii). "Each second-grade perception in P_1 is to have a set of parts whose members are P_1's third-grade perceptions of those second-grade perceptions which are a set of parts of that first-grade perception which is the object of this second-grade perception in P_1." For example, P_{1211} and P_{1212} will be a set of parts of P_{121}. For P_{121} is the perception in P_1 of the perception P_{21}. The perception P_{21} has P_{211} and P_{212} for its second-grade set of parts. And P_{1211} is P_1's perception of P_{211}, whilst P_{1212} is P_1's perception of P_{212}.

(xii) Exactly the same remarks are true, *mutatis mutandis*, of P_2. The rule here is got by substituting P_2 for P_1 in the rule in (xi). It is analogous to the rule in (viii).

(xiii) We can now state the rule for the indefinite continuation of this process. (*a*) "Every rth-grade perception in either P_1 or P_2 will be the object of one and only one $(r+1)$th-grade perception in P_1." (*b*) "These $(r+1)$th-grade perceptions will all be different, and no two of them will overlap." (*c*) "Each rth-grade perception in P_1 will have a set of parts whose members are P_1's $(r+1)$th-grade perceptions of those rth-grade perceptions which are a set of parts of that $(r-1)$th-grade perception which is the object of this rth-grade perception in P_1." (*d*) "The same rules hold with P_2 substituted for P_1."

Now a "mutual admiration society" P, of the kind which we have been describing, and the endless series of sets of parts of it which we have illustrated, would be an instance of a Determining Correspondence Hierarchy. McTaggart would call the society P itself a "Primary Whole". He would call the two minds P_1 and P_2 "Primary Parts" of P. He would call the perceptions which occur in the hierarchy "Secondary Parts of P". The first-grade perceptions would be called "First-grade Secondary Parts of P"; the second-grade perceptions would be called "Second-grade Secondary Parts of P"; and so on. The relation of *being a perception of* would be called a "Relation of Determining Correspondence for P". The reader will be able to have all the foregoing points present together to his mind if he will look at Diagram I, p. 384.

Such a system as we have been explaining would undoubtedly be a fundamental hierarchy. For let ϕ_1 and ϕ_2 be any sufficient descriptions of P_1 and P_2 respectively. Any first-grade secondary part, such as P_{12}, can be *exclusively* described as, for example, "the part of P_1 which is a perception of P_2". By substituting the sufficient descriptions of P_1 and P_2 in this exclusive description we get a *sufficient* description of the part in question. For example, P_{12} is sufficiently described as "the part of the only instance of ϕ_1 which is a perception of the only instance of ϕ_2". It is plain that any part at any stage of the hierarchy can be sufficiently described, in accordance with a general rule, in terms of ϕ_1, ϕ_2, and the relation of *being a perception of*. Consider, for example, P_{112}. This can be sufficiently described as "that part of the only instance of ϕ_1 which is a perception of that part of the only instance of ϕ_1 which is a perception of the only instance of ϕ_2".

It follows at once that, if every part of P which is not a member of any term in this hierarchy has a set of parts each of which is a member of some term in this hierarchy, *every* part of P can be sufficiently described in terms of ϕ_1, ϕ_2, and the relation of *being a perception of*. If the part in question be a member of some term of the hierarchy, this can be done directly in the way illustrated above; if the part in question

Diagram I.

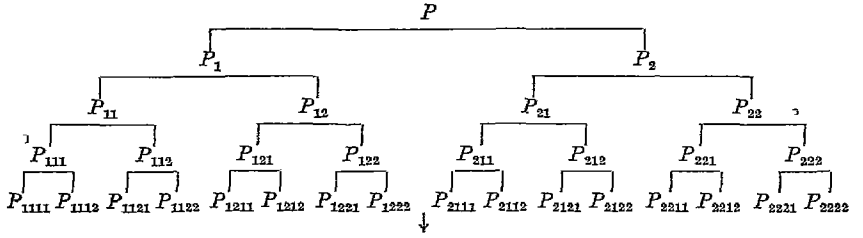
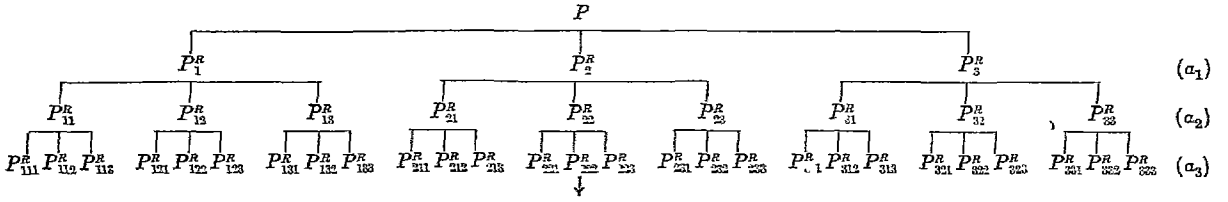


Diagram II.



be not itself a member of any term in this hierarchy, this can be done indirectly.

2·2. *Generalisation of the Example.* We are now in a position to work our way towards a general definition of a "Determining Correspondence Hierarchy". We shall do this by generalising from the above example. In the first place we must remove the restriction to a whole consisting of only two primary parts P_1 and P_2. Any number n must be admitted to be possible. Then we must remove the restriction to the particular relation of *being a perception of*. Any relation which has the formal properties ascribed to this relation in the example will be a relation of determining correspondence. Thus our main task will be to state what these formal properties are. The reader will do well to keep his eye on Diagram II, p. 384, in which P is a whole with three primary parts, P_1^R, P_2^R, and P_3^R. The index R is introduced to make it plain that we are considering throughout a certain relation R of determining correspondence. In the diagram which was used to illustrate the example R would have been the relation of *being a perception of*, but it was not explicitly introduced into the symbols.

Let P be a particular, let α_1 be a group of particulars, and let R be a relation. Let the group α_2 be defined as the group whose members are all the particulars which have the relation R to any member of α_1. Let α_3 be defined as the group whose members are all the particulars which have the relation R to any member of α_2. And, in general, let α_{r+1} be defined as the group whose members are all the particulars which have the relation R to any member of α_r.

Now let us assume that the following propositions are true of P, α_1, and R.

(i) α_1 is a set of parts of P.

(ii) Every part of P which stands in the relation R to anything is a part of some member of α_1.

(iii) Anything to which a part of P stands in the relation R is either a member of α_1 or is a part of some member of α_1 and has R to something.

(iv) If α_r be any term of the series, and x be a member of α_r,

and y be a member of α_1, then there is one and only one part of y which has R to x.

(v) If x and y be different members of α_r, and z be a member of α_1, then the part of z which has R to x is different from the part of z which has R to y.

Before stating any further conditions I will deduce certain important consequences of the five conditions which have already been given.

(A) "The number of members of α_{r+1} is the product of the number of members of α_r by the number of members of α_1." For α_{r+1} consists of all particulars which have the relation R to any member of α_r. Let there be n_r members of α_r. Then by (iv) there is one and only one part of each member of α_1 which has R to any one member of α_r. By (i) no part of one member of α_1 can be a part of any other member of α_1. And by (v) to each different member of α_r a different part of any one member of α_1 has the relation R. Thus n_{r+1}, the total number of members of α_{r+1}, must be $n_1 . n_r$.

(B) "The number of members in any term α_r is n_1^r." This follows immediately from (A).

(C) "The series of α's is endless, and the number of members in each successive α continually increases." This follows from (B) and (i). For, since α_1 is a set of parts of P, n_1 cannot be less than 2.

(D) "If u be a member of α_{r+1}, then there is one and only one member of α_r to which u has the relation R." For, if u be a member of α_{r+1}, there is a member (say x) of α_r and a member (say y) of α_1, such that u is *the* part of y which has R to x. This follows from the definition of α_{r+1} and the propositions (i), (ii), and (iv). Now suppose, if possible, that u also had R to another member x' of α_r. Then u would also be *the* part of y which had R to x'. But by (v) it is impossible that the *same* part of y should have R to *different* members of α_r.

We can now continue to state the conditions.

(vi) Every member of α_r has one and only one set of parts whose members are members of α_{r+1}.

(vii) If x is a member of α_1, and y is a part of x and a member of α_{r+1}, and z is the member of α_r to which y has the rela-

tion R, then the parts of x which have R to the members of that set of parts of z which is contained in α_{r+1} constitute a set of parts of y.

Before stating any further conditions I will prove the following proposition.

(E) "The set of parts of y mentioned in Proposition (vii) is the *only* set of parts of y contained in α_{r+2}." For, by hypothesis, y is a member of α_{r+1}. Therefore by (vi) it has one and only one set of parts whose members are members of α_{r+2}. So the set of parts of y mentioned in (vii) must be *this* set of parts.

We can now state the remaining conditions.

(viii) If x is a member of α_1, then the parts of x which have R to the members of α_1 constitute a set of parts of x. (It follows, as in Proposition (E), that this is the *only* set of parts of x which is contained in α_2.)

(ix) Every member of α_1 has a sufficient description which is independent of reference to its parts.

2·21. *Illustration of the above Conditions by McTaggart's Example.* The nine conditions just formulated constitute the generalisation of McTaggart's example. Before going further I will translate them back into the special terms of the example. The result is as follows.

P is a society; α_1 is the group of minds $P_1, P_2, \ldots P_n$ which together constitute this society; R is the relation of *being a perception of*. Then

(i) The group whose members are the minds $P_1, P_2, \ldots P_n$ is a set of parts of the society P.

(ii) Every part of P which is a perception of anything is a part of one or other of these minds.

(iii) Anything of which a part of P is a perception is either one of these minds or is a perception in one of them.

(iv) If x be an rth-grade perception in any of these minds, and y be one of these minds, then there is one and only one part of y which is a perception of x.

(v) If x and y be different rth-grade perceptions, and z be one of these minds, then z's perception of x and z's perception of y are different parts of z.

(vi) Every rth-grade perception has one and only one set of parts whose members are $(r + 1)$th-grade perceptions.

(vii) If x is one of these minds, and y is an $(r + 1)$th-grade perception in x, and z is the rth-grade perception which is the object of y, then the parts of x which are perceptions of the members of that set of parts of z which are $(r + 1)$th-grade perceptions constitute a set of parts of y.

(viii) If x is one of these minds, then his perceptions of himself and of the rest of these minds constitute a set of parts of himself.

(ix) Each of these minds has a sufficient description which is independent of reference to its parts.

2·3. *Proof that the Conditions suffice.* We have already shown that, if the nine conditions formulated above hold, the α's form an endless series of groups whose members are all of them parts of P. We have also shown that each successive group has more members than its predecessors, so that we get to smaller and smaller parts of P without limit as we go down the series. It remains to show (*a*) that each α is a set of parts of P, and (*b*) that sufficient descriptions of every member of any α can be derived in accordance with a general rule from the sufficient descriptions of the members of α_1.

(*a*) This will be most easily seen by taking an example. Suppose for simplicity that α_1 has just two members P_1^R and P_2^R. Then the members of α_2 can be denoted by P_{11}^R, P_{12}^R, P_{21}^R, and P_{22}^R. Here P_{12}^R means "the part of P_1^R which has R to P_2^R". And similar meanings, *mutatis mutandis*, are to be attached to the other symbols.

We have shown in Proposition (B) that, when the number of members in α_1 is 2, the number in α_2 will be 2^2, i.e., 4. Now it follows from Proposition (viii) that these four members will divide into two groups, viz., $P_{11}^R \cdot P_{12}^R$ and $P_{21}^R \cdot P_{22}^R$. The first is a set of parts of P_1^R and the second is a set of parts of P_2^R. But P_1^R and P_2^R are a set of parts of P, by Proposition (i). Therefore the four members of α_2 constitute a set of parts of P.

Now consider the group α_3. By Proposition (B) this will contain 2^3, i.e., 8 members. They may be denoted by the following eight symbols, P_{111}^R, P_{112}^R, P_{121}^R, P_{122}^R, P_{211}^R, P_{212}^R, P_{221}^R,

and P^R_{222}. The symbol P^R_{121}, for example, means "that part of P^R_1 which has the relation R to that part of P^R_2 which has the relation R to P^R_1. The other symbols have similar meanings, *mutatis mutandis*. Now it follows from Proposition (vii) that these eight members of α_3 fall into four groups, viz., $P^R_{111} \cdot P^R_{112}$, $P^R_{121} \cdot P^R_{122}$, $P^R_{211} \cdot P^R_{212}$, and $P^R_{221} \cdot P^R_{222}$. The first is a set of parts of P^R_{11}, the second of P^R_{12}, the third of P^R_{21}, and the fourth of P^R_{22}. But we have already shown that these four are a set of parts of P. Therefore the eight members of α_3 are a set of parts of P.

It is evident that this reasoning is perfectly general. If α_{r+1} be any term in the series, the $n_1{}^{r+1}$ members of α_{r+1} will divide up into $n_1{}^r$ groups, each with n_1 members. Each of these groups will be a set of parts of one and only one member of α_r, and each different group will be a set of parts of a different member of α_r. It follows that, if the members of α_r be a set of parts of P, then the members of α_{r+1} will also be a set of parts of P. But by Proposition (i) the members of α_1 are a set of parts of P. Hence it follows by mathematical induction that *every* term in the series of α's is a set of parts of P. Thus our nine conditions secure an unending series of sequent sets of parts of P.

(*b*) It is also quite plain that any part of P which is a member of any term of such a series can be described sufficiently in terms of the sufficient descriptions of the members of α_1. Suppose, for example, that ϕ_1 is a sufficient description of P^R_1 and that ϕ_2 is a sufficient description of P^R_2. Then the part P^R_{212}, for example, would be sufficiently describable as follows. It would be that part of the only instance of ϕ_2 which has R to that part of the only instance of ϕ_1 which has R to the only instance of ϕ_2.

It is clear then that, if the nine conditions which we have stated hold, the hierarchy of α's will be a fundamental hierarchy, and every part of P will be able to be sufficiently described in terms of the sufficient descriptions of the members of α_1 and the relation R. Now, when these conditions are fulfilled, we say that R is a "Relation of Determining Correspondence for P with respect to α_1"; that α_1 is the "Set

of Primary Parts of P with respect to R"; that each of the other α's is a "Set of Secondary Parts of P with respect to R"; and that the members of α_2 are "First-grade Secondary Parts of P with respect to R", that the members of α_3 are "Second-grade Secondary Parts of P with respect to R", and so on.

*2·4. *Symbolic Statement of the Conditions.* For the benefit of those readers who find such things helpful or interesting I will translate the first eight of the conditions into the notation of *Principia Mathematica*, which is very well adapted for such purposes. I propose to denote the relation of *part to whole* by the letter Π, and the relation of *being a set of parts of* by the symbol Σ_π. All other symbols which occur, except P, R, and the α's, will be found in *Principia Mathematica*.

(i) $\alpha_1 \Sigma_\pi P$.

(ii) $\mathrm{D}`R \restriction (\overrightarrow{\Pi}`P) \subset \Pi``\alpha_1$.

(iii) $\mathrm{C}`R \restriction (\overrightarrow{\Pi}`P) \subset : \alpha_1 . \vee . \Pi``\alpha_1 \cap \mathrm{D}`R$.

(iv) $x \epsilon \alpha_r . y \epsilon \alpha_1 : \supset_{x,y,r} \mathrm{E}\,!\,[R \restriction (\overrightarrow{\Pi}`y)]`x$.

(v) $x, y \epsilon \alpha_r . z \epsilon \alpha_1 . x \neq y : \supset_{x,y,z,r} . [R \restriction (\overrightarrow{\Pi}`z)]`x \neq [R \restriction (\overrightarrow{\Pi}`z)]`y$.

(vi) $x \epsilon \alpha_r \supset_{x,r} \mathrm{E}\,!\,[\Sigma_\pi \restriction (\mathrm{Cl}`\alpha_{r+1})]`x$.

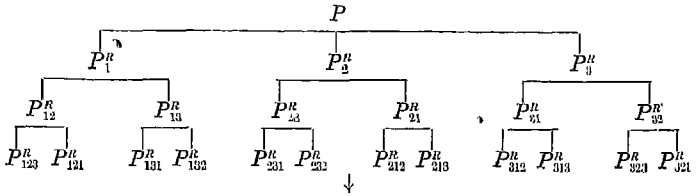
(vii) $x \epsilon \alpha_1 . y \epsilon \alpha_{r+1} \cap \overrightarrow{\Pi}`x : \supset_{x,y,r}$
$\{\overrightarrow{\Pi}`x \cap R``[\Sigma_\pi \restriction (\mathrm{Cl}`\alpha_{r+1})`\breve{R} (\restriction \alpha_r)`y]\}\ \Sigma_\pi y$.

(viii) $x \epsilon \alpha_1 \supset_x [\overrightarrow{\Pi}`x \cap R``\alpha_1]\ \Sigma_\pi x$.

2·5. *Relaxation of the Conditions.* In § 201 McTaggart mentions three respects in which the conditions laid down above might be relaxed without ceasing to give rise to a fundamental hierarchy.

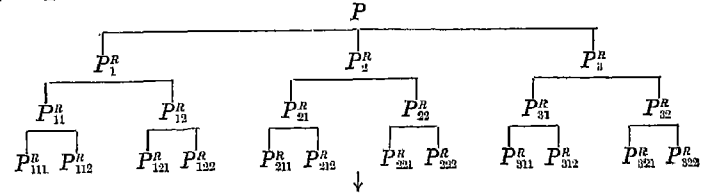
(*a*) Our conditions entail that each member of α_1 has in α_{r+1} *as many* parts as there are members of α_r. We do not need such a rapid increase in the population of successive α's as this. It is enough that each member of α_1 should have in α_2 parts corresponding to two or more members of α_1; that it should have in α_3 parts corresponding to the parts of these members in α_2; and so on. Suppose, for example, that α_1 consists of the three terms P_1^R, P_2^R, and P_3^R. Then the parts of P_1^R in α_2

might be P^R_{12} and P^R_{13}; those of P^R_2 in α_2 might be P^R_{23} and P^R_{21}; and those of P^R_3 in α_2 might be P^R_{31} and P^R_{32}. In α_3 the parts of P^R_1 might be P^R_{123}, P^R_{121}, P^R_{131}, and P^R_{132}; and so on. The diagram given below will make the situation quite clear.



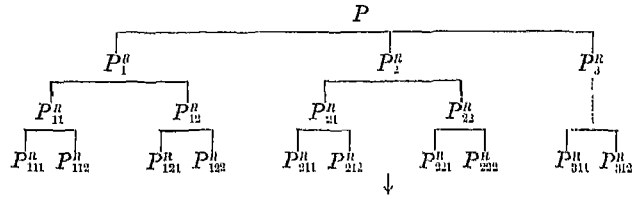
In such a case we call $P^R_2 . P^R_3$ the "Differentiating Group" of P^R_1. Similarly, $P^R_3 . P^R_1$ is the differentiating group of P^R_2, and $P^R_1 . P^R_2$ is the differentiating group of P^R_3. It will be noticed that in this example *no* member of α_1 is contained in its own differentiating group; whilst, with the original extremely rigid conditions, *every* member of α_1 was contained in its own differentiating group, since the whole of α_1 was the differentiating group of each member of it.

(*b*) The original conditions can be relaxed still further. In the last example we assumed that every member of α_1 is contained in the differentiating group of *some* member or other of α_1. Thus P^R_1 was a member of the differentiating group of P^R_2 and of the differentiating group of P^R_3, though it was not a member of its own differentiating group. And similar remarks apply, *mutatis mutandis*, to P^R_2 and to P^R_3. But it is quite possible that one or more of the members of α_1 should not be contained in the differentiating group of *any* member of α_1. Suppose, for example, that $P^R_1 . P^R_2$ were the differentiating group of P^R_1 and of P^R_2. Then it might also be the differentiating group of P^R_3. We should still get a fundamental hierarchy without P^R_3 being a member of any differentiating group. The following diagram will illustrate this situation.



In this case, it will be noticed, the suffix 3 never comes *last* in any symbol but P^R_3 itself.

(*c*) It is possible that, in the case of *some* but not all the members of α_1, the differentiating group should be neither α_1 itself nor any selection from α_1. Thus, for example, the differentiating group of P^R_1 and of P^R_2 might be the group $P^R_1 . P^R_2$, and the differentiating group of P^R_3 might be the group $P^R_{11} . P^R_{12}$, which is the set of parts of P^R_1 contained in α_2. The situation is illustrated by the following diagram.



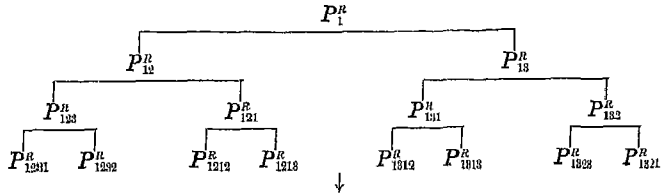
Here P^R_3 has no parts in α_2. It begins to have parts only in α_3. In α_3 P^R_1 has a set of four parts, and P^R_2 has a set of four parts, but P^R_3 has a set of only two parts.

2·6. *Final Account of Determining Correspondence.* We now understand what is meant by a "Relation of Determining Correspondence" and a "Determining Correspondence Hierarchy". If R is to be a relation of determining correspondence for P it is necessary and sufficient that these less rigid conditions should be fulfilled. It would be possible to reformulate our original conditions in the more elastic form, and thus to give a more general definition of "Determining Correspondence". But I do not think that it would be worth while to do so; for the general notion is quite clear from our original formulation and our subsequent explanations, and the more elastic conditions would probably be even more complicated to write down than the rigid ones.

It remains to discover the cash-value of McTaggart's statements about there being sufficient descriptions of the primary parts which "intrinsically determine" sufficient descriptions of all the members of all the sets of secondary parts. A typical, but extremely obscure, passage about this occurs on p. 214 of the *Nature of Existence* at the beginning of § 202. In

§ 255 in the middle of p. 269 an important elucidatory remark is thrown out in connexion with another topic. Translated into our terminology, the remark comes to this: "Any sufficient description of a member P_r^R of α_1 which is to determine intrinsically sufficient descriptions of all the parts of P_r^R in the determining correspondence hierarchy must include in it sufficient descriptions of every member of α_1 whose suffix is going to appear in any symbol of any part of P_r^R that falls into the hierarchy".

We can now put clearly what McTaggart has stated so obscurely in § 202. It will be best to begin with a simple concrete example. Let us suppose that the differentiating group of P_1^R is $P_2^R . P_3^R$, that the differentiating group of P_2^R is $P_3^R . P_1^R$, that the differentiating group of P_3^R is $P_1^R . P_2^R$, and that the relation of determining correspondence is R throughout. This gives us a general rule for writing down the symbols of all the parts of P_1^R in the determining correspondence hierarchy. It also gives us a rule for writing down the symbols of all parts of P_2^R and of all parts of P_3^R in the hierarchy. Let us confine our attention to P_1^R. The parts of this in the hierarchy will be symbolised as follows.



The rule is:

(i) that the first suffix in every symbol is a 1;

(ii) that a 1, if followed by anything, is always immediately followed by a 2 or a 3;

(iii) that a 2, if followed by anything, is always immediately followed by a 3 or a 1;

(iv) that a 3, if followed by anything, is always immediately followed by a 1 or a 2; and

(v) that the symbols of the set of parts in α_{r+1} of any member of α_r are obtained by taking the symbol of this

member of α_r and adding one more suffix to the end of them in accordance with clauses (ii), (iii), and (iv). (Thus, for example, P^R_{121} gives P^R_{1212} and P^R_{1213}.)

Now, since R is a relation of determining correspondence, each of the symbols thus obtained will symbolise one and only one particular. And, corresponding to each symbol, there will be an exclusive description of the particular which it symbolises. Thus, for example, what is symbolised by P^R_{12} will have the characteristic of being a part of P^R_1 and having R to P^R_2. And nothing else will have this characteristic. Similarly, what is symbolised by P^R_{131} will have the characteristic of being a part of P^R_1 and having R to that part of P^R_3 which has R to P^R_1. And nothing else will have this characteristic. Suppose now that ϕ_1, ϕ_2, and ϕ_3 are any three characteristics, such that ϕ_1 belongs to P^R_1 and to it alone, ϕ_2 belongs to P^R_2 and to it alone, and ϕ_3 belongs to P^R_3 and to it alone. Then it is clear that the exclusive descriptions can all be replaced by sufficient descriptions. Thus, for example, the characteristic of "being a part of the only instance of ϕ_1 and having R to that part of the only instance of ϕ_3 which has R to the only instance of ϕ_1" will belong to one and only one particular, viz., P^R_{131}. And it will be a sufficient description of that particular.

What we require, in general, is then (i) a sufficient description of P^R_1 itself; (ii) a sufficient description of each member of P^R_1's differentiating group; (iii) a sufficient description of each member of the differentiating group of each member of P^R_1's differentiating group; ... And so on, until these sufficient descriptions begin to repeat themselves, as they inevitably will after a finite number of steps if the number of members of α_1 be finite. In our example three and only three sufficient descriptions were needed. For the differentiating group of P^R_1 was $P^R_2 . P^R_3$; that of P^R_2 was $P^R_3 . P^R_1$; and that of P^R_3 was $P^R_1 . P^R_2$. From this information, together with a knowledge of the relation R of determining correspondence, we can derive, in accordance with a uniform principle, sufficient descriptions of the parts of P^R_1 in α_2, in α_3, and so on without end. In our method we do this by first inferring a general rule for constructing the symbols of these parts; and then translating any

given symbol into a sufficient description of the part symbolised, in accordance with another general rule. The rule for translation is the following. "$P^R_{abc\ldots w}$ symbolises the term which is the only instance of the characteristic of being a part of P^R_a and having R to that part of P^R_b which has R to ... which has R to P^R_w." In this we then substitute the sufficient descriptions ϕ_a, ϕ_b, ... ϕ_w, etc., of P^R_a, P^R_b, ... P^R_w, etc., respectively.

2·61. *Definitions of some Technical Terms.* At this point it will be as well to define certain important technical terms, some of which have already been introduced and exemplified. McTaggart does this on p. 202 of the *Nature of Existence.*

(i) *Primary Parts.* If R be a relation of determining correspondence for P with respect to α_1, the members of α_1 will be called "The Primary Parts of P with respect to R". They are in fact the set of parts of P such that (*a*) every part of P which has R to anything is a part of one or other of them; (*b*) everything to which any part of P has the relation R is either one of them, or is a part of one of them and has R to something.

(ii) *Primary Wholes.* If P be a particular such that (*a*) every part of P can be sufficiently described without introducing a relation of determining correspondence to anything but parts of P; (*b*) every particular which is not P or a part of P can be sufficiently described without introducing a relation of determining correspondence to any part of P; and (*c*) if any symbol for a part of P were substituted for "P" wherever that letter occurs in (*a*) and (*b*), one or other of these statements would be false; then P is called a "Primary Whole". It is evident that a primary whole is a system which is completely self-contained from the standpoint of determining correspondence.

(iii) *Super-primary Wholes.* It is conceivable that there might be several primary wholes. If so, any whole which contained a primary whole as a part would be called a "Super-primary Whole". If there be more than one primary whole, the universe must be a super-primary whole.

(iv) *Secondary Parts.* Any member of any α which is

subsequent to α_1 will be called a "Secondary Part of P with respect to R". Members of α_2 will be called "Secondary Parts of the First Grade"; and, in general, members of α_{r+1} will be called "Secondary Parts of the rth Grade".

(v) *Determinants.* It will be convenient to speak of $P^R_{bc\ \ w}$ as the "Direct Determinant" of $P^R_{abc\ \ w}$. We shall speak of P^R_w as the "Final Determinant" of $P^R_{abc\ \ u}$.

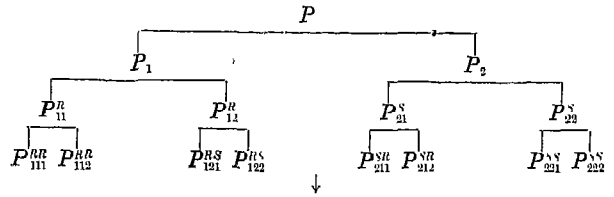
2·62. *Some further General Remarks.* There are a few other points which McTaggart raises in Chap. XXVI of the *Nature of Existence*. These may conveniently be disposed of here.

(i) He holds that there must be a stage in the hierarchy of parts of any particular after which the parts have *no other* characteristics beside those which are entailed by their positions in the hierarchy. His only reason is the old difficulty which he raised in § 190. He thinks it incredible that there should be innumerable different and quite independent qualities distributed on no general principle among the endless series of groups of particulars which constitute a determining correspondence hierarchy.

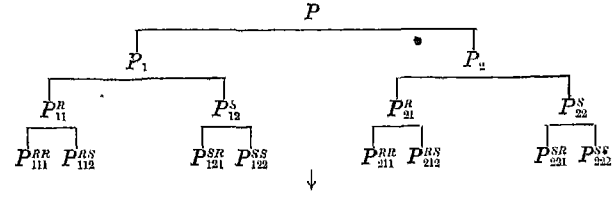
It seems to me that, even if this be granted, McTaggart's conclusion does not follow. For there is *now* no need for all these qualities to be different. The qualitative differences required by the Dissimilarity of the Diverse have now been provided by determining correspondence. Therefore many different terms in a determining correspondence hierarchy might share in a quality not entailed by their position in the hierarchy. And so some such qualities might be present at every stage without being infinitely numerous and without leading to the kind of situation which McTaggart rejects in § 190 as incredible.

(ii) McTaggart points out in §§ 226–8 that we cannot prove *a priori* that there is only one relation which answers to the conditions of a relation of determining correspondence. In the first place, we cannot exclude on *a priori* grounds the possibility that there might be several different primary wholes, P, Q, etc., such that the determining correspondence relation for P was R, that for Q was S, and so on. Secondly, even if there be only one primary whole P, there is no reason

why it should not have two or more different sets of primary parts α_1, β_1, etc., associated respectively with the different determining correspondence relations R, S, etc. Lastly, even if there were only one primary whole P and it had only one set of primary parts α_1, the situation illustrated in the following diagram might exist.



Here the parts of P_1 always stand in the relation R to those parts of P which are their direct determinants, whilst the parts of P_2 always stand in the relation S to the parts of P which are their direct determinants. Thus, for example, P^{SR}_{212} is that part of P_2 which stands in the relation S to that part of P_1 which stands in the relation R to P_2. Other examples where there is one set of primary parts and more than one determining correspondence relation could easily be devised. The only limitation is that we must not have new relations coming in as we go downwards into the subsequent ramifications of any term. For, in that case, the descriptions of the primary parts would not generate descriptions of all the members of all the later terms in accordance with a single general principle, which is the essential requirement of determining correspondence. Another possibility is illustrated in the diagram below.



The rule here is that any part of P which has P_1 or a part of P_1 as its direct determinant stands in the relation R to its

direct determinant, whilst any part of P which has P_2 or a part of P_2 as its direct determinant stands in the relation S to its direct determinant.

3. Summary of the Position.

In this chapter it has been necessary to go into a great deal of complicated detail, and the reader may well be excused if, in the effort to master it, he should for the moment have lost sight of the main thread of McTaggart's argument. I shall therefore end the chapter by summing up the argument and the criticisms which have been made on it.

(i) McTaggart thought he could show that the endless divisibility of all particulars can be reconciled with the principle that every particular has a sufficient description, if and only if a certain general condition is *somehow or other* fulfilled. Since he regarded those two principles about particulars as necessary truths, and believed his reasoning to be demonstrative, he felt justified in assuming that this general condition *is* somehow or other fulfilled. This is the position from which his discussion of the Principle of Determining Correspondence starts. We have seen no reason to accept his two premises, and we have seen very strong reasons for *rejecting his argument; but in this chapter we grant him his* conclusion as an hypothesis, in order to continue the discussion.

(ii) In order that the general condition should be fulfilled it is enough that two other conditions should be fulfilled; viz., (*a*) that the universe should either *be* a Fundamental Hierarchy or have a set of parts each of which is a Fundamental Hierarchy, and (*b*) that every particular which is not a member of any term in any fundamental hierarchy should have a set of parts each of which is a member of some term of some fundamental hierarchy. McTaggart does not discuss the second of these conditions, but confines his attention to the first.

(iii) McTaggart can think of one and only one way in which a fundamental hierarchy could be constituted. If a particular P is to have parts within parts without end, which

fall into a fundamental hierarchy, there must be a set α_1 of parts of P, and there must be a relation R, answering to a certain complicated set of conditions which we have illustrated, elicited, and formulated. Such a relation will be a relation of determining correspondence for P with respect to α_1; and α_1 will be the set of primary parts of P with respect to the determining correspondence relation R. So McTaggart feels justified in concluding that the universe is a Determining Correspondence System; i.e., that it either *is* a determining correspondence hierarchy or has a set of parts each of which is such a hierarchy.

Now, as regards this point, we have seen that a determining correspondence hierarchy *would* fulfil the condition of being a fundamental hierarchy. But, even if neither McTaggart nor we could have thought of any other way in which this condition could be fulfilled, it would have been extremely rash to base on this negative fact any very confident belief that the condition *cannot* be fulfilled in any other way, and that the universe *must* therefore be a determining correspondence system. Yet this is what McTaggart does. And the situation is even worse than this. For we have been able to show by means of the geometrical illustration in Section 1·1 of the present chapter that there *can* be a fundamental hierarchy which is *not* a determining correspondence hierarchy. In that example two relations are used, viz., that of *being half of* and that of being *co-terminous with*. Neither of these answers to the definition of determining correspondence relations, and a comparison of the two methods will show clearly that they are different. Thus McTaggart staked the validity of the rest of his argument on a guess which was, in any case, rash, and which has turned out to be demonstrably mistaken.

(iv) McTaggart could think of only one illustration of a determining correspondence relation and of a determining correspondence hierarchy. The relation is that of *being a perception of*, on certain very special views as to the nature and possible range of perception. And the hierarchy is a society of minds, of a very peculiar kind, and their perceptions of themselves, of each other, and of their own and each other's

perceptions. This negative fact is, as we shall see in Vol. II of this work, McTaggart's only ground for Mentalism.

As regards this point, I must admit that I have not been able to think of any alternative illustration of a determining correspondence hierarchy. There are, however, three remarks which should be made here. (*a*) I feel no confidence that a geometrical illustration could not be devised by a person who had something more than my very sketchy acquaintance with Projective Geometry. I will at any rate venture to throw out the suggestion that the Quadrilateral Construction, by means of which non-metrical co-ordinates are assigned to all the points on a straight line, might furnish a method by which an expert geometer could do the trick. But this may well be one of the follies of partially instructed ignorance. (*b*) Even if this hope be vain, we must remember that McTaggart admittedly can provide an illustration from the mental realm *only* by ascribing to minds and their perceptions properties which they seem to themselves and to each other *not* to possess in this life. If one were allowed to play similar, and not more fantastic, tricks with matter and with space, might it not be possible to provide a non-mental illustration of a determining correspondence hierarchy? If a philosopher, in other respects like McTaggart and gifted with equal ingenuity, had wanted to be a materialist instead of wanting to be a mentalist, I strongly suspect that he could have tried this alternative with equally satisfactory results. (*c*) Even if none but mental illustrations of determining correspondence could be devised, McTaggart's mentalism would still remain baseless. For it depends on the *two* premises that a fundamental hierarchy must be a determining correspondence hierarchy and that only minds and their relations can fulfil the conditions for a determining correspondence hierarchy. Now we have seen that the first premise is false. And the illustration, by means of which its falsity was shown, was an instance of a spatially extended particular.

CHAPTER XXII

DETERMINING CORRESPONDENCE AND UNITIES WITHIN THE UNIVERSE

We have now completed the generalisation of the notion of Determining Correspondence. It remains to be seen whether the conclusion that the universe must consist of one or more primary wholes, each of which is a hierarchy ordered by one or more relations of determining correspondence, throws any light on certain questions about the types of unity within the universe which had to be left unanswered at the end of Chap. XVIII of this work. We will now consider the bearing of this conclusion on (1) the occurrence and the range of causal laws, (2) the occurrence of groups of particulars with exclusive common qualities, and (3) unities of composition and unities of manifestation.

1. Determining Correspondence and Causal Laws.

McTaggart discusses the connexion between determining correspondence and causation in Chaps. XXV and XXIX of the *Nature of Existence*. The only relevant part of Chap. XXV for the present purpose is §§ 216 and 217. McTaggart's statements in § 216 are extremely obscure. He says that, with his definition of "causation", determining correspondence is a causal relation. He also says that, in establishing the occurrence of determining correspondence, we have demonstrated not only that there are causal laws but also that there are causal laws of a certain specific kind.

The truth, which he presumably means to express by these obscure statements, is the following. Wherever there is determining correspondence there will be causation, in McTaggart's sense, viz., intrinsic determination of certain existent characteristics by certain other existent characteristics. This is quite evident from the conditions which a relation has to fulfil if it is to count as a relation of determining correspondence. (Cf., e.g., Condition (iv) in Chap. XXI of this work.) If, then, it has been

proved that there must be determining correspondence, and that every particular either is a term in a determining-correspondence hierarchy or has a set of parts all of which are terms in such a hierarchy, it has been proved that there are causal laws, in McTaggart's sense of the word, and that their range is very extensive.

McTaggart goes into greater detail in Chap. XXIX. There are, he says, three kinds of law which are of no great interest from the point of view of ordinary knowledge. (i) There are laws in which the characteristics concerned have no application; e.g., the law that all phoenixes are oviparous. (ii) There are laws in which the characteristics concerned apply to one and only one particular. (iii) There are laws in which the characteristics concerned apply to every particular; e.g., the law that every particular has parts which are themselves particulars. The laws which are of most interest to us in ordinary life, and without a belief in which nothing like our system of alleged knowledge would be possible, deal with characteristics that apply to more than one and less than all particulars. McTaggart calls such laws "Exclusive Laws within the Universe" (§ 258).

Can we show that there are such laws? It will suffice to establish at least one law and to show that it is of this kind. Now we can do this without appealing to any empirical premise except the absolutely certain empirical premise that there is at least one existent. We know that, if there is an existent, there must be a determining-correspondence hierarchy. Any general rule which applies to more than one and less than all the particulars which fall into any determining-correspondence hierarchy will be an exclusive law within the universe. And there always will be such rules in connexion with any determining-correspondence hierarchy. This can be shown by giving examples.

McTaggart gives an example of such a law in § 259. His statement is not easy to grasp. When put into our notation, I think it amounts to the following. It is a law that if x be a secondary part in any determining-correspondence hierarchy, and if y and z be any two parts of x which fall into the same

hierarchy, then the relation of y to its direct determinant will be the same as the relation of z to *its* direct determinant. For the relation in both cases will be the same as that of x to *its* direct determinant. The proof of this law may be put as follows. Since x is a secondary part in a determining-correspondence hierarchy, it will be a particular which would be symbolised in our notation by some symbol of the form $P^R_{ab\ \ h}$. Since y and z are parts of x which fall into the same hierarchy, they will be particulars which would be symbolised in our notation by symbols of the form $P^R_{ab\ \ hk\ \ m}$ and $P^R_{ab\ \ hs\ \ w}$. For, as we saw, *new* relations of terms to their direct determinants cannot be introduced when once we have started to go downwards into the subsequent ramifications of a term which itself stands in a relation R of determining correspondence to its direct determinant. For, otherwise, we should not be provided with a uniform method of producing sufficient descriptions of parts within parts of this term without end; and that is the whole object of determining correspondence. The notation makes it perfectly clear that the relation of y to its direct determinant will be R. This is also the relation of z to *its* direct determinant, as the notation plainly shows. Thus there is no doubt that the general law mentioned by McTaggart does hold. Now it is certain that it applies to *more than one* particular. For there are innumerable terms in any determining-correspondence hierarchy which are secondary parts, and each of these has innumerable pairs of parts which fall somewhere in the same hierarchy. It is equally certain that the law does not apply to *all* particulars. For in any determining-correspondence hierarchy there are terms which do not have the characteristics with which the law is concerned. For example, there are primary parts, and there are secondary parts of the first grade. Now the x mentioned in the law could not be a primary part, since it would then have no determinant but would be symbolised by a symbol with a single suffix, e.g., P_a. And the y and z mentioned in the law could not be either primary parts or secondary parts of the first grade. For they are parts of x, and x is itself a secondary part. Thus the law in question is an exclusive law in the universe.

Such a law is, however, extremely abstract. The characteristics which it connects are all of them such as would occur in any conceivable universe, e.g., particularity, the relation of whole and part, identity of relation, and so on. If we like to call these "categorial characteristics", we can say that so far the only kind of exclusive laws which have been proved to occur within the universe are laws of the determination of categorial characteristics by categorial characteristics. Such laws might be called *a priori* in a triple sense. (i) The concepts of categorial characteristics would often be called "*a priori* concepts", and contrasted with the concepts of such characteristics as redness or phoenixhood, which would be called "empirical concepts". So these laws are *a priori*, in the sense that they are about the connexions of characteristics whose concepts are *a priori*. (ii) These laws are *a priori* also in the quite different sense that they can be seen to be necessary, if not directly, at least by deduction from premises which can be directly seen to be necessary. Of course a law might be *a priori* in this sense though it was about characteristics whose concepts are empirical, and therefore was not an *a priori* law in the first sense. The law that anything that had shape would have extension is *a priori* in this second sense. But it is not so in the first sense, since the concepts of shape and extension are empirical. (iii) These laws are *a priori* in the further sense that we can deduce from self-evident premises that they apply to more than one and less than all the particulars in the universe. It seems conceivable that a law might be *a priori* in the first and second senses without being so in this third sense. And it is quite certain that a law might be *a priori* in the second sense without being so in the third. I can see that anything that was an equilateral triangle would necessarily be equiangular. But I can neither see directly nor prove from self-evident premises that there are any or several equilateral triangles. It seems to me that McTaggart does not adequately recognise these distinctions in the discussion on which he embarks in §§ 261–3.

The essential point of these sections is the following. If anything like our ordinary system of alleged knowledge is to

be valid, there must be exclusive laws in the universe which are not *a priori* in either the first or the second sense. (i) There must be laws about non-categorial characteristics, such as colour, motion, etc., whose concepts are empirical and not *a priori*. (ii) Although, on McTaggart's view, any such law which is true must *in fact* be necessary, in precisely the same sense in which the law that shape involves extension is so, yet there must be many which no human being can either see directly to be necessary or infer from premises which are self-evident to him. The question is whether what we have proved about the existent enables us to show that there must be laws which answer to these two further conditions beside applying to more than one and less than all particulars.

In §§ 261 and 263 McTaggart answers this question in the affirmative. Putting what he says at the bottom of p. 276 and the top of p. 277 into our terminology, it comes to the following. Let x be any particular which would be symbolised in our notation by a symbol of the form P^R_{stu}. Then any part of x which falls into the same determining-correspondence hierarchy as x will stand in the relation R to some part of the direct determinant of x, i.e., to some part of that particular which would be symbolised in our notation by P^R_{tu}. For any such part of x would be symbolised in our notation by a symbol of the form $P^R_{stuv\ldots}$. It would therefore have R to something which would be symbolised by $P^R_{tuv\ldots}$. And anything thus symbolised would be a part of that particular which is symbolised by P^R_{tu}. Now, although we know that there must be *some* relation in the universe answering to the conditions of a relation of determining correspondence, we do not know without special experience *what* in particular this relation will be. Let us suppose that in fact it is the relation of "being a perception of". Again, although we know that there must be particulars which could be symbolised by symbols of the form P^R_{stu}, we cannot tell without experience whether a given particular A could be so symbolised. Nor could we tell without special experience whether a certain other particular B was or was not the particular P^R_{tu} which is

the direct determinant of the particular whose symbol is P^R_{stu}. Let us suppose that in fact A is such that it can be symbolised by P^R_{stu} and B is such that it can be symbolised by P^R_{tu}. These are facts which could be known only by special experience. But, granted that they are facts, the very abstract law which we have deduced above will take the specific form "Any part of A which falls into the same hierarchy as A will be a perception of some part of B".

Now this is a law which applies to more than one and less than all of the particulars that there are. It contains terms, such as perception, whose concepts are not *a priori*. And, even if it be true, it would not be self-evident nor deducible from self-evident premises. For we could learn only by special experience that A is a secondary part of the second grade in a determining-correspondence hierarchy, although we know without special experience that there must be *some* particulars which have this property. Similarly, we could learn only by special experience that B was the direct determinant of A, though we know without special experience that, if A be a secondary part, there must be *some* particular which is its direct determinant. Thus we can know *a priori* that there must be laws of a certain general form, but we cannot know any particular law of this form without special experience. That is, we can know *a priori* that there must be laws which we cannot know *a priori*.

Here again it is important to bear in mind the several senses in which a law can be *a priori*. McTaggart's argument shows that, if we accept his doctrine of determining correspondence, we can prove that there must be laws which are not *a priori* in our first sense, i.e., laws which are about characteristics that can be known to us only by perceiving instances of them. The argument does not seem to me to prove that there must be laws which are not *a priori* in our second sense, i.e., which are neither self-evident nor deducible from self-evident premises. We must remember that, for McTaggart, every law which is true at all asserts a connexion between characteristics which is *in fact* necessary. There is therefore no reason in principle why it should not be seen to be necessary by an acute enough

intellect. All that McTaggart has shown is that we can deduce from the principle of determining correspondence that there must be laws which cannot individually be deduced from that principle. This leaves it quite possible that all such laws might be self-evident when experience had made us acquainted with the characteristics which they are about.

If McTaggart had proved what he thought he had, the result would have been a very important consequence of the principle of determining correspondence. At first sight, indeed, it looks even more important than it really is. For it seems to supply the missing premise which is needed if induction is to be justified. We have seen that, if induction is to give any assignable probability to any alleged law, we must be able to know, apart from induction, that there are laws in the universe of the kind which could be established only by induction. If McTaggart were right in the argument which we have just been discussing, the principle of determining correspondence would guarantee this minimum necessary condition without which induction is helpless. For, if we admit the principle and McTaggart's inferences from it, we must admit that we know, apart from induction, that there are in the universe an infinite number of laws of a kind which could be established only by induction. We shall be wise, however, to moderate our transports; for, as McTaggart points out in §§ 269 and 270, these consequences of the principle do not really give much help to induction.

The reason is as follows. The only laws of the required kind which we can show, without appeal to induction, to be present in the universe are laws about relations of determining correspondence and about qualities which depend on such relations. Now the relations and qualities which figure in the laws of science and daily life are quite certainly not of this kind. It is, of course, possible that the latter relations and qualities are so connected with the former that the laws about the former entail laws about the latter. But, unless this can be shown, the consequences of the principle of determining correspondence give no help to induction as used in establishing the laws of daily life and science. And there seems no prospect of

showing that any such connexion exists between the two kinds of relations and qualities.

2. Determining Correspondence and Exclusive Common Qualities.

We know empirically that there are some groups within the universe which have exclusive common qualities of a non-trivial kind, i.e., qualities which are not contained in the denotation of the group, which are not infinitely complex, and which belong to every member of the group and to nothing that is not a member of it. But, apart from the principle of determining correspondence, we know nothing about the frequency or importance of such groups, nor have we any *a priori* knowledge about the nature of any non-trivial exclusive common quality. (In the present discussion I shall henceforth confine the name "exclusive common qualities" to those which are not trivial, in the sense explained above.)

With the acceptance of the principle of determining correspondence the situation is profoundly changed, for it implies that there is at least one natural and intrinsic system of classification within the universe. In the first place, we know that the universe either is one primary whole, or has a set of parts each of which is a primary whole. Let us suppose that there are in fact two primary wholes, P and Q. Then the property of being a primary whole is an exclusive common property in this group. Next, each primary whole will have a set of primary parts with respect to some relation of determining correspondence, which may or may not be the same for all the primary wholes. Let us suppose that P has a set of primary parts, P_1 and P_2, and that Q has a set of primary parts, Q_1, Q_2, and Q_3. The property of being a primary part of P will be an exclusive common property in the group whose members are P_1 and P_2. The property of being a primary part of Q will be an exclusive common property in the group whose members are Q_1, Q_2, and Q_3. We come next to secondary parts of the first grade. The property of being a secondary part of P_1 of the first grade will be an exclusive common property in the group whose members we should symbolise by

P_{11} and P_{12}. And so on without end. McTaggart calls this kind of system of classification a "Fundamental System" (*Nature of Existence*, § 248).

A fundamental system does not, of course, contain every particular in the universe. For example, none of the classes in our example will contain the compound particular $Q_1 . Q_2$ or the compound particular $P_{12} . Q_{123}$. And both these are particulars in the universe. But any particular which is not contained in any of the divisions of a fundamental system will have a set of parts each of which is contained in some division or other of that system.

A system of the kind which we have been describing is "fundamental", as compared with all other systems of classification, for the following reasons. (i) If there is a universe at all, there must be determining correspondence in order to avoid the contradiction which would otherwise be entailed by the fact of endless divisibility. And, if there be determining correspondence, there will necessarily be a system of classification of the kind which we have been discussing. (ii) This is the only system of classification of which we *know* that it extends over the whole universe, in the sense that every particular either falls integrally into one of its divisions or else has a set of parts each of which falls into one or other of its divisions. (iii) In consequence of this it is the only system which stands in an assignable relationship to every division in every possible system of classification. For, if we consider the content of any division in any other system of classification, this will have a set of parts each of which occupies some definite class in any fundamental system. (iv) In a fundamental system the content of each division is always still further subdivided. There are no *infimae species*, as in other systems of classification. (v) The principle of subdivision at each stage is given by a general rule; whereas in other systems a new principle is introduced at each new stage without any principle to determine it, as when books are divided first by subjects, then books on the same subject are divided by language, and so on.

It is, of course, possible that there may be several different

relations of determining correspondence, R, S, T, etc., each of which extends over the whole universe. If so, there will be as many different and mutually independent fundamental systems of classification. But they will be compatible with each other; and each will have all the properties of a fundamental system, and therefore all the advantages which we have enumerated over non-fundamental systems.

Other systems might be regarded as more or less fundamental in proportion as they departed less or more from a fundamental system. Departure from a fundamental system would consist in classing together things which fell into different classes of a fundamental system, or classing apart things which fell into a single class of a fundamental system. McTaggart points out in § 251 that this criterion would be of no practical value in testing a proposed classification unless we knew the positions in some fundamental system of those particulars (e.g., plants or animals) which the classification to be tested seeks to arrange. Again, some classifications which depart very far from a fundamental system might be much more useful to us than any that approach closely to such a system. Lastly, we might be so situated that no classification of perceptible objects that we could possibly make could approximate to a fundamental system. Suppose, for example, that we are confined within a single primary whole, and that the primary parts of this are all too small to be separately perceived by us. Then all observable objects would necessarily be compound particulars which fall into no class in the fundamental system. And so any classification that we could possibly make of them would necessarily cut across the divisions of the fundamental system.

In Chap. XXVII, §§ 238–41, of the *Nature of Existence* McTaggart points out that the particulars which fall into a fundamental system can be divided in four different ways into mutually exclusive and collectively exhaustive divisions, each of which is marked off by an exclusive common quality.

(i) They can be divided into Primary Wholes, Primary Parts, and Secondary Parts. The last-mentioned class can

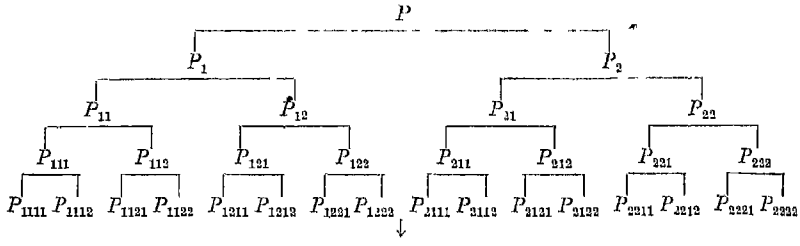
then be subdivided into First-grade Secondary Parts, Second-grade Secondary Parts, and so on without end.

(ii) The primary parts could be subdivided by classing together all those which fall into any one primary whole, and separating those which fall into different primary wholes. Then the first-grade secondary parts could be subdivided by classing together all those which fall into any one primary part, and separating those which fall into different primary parts. The second-grade secondary parts could be subdivided on a similar principle, and so on without end.

(iii) We might class together *all* terms in a fundamental system which were parts of any one primary whole, and separate those which fall into different primary wholes.

(iv) There is another way of subdividing secondary parts, which needs rather more explanation. Every secondary part has a direct determinant. If x be a first-grade secondary part, its direct determinant will be one of the primary parts. If x be a second-grade secondary part, its direct determinant will be a secondary part of the first grade, say y. And so y will have a direct determinant, say z, which will be one of the primary parts. In that case we will call z the "Final Determinant" of x. It is clear that every secondary part, no matter what its grade may be, will have one and only one final determinant, and that this will always be one of the primary parts. We can therefore class together all secondary parts, of whatever grade, which have the same final determinant, and we can separate those which have different final determinants. Now consider, for example, the class of secondary parts which all have a certain primary part z as their final determinant. This class will be infinitely numerous. It can be first subdivided into those of the first grade and the rest. The rest can then be subdivided according to their *penultimate* determinants. All those with the same penultimate determinant will be classed together, all those with different penultimate determinants will be separated. Any of the classes thus reached can then be subdivided on the same general principles as before, and so on without end. The following illustrative diagrams will make the method quite clear.

For simplicity we will take a single primary whole P with the two primary parts P_1 and P_2. The determining-correspondence hierarchy is then represented by the diagram given below.



Now let us use the symbol K_{rst} to represent the class composed of all those members of this hierarchy whose symbols have complex suffices consisting of a series ending up with the suffices r, s, and t, in that order. Then

K_1 is the class $\{P_{11}P_{21};\ P_{111}P_{121}P_{211}P_{221};\ P_{1111}P_{1121}P_{1211}P_{1221}P_{2111}P_{2121}P_{2211}P_{2221};\ \ldots\}$,

K_2 is the class $\{P_{12}P_{22};\ P_{112}P_{122}P_{212}P_{222};\ P_{1112}P_{1122}P_{1212}P_{1222}P_{2112}P_{2122}P_{2212}P_{2222};\ \ldots\}$,

K_{11} is the class $\{P_{111}P_{211};\ P_{1111}P_{1211}P_{2111}P_{2211};\ \ldots\}$,

K_{12} is the class $\{P_{112}P_{212};\ P_{1112}P_{1212}P_{2112}P_{2212};\ \ldots\}$,

K_{21} is the class $\{P_{121}P_{221};\ P_{1121}P_{1221}P_{2121}P_{2221};\ \ldots\}$,

K_{111} is the class $\{P_{1111}P_{2111};\ \ldots\}$,

and so on.

Each of these classes has an infinite number of members, and there is an infinite number of such classes in connexion with any determining-correspondence hierarchy. It is evident (*a*) that K's on the same level are mutually exclusive, e.g., K_{11}, K_{12}, K_{21}, and K_{22} have no members in common. (*b*) K_1 and K_2 between them contain all the secondary parts of every grade in the hierarchy. (*c*) The three classes K_{11}, K_{21}, and $\{P_{11}P_{21}\}$ constitute a collectively exhaustive and mutually exclusive subdivision of the class K_1. Similarly, the three classes K_{12}, K_{22}, and $\{P_{12}P_{22}\}$ constitute a collectively exhaustive and mutually exclusive subdivision of the class K_2. (*d*) The three classes K_{111}, K_{211}, and

$P_{111} P_{211}\}$ constitute a collectively exhaustive and mutually exclusive subdivision of the class $K_{\ldots 11}$. And so on. The principles of this method of subdivision should now be quite clear.

2·1. *External and Internal Particulars.* In §§ 242 and 243 McTaggart considers the classification of particulars which do not fall integrally into any division of a fundamental system. He suggests in § 242 that they might be called "External", whilst particulars which do fall integrally into one of the divisions of a fundamental system might be called "Internal".

Now all external particulars can be classified in the following way. We know that every external particular has a set of parts each of which is an internal particular. It will, of course, have infinitely many such sets of parts. It is plain that, amongst its infinitely many sets of parts, there will be some which consist of internal particulars that are all at the same grade in the fundamental system. For let E be any external particular, and let it have a set of parts which are internal particulars of different grades, e.g., P_1, P_{23}, and P_{321}. Then P_1 will have a set of second-grade secondary parts P_{111}, P_{112}, etc., P_{23} will also have a set of parts of the second grade, P_{231}, P_{232}, P_{233}. And these, together with P_{321}, will be a set of parts of E which are all internal particulars and are all secondary parts of the second grade. Now suppose that every set of internal parts of a certain external particular E contains a member which is of at least the rth grade. And suppose that there is at least one set of internal parts of E which contains no member whose grade exceeds r. Then E must have a set of internal parts which are all of the rth grade, and it has no set of internal parts whose grade is less than r. We can then speak of E as an "external particular of the rth order". Now this evidently gives us a principle for classifying all external particulars. The first class will be those which have a set of internal parts all of which are primary wholes. The second class will be those which have not such a set of internal parts as this, but which have a set of internal parts which are all primary parts. The third class will be those which have no set of parts that are primary wholes, and

have no set of parts that are primary parts, but which have a set of internal parts all of which are secondary parts of the first grade. And so on.

There is another way in which some, though not all, external particulars could be classified. We could begin by grouping together all those external particulars whose internal parts fall into a single primary whole, and separating those whose internal parts fall into different primary wholes. This will not give an exhaustive classification, for there will be some external particulars which have parts in several primary wholes. Now consider the external particulars whose internal parts all fall into the primary whole. Some, but not all of them, will be such that all their internal parts fall within a single primary part P_r of P. Again, some, but not all, of these will be such that all their parts fall into a single first-grade secondary part of P, e.g., P_{rs}. And so on.

We now see that, if the principle of determining correspondence be granted, every particular, whether internal or external, is a member of some group in which there is a non-trivial exclusive common quality. For let X be any particular. Then it is either (1) an internal, or (2) an external, particular. If it is an internal particular, it must be either (1·1) a primary whole, or (1·2) a primary part, or (1·3) a secondary part. In either case it belongs *ipso facto* to a group in which there is a non-trivial exclusive common quality. For the properties of being a primary whole, or a primary part, or a secondary part, all belong to some things and not to all things. And they are not trivial properties of the groups which constitute their range of application. If X should be either a primary part or a secondary part, it will be a member of a group in which there is a further exclusive common quality. For it will have the characteristic of being one of the primary parts, or one of the secondary parts, of *so-and-so*. And this is a non-trivial characteristic which belongs to some but not all things. Lastly, if X should be a secondary part, it will belong to a group in which there is another exclusive common quality beside the two that have already been mentioned. For X will then have the characteristic of standing in

a certain relation of determining correspondence to a certain particular which is its direct determinant. This again is a non-trivial characteristic which belongs to some and not to all things.

Suppose now (2) that X is an external particular. Then we have seen that it must belong to a group in which there is an exclusive common quality of the form: "having a set of internal parts all of which are of the rth grade, and having no set of parts which has a member of grade less than r". So, whether X be internal or external (and it must be one or the other), it will be a member of at least one group in which there is a non-trivial exclusive common quality.

McTaggart points out in § 244 that the exclusive common qualities which we have so far considered are all relational. We cannot prove from any self-evident premises that every particular must belong to some group in which there is an exclusive common *original* quality. In fact it seems impossible to determine anything *a priori* about the occurrence and distribution of original qualities. Nevertheless, the result which has been shown to follow from the principle of determining correspondence is of considerable philosophic importance. For it assures us that *every* particular has at least one characteristic which it shares with *some* but not with *all* other particulars.

Now suppose, for the sake of argument, that this were not true, and that there was a certain particular X which was an exception to this rule. Take any characteristic ϕ. Then ϕ would either (*a*) not belong to X at all, or (*b*) belong to X and to *no* other particular, or (*c*) belong to X and to *every* other particular. Now any universal proposition is of the form "Anything that has ϕ will have ψ". If ϕ does not characterise X at all, this proposition will not apply to X. If ϕ characterises X and nothing else, the law will have only a single instance and will lose all importance from the extreme narrowness of its range of application. If ϕ characterises X and everything else, the law will be in no way peculiar to X and will lose most of its importance through the universality of its range of application. Thus the result which has been

deduced from the principle of determining correspondence assures us that every particular fulfils a certain condition without which it could not possibly be an instance of any such law as would be of interest in ordinary life or science. Of course it does not follow that any law of interest to science *will* apply to a given particular X even if this condition be fulfilled. It might be that, although there were one or more characteristics which X shares with some but not with all other particulars, yet no single one of these intrinsically determines any other characteristic. So it would still remain possible that the only laws which apply to X at all apply either to nothing else or to everything else.

3. Unities of Composition and Unities of Manifestation.

In Chap. XXVIII, §§ 252–7, of the *Nature of Existence*, McTaggart discusses the following question. We know that every particular is both a unity of composition, i.e., a whole composed of such and such parts, and a unity of manifestation or organic unity. But some particulars with which we are familiar seem *prima facie* to be much more appropriately described as unities of composition (e.g., a heap of stones), and others to be much more appropriately described as unities of manifestation (e.g., a living organism or a human mind). We must admit, however, that our knowledge of any particular is so defective that such appearances may be misleading. The question is whether the principle of determining correspondence will show that certain particulars really are more appropriately described as unities of composition, and that certain others really are more appropriately described as unities of manifestation.

We will first consider internal particulars, and will then go on to consider external particulars. Internal particulars are either primary wholes or else primary or secondary parts of such wholes. Now, when a particular is a primary or a secondary part there is a peculiar and one-sided relation between it and its parts in a fundamental system. It has a sufficient description from which we can construct in a uniform way sufficient descriptions of all its parts in all the

innumerable sets of parts of it which fall into the fundamental system. It is, of course, also true that we can construct a sufficient description of *it* from sufficient descriptions of all the members of any set of parts of it. But the latter is a perfectly general property which it shares with *all* particulars, external or internal, whilst the former property belongs to it *only* in virtue of its being a primary or secondary part of some primary whole. There is therefore an objective reason for laying a special emphasis on the *whole*, as compared with its parts, when considering the relations of a particular which is a primary or secondary part to its parts in a fundamental system. We may say that such wholes are "differentiated into" such parts, rather than "built out of" such parts.

Let us next consider the case of primary wholes. Every primary whole P has a set of primary parts P_1, P_2, ... P_n, with respect to some relation of determining correspondence. Each of the latter has a sufficient description from which we could construct in a uniform way sufficient descriptions of all its parts without end in the fundamental system. Call these descriptions ϕ_1, ϕ_2, ... ϕ_n, respectively. Then we could describe P sufficiently as the group whose members are the particular which has ϕ_1, the particular which has ϕ_2, and so on. And from this description we could derive sufficient descriptions of all the parts of P that fall in the fundamental system. It might therefore seem at first sight that there is the same ground for laying a special emphasis on the whole as compared with its parts in the case of a primary whole as there is in the case of a primary or a secondary part.

This, however, is a mistake. The preponderance of the primary whole P over its parts in the fundamental system is derivative. It is derived from the preponderance of the primary parts of P over *their* parts in the fundamental system, and from the fact that P is the group of which these primary parts are the members. But the preponderance of primary or secondary parts over *their* parts in the fundamental system is not derivative but ultimate. Thus, in considering the relations of primary wholes to their primary parts, there is an objective ground for emphasising the parts as compared with

the whole. We may say that such wholes are "built out of" such parts rather than "differentiated into" such parts.

It will be worth while to consider at this point what form these conclusions would take if we assumed that the relation of "being a perception of" were a determining-correspondence relation. Primary parts would then be idealised-percipients; and each primary whole would be a kind of mutual admiration society, composed of several such percipients, perceiving themselves and each other and their own and each other's perceptions without end, and having no content but these idealised perceptions. What is alleged is that, in considering the relations of such a society to its members, there is an objective ground to emphasise the members as compared with the society. In considering the relations of any idealised percipient to its idealised perceptions there is an objective ground to emphasise the percipient as compared with the perceptions. And, in considering the relations of any idealised perception to those perceptions of perceptions which are its parts, there is an objective ground to emphasise the perception as compared with these perceptions of perceptions. No doubt McTaggart started with this concrete example in his mind, and then generalised it into the abstract conception of a determining-correspondence hierarchy. Now in ordinary life it does seem reasonable to regard selves as more fundamental units than either the societies to which they belong, on the one hand, or the experiences which they have, on the other. The raw material, which was fed from the corporate life of Clifton, of Trinity, and of England into that infinitely ingenious machine which was McTaggart's mind, here emerges in a highly sublimated form in the doctrine that primary and secondary parts are unities which are *differentiated into* parts, whilst primary wholes are unities which are *built out of* parts.

We will now consider the case of external particulars. The only relevant *a priori* knowledge that we have about them is that, although none of them is integrally contained in any division of a fundamental system, yet each of them is analysable without remainder into a set of parts every one of which is contained in some division or other of such a system. Thus

every external particular is most appropriately regarded as built out of internal particulars; whilst the latter are in turn most appropriately regarded, not as built out of their parts, but as differentiated into them, unless they are primary wholes.

Of course there are many external particulars about which we have further information from empirical sources. In the case of some of them we may happen to know some sufficient description of the whole which entails sufficient descriptions of every member of a certain set of parts of this whole. Consider, for example, the characteristic of being a rowing-eight whose aggregate mass is exactly 94·3279 stone. Let us suppose that this characteristic belongs to one and only one particular. Every rowing-eight contains one and only one stroke, one and only one cox, and so on. It follows that there will be a set of characteristics each of which applies to one and only one member of a certain set of parts of this particular. These characteristics will be that of being stroke in an eight whose aggregate mass is 94·3279 stone, that of being cox in such an eight, that of being No. 5 in such an eight, and so on. But, even when we do happen to know of some sufficient description of an external particular which entails sufficient descriptions of all the members of *some* set of parts of it, we can never construct sufficient descriptions of parts of these parts without end, as we can in the case of internal particulars other than primary wholes. In our illustration, for example, we cannot infer from our sufficient description of the eight any sufficient description of stroke's emotion towards the cox, though this, if McTaggart be right, is a part of stroke. Thus, even when an external particular is in the special position of the rowing-eight in our example, it is not, like primary and secondary parts, *more* appropriately described as being differentiated into parts than as being built out of parts. The most that we could say is that there is *one* set of parts of the eight, viz., the oarsmen and the cox, with regard to which it would be *as* appropriate to say that the eight was differentiated into these parts as to say that it was built out of them.

In § 256 McTaggart considers the bearing of the result just reached on the choice between the alternatives which I call

"Substantival Monism" and "Substantival Pluralism". It is plain that, if determining correspondence be accepted, primary parts are, in a very real sense, the natural and fundamental units of the universe. Primary wholes are built out of them rather than differentiated into them. And secondary parts of any grade are differentiated into secondary parts of a lower grade only by their direct or indirect relations to primary parts. The universe certainly is a unity, since all its parts are interrelated in some way or other. But among all its innumerable sets of parts the set of primary parts occupies a unique position. Now there could not be less than two primary parts, even if the universe be a single primary whole. And of course the universe might consist of many primary wholes, each of which consisted of many primary parts. So the most appropriate way of expressing the structure of the universe is to say that the universe is built out of, rather than differentiated into, a set of primary parts, each of which in turn is differentiated into, rather than built out of, sets of secondary parts. As McTaggart says, this "leaves the balance on the side of pluralism", though we must not assume that there is any incompatibility between a high degree of individuality in the primary parts and a high degree of unity in the whole which is built out of them.

CHAPTER XXIII

THE DISCRIMINATION OF PRIMARY PARTS

The subject to be discussed here is the various ways in which one member of a set of primary parts may be distinguished from the other members of the same set. This is treated by McTaggart in Chap. xxx of the *Nature of Existence*.

(1) *Some* primary parts might be distinguished *only* by the fact that their differentiating groups are different. The differentiating group of P_1, for example, might be P_2 and P_3, whilst that of P_5 was P_3 and P_4. If so, this would distinguish P_1 and P_5, and there might be no other dissimilarity between them except this and anything that is entailed by this. But it is clear that *some* of the primary parts must be distinguished in some other way than this. For each must have a *sufficient* description, and the exclusive description of any one of them by means of its differentiating group does not become sufficient until we have sufficient descriptions of the members of this group. Granted, however, that *some* members of a set of primary parts are sufficiently describable in some other way, it is quite possible that the rest should be sufficiently describable only by reference to their differentiating groups. Suppose, for example, that ϕ_2, ϕ_3, and ϕ_4 were independent sufficient descriptions of P_2, P_3, and P_4 respectively, and that R was the relation of determining correspondence for the whole of which P_1, P_2, P_3, P_4, and P_5 are primary parts. Then it might be that the only sufficient description of P_1 is that it is the particular whose parts in the determining-correspondence hierarchy have the relation R either to the particular which is the only instance of ϕ_2 and to parts of it, or to the particular which is the only instance of ϕ_3 and to parts of it. Similarly, the only sufficient description of P_5 might be the above with ϕ_4 substituted for ϕ_2.

(2) Each of the primary parts might be sufficiently described

by certain relations to certain other particulars which had independent sufficient descriptions. *Some* of these particulars might themselves be primary parts, though it is of course impossible that *all* primary parts should be sufficiently described *only* by their relations to primary parts. Again, these particulars might be secondary parts, or they might be external particulars. Suppose, for example, that the men in a certain rowing-eight are a set of primary parts, and suppose that this eight is sufficiently describable as the one whose aggregate mass is 94·3279 stone. Then these primary parts would be sufficiently describable as the stroke in such an eight, the cox in such an eight, and so on.

(3) Some or all of the primary parts might be sufficiently describable by means of their original qualities, whether simple, compound, or complex.

(4) Some or all of the primary parts might be sufficiently describable by the property of standing in a certain relation, of a certain determinate form or degree of intensity, to some particular or other, or to themselves, or to all the particulars in a certain definable class. For example, a certain primary part might be the only member of the set which hated anyone, or the only member which respected itself, or the only member which believed all the XXXIX Articles with the same degree of conviction as the late Mr Gladstone.

In § 277 McTaggart raises the question whether every primary part is a member of some group of primary parts in which there is an exclusive common quality of a non-trivial kind. If we knew that the universe contained more than one primary whole, we should know that this is so. For each primary part would belong to one and only one primary whole, and each primary whole would contain at least two primary parts. So every primary part would belong to a group in which was the exclusive common quality of being a primary part of a certain primary whole, which is not the *only* primary whole. And this exclusive common quality would be non-trivial.

But we do not know that the universe contains more than one primary whole. There may be just one primary whole

which is the universe. And we do not know that every primary part of a given primary whole must have some characteristic which it shares with some but not all the other members of that primary whole. Thus we do not know that there are any exclusive laws of the form: "Every primary part that has ϕ has ψ". For it is possible that every characteristic ϕ which belongs to any primary part P_r belongs either *only* to P_r or to *all* primary parts whatever as well as to P_r.

CHAPTER XXIV

DETERMINING CORRESPONDENCE AND THE STRUCTURE OF THE UNIVERSE

In Chap. XXII we considered the bearing of the principle of determining correspondence on the occurrence and range of certain types of unity *within* the universe. We have now to consider its bearing on the unity *of* the universe, taken as a single collective particular. McTaggart discusses this question in the last chapter of Vol. I of the *Nature of Existence*. He admits at once that the principle is compatible with many different alternatives about the structure of the universe; that the degree of unity will depend on which of these alternatives is fulfilled; that this in turn will depend on the particular form which determining correspondence takes; and that this cannot be known *a priori*. What McTaggart does is the following. He begins by stating in § 279 that set of possible assumptions about the determining correspondence in the universe which would give to the latter the highest possible degree of unity. He works out the consequences of these assumptions in §§ 280–7 inclusive. Then he relaxes the conditions one by one, and states exactly what degree and kind of unity is lost at each stage, and what remains. I shall now explain each of the alternatives in turn, illustrating each with the simplest diagram which is adequate for the purpose.

1. The First Supposition.

Consider the following five assumptions:

(i) that the universe is a *single* primary whole P;

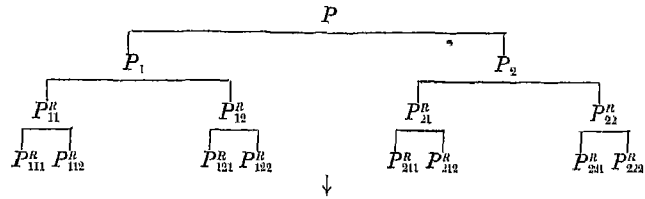
(ii) that every primary part is a determinant of parts in *some* primary part;

(iii) that every primary part is a determinant of parts in *every* primary part;

(iv) that every primary part is a *direct* determinant of parts in every primary part; and

(v) that there is *only one* relation of determining correspondence R in the universe.

Of these five assumptions (iv) entails (iii), but not conversely, and (iii) entails (ii), but not conversely. Suppose that assumptions (i), (iv), and (v) are fulfilled. This is Supposition I. It is illustrated by the following diagram.



Supposition I

On this supposition the unity of the universe will be very high indeed, for the following reasons.

(*a*) Owing to assumption (i) the primary parts will be a set of parts of the universe. Owing to (iv) every primary part has a set of first-grade secondary parts which correspond one-to-one with the primary parts which together make up the universe. Again, each first-grade secondary part, e.g., P_{12}, has a set of second-grade secondary parts which correspond one-to-one with the primary parts which together make up the universe. Similar remarks apply, *mutatis mutandis*, to secondary parts of any grade.

(*b*) Since R is a relation of determining correspondence, and since the universe is a single primary whole by assumption (i), a sufficient description of any secondary part of the universe can be derived in a uniform way from sufficient descriptions of the primary parts, as we have explained earlier. To do this for all the secondary parts of *any* primary part we shall need sufficient descriptions of *every* primary part; for *each* primary part has for its differentiating group *all* the primary parts, on the present supposition.

(*c*) Suppose that $\phi_1, \phi_2, \ldots \phi_n$, were a set of characteristics which sufficiently describe the primary parts $P_1, P_2, \ldots P_n$ respectively. Now suppose that some of these ϕ's were connected in certain respects with each other and were disconnected

in these respects from the rest. Suppose, for example, that $\phi_1, \phi_2 \ldots \phi_r$ were all determinates under a single determinable Φ, whilst the rest were not determinates under this determinable. Any primary part P_s will have a set of first grade secondary parts P^R_{s1}, P^R_{s2}, ... P^R_{sj}, ... P^R_{sm}. Now the characteristic of being a part of P_s belongs to all of these. So, too, does the characteristic of standing in the relation R to *some* primary part of P. What constitutes a sufficient description of any one of them is the characteristic of being a part of P and standing in the relation R to *such and such* a primary part of P. Thus we shall have a set of characteristics, which we might denote by ϕ^R_{s1}, ϕ^R_{s2}, ... ϕ^R_{sj}, ... ϕ^R_{sm}, which uniquely characterise P^R_{s1}, P^R_{s2}, ... P^R_{sj}, ... P^R_{sm} respectively. Taking ϕ^R_{sj} as a typical one, it will be the characteristic of "being a part of the only instance of ϕ_s and standing in the relation R to the only instance of ϕ_j". Now we can group together the primary parts P_1 to P_r as "those primary parts whose sufficient descriptions are determinates under the determinable Φ". In precisely the same way we can group together the first-grade secondary parts P^R_{s1} ... P^R_{sj} of the primary part P_s as "those first-grade secondary parts of the only instance of ϕ_s which have the relation R to particulars which are uniquely characterised by determinates under the determinable Φ". Exactly the same could be done, *mutatis mutandis*, with the first-grade secondary parts of each of the primary parts, for P_s was merely a typical instance. Now plainly this example can be generalised. Any relation which connects some but not all the sufficient descriptions $\phi_1 \ldots \phi_n$, in a set of sufficient descriptions of the primary parts will be reflected as a relation which connects some but not all the derived sufficient descriptions, $\phi^R_{s1} \ldots \phi^R_{sm}$, of the first-grade secondary parts of any primary part P_s.

The result is that certain connexions and disconnexions among the primary parts will be reflected as corresponding connexions and disconnexions among the first-grade secondary parts of each primary part. If, for example, there be no non-trivial exclusive common quality among the primary parts, then the kind of heterogeneity which this involves will be

reflected in the first-grade secondary parts of each primary part. There might indeed still be non-trivial exclusive common qualities among the latter; but, if so, they would be independent and not derivative from anything of the kind among the primary parts. If, on the other hand, there be a non-trivial exclusive common quality among the primary parts, then there will *necessarily* be a derived exclusive common quality among the first-grade secondary parts of any primary part.

Now, on the present Supposition, the primary parts together make up the universe, for there is to be only one primary whole. So any connexions or disconnexions among them are essential factors in the structure of the universe as a collective whole. Moreover, the first-grade secondary parts of any primary part together make up that primary part. So any connexions or disconnexions among them are essential factors in the structure of that primary part. Thus we may *fairly say that, on the present Supposition, the universe* would be a whole which is completely analysable into a set of parts each of which reflects in its own internal structure the structure of the whole. The reflexion would, in fact, go infinitely further than this. For the second-grade secondary parts of any first-grade secondary part would reflect the connexions and disconnexions among the primary parts, just as the first-grade secondary parts of any primary part do. And the same would be true, *mutatis mutandis*, of the $(r + 1)$th-grade secondary part of any rth-grade secondary part. McTaggart suggests that such a whole as this might be called a "Self-reflecting Unity". (I am inclined to think that McTaggart believed that Hegel claimed to have proved at the end of the *Logic* that the universe is a self-reflecting unity. This seems to be the interpretation which McTaggart gives to the category of the Absolute Idea.)

1·1. *Self-reflecting Unities.* Even if the universe were a self-reflecting unity, it might have many qualities not possessed by any of its parts, and its parts might have many qualities not possessed by it.

In §§ 284 and 286 McTaggart discusses the resemblances

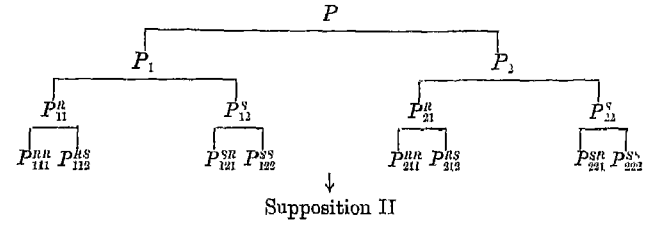
and differences between organic unities, in his sense, and self-reflecting unities. According to him any whole whatever is an organic unity. It is manifested by all the members of any set of parts of it *taken together*; but it is not manifested, merely in virtue of being an organic unity, in any part *taken separately*. In a self-reflecting unity the structure of the whole is reflected in *each one* of a certain set of its parts. Since every whole is an organic unity, the universe will be both organic and self-reflecting if it be self-reflecting When a whole is self-reflecting as well as organic it is less inappropriate to say that "the whole is in every part" than when it is only organic. The phrase still remains nonsensical, if taken literally, but it becomes more closely connected with something that is not nonsensical. Again, it becomes less inappropriate to say that "each part expresses the nature of the whole". This remains false if it is interpreted to mean that each part expresses the *whole* nature of the whole. But it is true that, if the whole be self-reflecting, each member of a certain set of its parts will express more of the nature of the whole than any part could do if the whole were not self-reflecting. I have already said that organic unity, in McTaggart's sense of the word, seems to me to be a completely trivial conception. Self-reflecting unity, on the other hand, is an interesting one which would be very important if it were exemplified by any whole.

It is plain that no whole could be a self-reflecting unity unless it had a set of primary parts such that *each* had *all* of them and nothing else for its differentiating group. If the universe were such a whole, there could be no other such whole. On this Supposition the universe would have the highest degree of internal unity which it could derive from determining correspondence. Yet it would still be the case that the primary parts would be the fundamental natural units of the existent, and that it would be more appropriate to speak of the universe as "built out of" the primary parts than as "differentiated into" them. Thus, even on the supposition most favourable to substantival monism, substantival pluralism remains the more accurate account of the structure of the universe.

It now remains to explain and illustrate the other possible suppositions.

2. The Second Supposition.

Here we drop assumption (v), viz., that there is only one relation R_1 of determining correspondence throughout the universe. We still suppose that assumptions (i) and (iv) are fulfilled. The diagram given below provides a simple illustration of Supposition II.



Supposition II

(*a*) As the diagram shows, every primary part of the universe will still have a set of first-grade secondary parts corresponding one-to-one with the primary parts of the universe. And, in general, every rth-grade secondary part will have a set of $(r + 1)$th-grade secondary parts corresponding one-to-one with the primary parts of the universe.

(*b*) It will still be the case that a sufficient description of any secondary part of the universe can be derived in a uniform way from sufficient descriptions of the primary parts. As before, in order to do this for *all* the secondary parts of *any* primary part we shall need sufficient descriptions of *every* primary part. Now that there are two relations of determining correspondence, R and S, the rule of derivation will be rather more complicated than it was before. In our way of stating the facts it would present itself as a rule for deriving the symbols of the secondary parts, together with a rule for translating the symbols into sufficient descriptions. The only additional complication in the former rule would be that a clause would have to be added dealing with the distribution of the indices R and S in the symbols. In our illustration the additional clause would be as follows. "Whenever the suffix

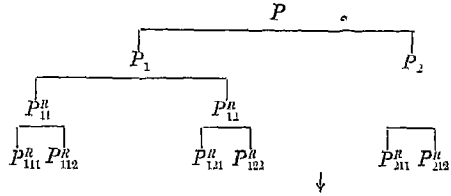
'1' is added to the end of the suffices of any symbol the index 'R' must be added above; and, whenever the suffix '2' is added to the end of the suffices of any symbol, the index 'S' must be added above." The rule for translating symbols into sufficient descriptions would be, in principle, the same as before. Consider, for example, the secondary part whose symbol is P^{R}_{11}. This would be the only instance of the characteristic of "being a part of the only instance of ϕ_2 and having the relation R to that part of the only instance of ϕ_1 which has the relation S to the only instance of ϕ_2".

(*c*) So far, then, complications have been introduced, but no unity has been lost, by dropping assumption (v). But we shall no longer be entitled to say that every connexion or disconnexion among any set of sufficient descriptions of the primary parts must be reflected in a corresponding connexion or disconnexion among the derived sufficient descriptions of the first-grade secondary parts of each primary part. For it may be, as it is in our illustration, that some of the first-grade secondary parts of a primary part stand in one relation R to their determinants, whilst others stand in the different relation S to *their* determinants. This might introduce connexions among the first-grade secondary parts which did not correspond to any connexions among the primary parts. R and S might, for example, be two determinates under a single determinable relation Σ, though ϕ_1 and ϕ_2 were not determinates under a single determinable characteristic Φ. If so, this heterogeneity of P_1 and P_2 would not be reflected in an equal heterogeneity of the parts P^{R}_{11} and P^{S}_{12} of P_1. For the latter would be connected by the fact that R and S are determinates under a single determinable Σ. Conversely, ϕ_1 and ϕ_2 might be determinates under a single determinable Φ, whilst R and S were not determinates under any one determinable. If so, there would be a heterogeneity between P^{R}_{11} and P^{S}_{12} which was not a reflexion of any heterogeneity among P_1 and P_2 and yet was due to determining correspondence.

We see then that, if we drop assumption (v), we have no guarantee that the universe is a self-reflecting unity.

3. The Third Supposition.

We now drop assumption (iv), that every primary part *directly* determines parts in every primary part. We replace it by the milder assumption (iii), in which "directly" is replaced by "directly or indirectly". We still keep assumption (i) and we resume assumption (v). The diagram below gives a simple illustration.



Supposition III

Here P_1 is directly differentiated by P_1 and P_2. But P_2 is not *directly* differentiated by any primary part. It has no *first-grade* secondary parts at all. Its differentiating group is the set of first-grade secondary parts of P_1. Its parts are thus *indirectly* determined by P_1 and P_2, but are not directly determined by either of them.

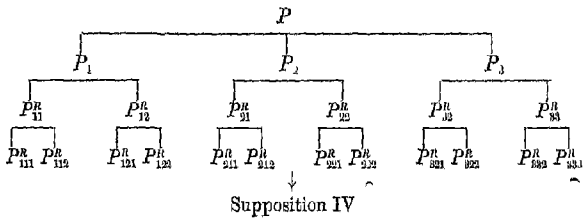
It is clear that at this stage a great deal of both unity and symmetry has been lost. All that remains is the feature labelled (*b*) in the earlier examples. It is still true that a sufficient description of any secondary part of the universe can be derived in a uniform way from sufficient descriptions of the primary parts. And it is still true that, in order to do this for *all* the secondary parts of *any* primary part, we shall need sufficient descriptions of *every* primary part. The rule of derivation would be more complex and less symmetrical than before, but it could easily be stated for any particular form of the present Supposition.

It must be noted that, although, on the present Supposition, every primary part will still be a final determinant of secondary parts in every primary part, yet the highest-grade part of a certain primary part P_2 which is finally determined by a certain primary part P_1 may be very low in the hierarchy. In our example the first part of P_2 which has P_1 for its final determinant is P^R_{211}, and is therefore a secondary part of the

second grade. But the differentiating group of P_2 might have been the second-grade secondary parts of P_1 instead of the first-grade secondary parts of P_1. If so, the first parts of P_2 which had P_1 for their final determinant would have been P^R_{2111} and P^R_{2121}, and so would have been secondary parts of the third grade. Now the differentiating group of P_2 might have been the rth-grade secondary parts of P_1, where r is any finite ordinal. If so, the first parts of P_2 which had P_1 for their final determinant would be of the $(r+1)$th-grade. Thus there is no finite ordinal r such that the first parts of P_2 which have P_1 for their final determinant may not be lower in the hierarchy than the rth grade.

4. The Fourth Supposition.

We now drop assumption (iii), i.e., we no longer assume that every primary part determines either directly or even indirectly parts in *every* primary part. We replace it by the milder assumption (ii) that every primary part determines, directly or indirectly, parts in *some* primary part. We still keep assumption (i), and we resume assumption (v). In the diagram given below it is assumed, for the sake of simplicity, that each primary part *directly* determines parts in some primary parts.



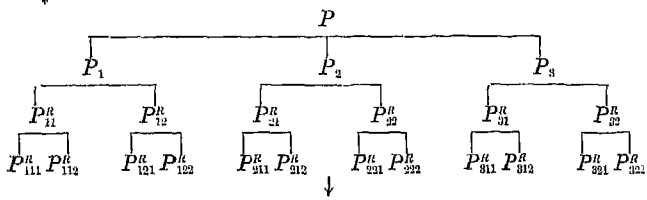
Here P_1 and P_2 each have P_1 and P_2 for their differentiating group. P_3 has itself and P_2 for its differentiating group. Thus P_1 directly determines parts in P_1 and P_2, and indirectly determines parts in P_3. P_2 directly determines parts in itself, P_1, and P_3. And P_3 directly determines parts in itself, but neither directly nor indirectly determines parts in P_1 or P_2.

On this Supposition one further element of unity, which has so far been present, vanishes. It is still true that sufficient

descriptions of every secondary part of the universe can be derived in a uniform way from sufficient descriptions of its primary parts. But it is no longer true that, in order to do this for *all* the secondary parts of *any* primary part, we need sufficient descriptions of *every* primary part. Since, in our example, P_1 and P_2 constitute a reciprocal group, there is no need to know any sufficient description of P_3 in order to derive sufficient descriptions of all the secondary parts of P_1 and P_2. All that we need for this purpose is sufficient descriptions of P_1 and P_2. Thus the primary parts of the universe are less intimately interconnected than they have been on the earlier Suppositions.

5. The Fifth Supposition.

We now drop assumption (ii) that each primary part is a determinant, direct or indirect, of parts in *some* primary part. We keep assumption (i) and assumption (v). The diagram below illustrates Supposition V.

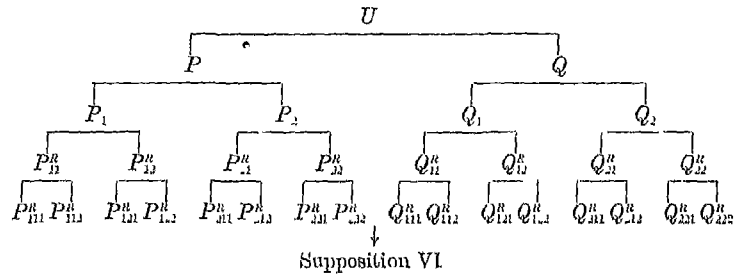


Supposition V

Here P_1 and P_2 form a reciprocal group as in the last diagram. But now they also form the differentiating group of P_3. In this case P_3 does not determine, either directly or indirectly, any part in any of the primary parts. This leaves the unity of the universe in the same position as it was on Supposition IV. P_3 is no more isolated from P_1 and P_2 than before; but one might perhaps say that it is less intimately related to itself in our illustration of Supposition V than it was in our illustration of Supposition IV. No part of it now has the relation R to itself or to any part of itself; whereas, in the diagram which illustrates Supposition IV, P_3 has parts, such as P^R_{33} and P^R_{332}, which stand in the relation R to itself or to parts of itself.

6. The Sixth Supposition.

Lastly, we may drop assumption (i) which we have hitherto kept all through. We now no longer assume that the universe is a single primary whole. It is to be a super-primary whole consisting of at least two primary wholes. This is illustrated in the diagram below.



Here the universe U is composed of the two primary wholes P and Q. To simplify matters as much as possible I assume that each has only two primary parts, that there is one and only one relation of determining correspondence R in both P and Q, and that assumption (iv) holds for both P and Q. On this Supposition the universe may have the least possible degree of unity which is compatible with the principle of determining correspondence.

It should be remarked, in conclusion, that Suppositions III, IV, V, and VI are all compatible both with the retention and with the rejection of assumption (v) that there is only one relation of determining correspondence in the universe. This assumption is definitely made in Supposition I, and is definitely rejected in Supposition II. In the other cases it will make no difference to the argument or to the conclusions whether it be kept or rejected. I have assumed it in the illustrative diagrams in order not to cause needless complications. The minimum degree of unity compatible with determining correspondence would be realised if assumptions (i), (ii), and (v) were explicitly rejected. This would mean the rejection of all five of the assumptions, since the denial of (ii) carries with it the denial of (iii) and (iv).

RETROSPECT

As one who, in his journey, baits at noon,
Though bent on speed, so here the Archangel paused,
Betwixt a world destroyed and world restored;
If Adam aught, perhaps, might interpose.

MILTON, *Paradise Lost*, Book XII.

RETROSPECT

Before bringing to an end this volume, which has covered the whole range of Vol. I of McTaggart's *Nature of Existence* and much besides, it will be worth while to rest and to take a backward and a forward glance before continuing our journey.

Let us begin by recapitulating the essential steps of McTaggart's argument in Vol. I of the *Nature of Existence*.

(1) Existence is an indefinable characteristic, which is a specific modification of a wider characteristic called "reality". I rejected the second clause of this proposition.

(2) It is neither intuitively nor demonstratively *a priori* that anything has existence. But each person has absolutely certain empirical knowledge of a fact from which he can infer that something has existence.

(3) Everything is either a particular, or a characteristic, or a fact; and nothing can belong to more than one of these categories. I noted that *facts* seemed to be somewhat of an afterthought with McTaggart; that he gives no very clear or consistent account of them; and that he seems to have forgotten them when he attempts to delimit the class of particulars.

(4) Particulars have existence in the primary sense; any part of an existent, any fact about an existent, and any characteristic which characterises an existent have existence in a derivative sense.

(5) If a characteristic does not characterise any existent, then its contradictory opposite characterises every existent. The latter therefore has existence. And the former, as being a part of the latter, has existence. So *every* characteristic has existence. It appeared to me that either the premises of this argument are doubtful or its conclusion is completely trivial.

(6) If there were anything answering to the description of "Propositions", as that term has been used by certain philosophers, such entities would not have existence. But there is no reason to think that there is anything answering to

this description. I agreed with McTaggart's conclusion, though I did not accept all his arguments.

(7) Neither the notion of "Particulars" nor that of "Characteristics" can be defined. They are correlatives, neither of which can be described except by reference to the other, and neither of which can be dispensed with.

(8) Characteristics are divisible into Qualities and Relations. Each of these divisions is subdivisible into Original and Generated. Generated Qualities are divisible into Repeating and Non-repeating. The name "Primary Qualities" is given to Original Qualities and to Non-repeating Generated Qualities.

(9) The arguments against the reality of Relations are invalid, and it is impossible to dispense with Relations.

(10) Even if the reality of Relations be admitted, Qualities cannot be dispensed with. McTaggart does not argue this question at all fully, and it did not seem to me clear that this assertion is justified.

(11) A term can be related to itself. It seemed to me doubtful whether there is any instance of a *direct* relation between a term and itself, though there is no doubt that a term can be indirectly related to itself.

(12) Relationships generate Qualities. I saw no reason to admit this.

(13) Qualities generate an endless series of Relationships, and Relationships generate an endless series of Relationships.

(14) Characteristics are also divisible into Simple, Compound, and Complex. All McTaggart's statements on this subject seemed to me to rest on invalid analogies with spatial patterns composed of spatial parts arranged in various ways, and to be extremely doubtful.

(15) There must be Simple Characteristics, and every characteristic which is composite must have an ultimate total analysis in terms of simple characteristics, though these may be infinitely numerous. McTaggart's argument for this conclusion appeared to me to rest on extremely confused premises about "meaning", and to be invalid.

(16) Anything that has existence will necessarily have other

qualities, both positive and negative; and the total number of its qualities will be equal to the total number of positive qualities that there are. We found that McTaggart's arguments here assumed empirical premises which, though quite certain, are not included among those which he explicitly allows himself to assume.

(17) The existence of characteristics and (we may add) of facts is always derived from the existence of something else. This cannot go on indefinitely, and so there must be existents which are not characteristics and (we may add) are not facts, if there are any existents at all. But it has been shown that there are existents. Therefore there must be existents which are not characteristics (and are not facts). These are called "Substances" by McTaggart, and "Particulars" by us. The remarks in brackets are added to correct an obvious oversight on McTaggart's part.

(18) Objections which have been made against the notion of Substance by Locke and by Prof. Stout are invalid. We noticed that McTaggart's account of Substance is largely in negative terms, and that he completely ignores the distinction, which many people would regard as fundamental, between what Johnson calls "Occurrents" and "Continuants". As Prof. Stout was also far from clear on this point, the argument between him and McTaggart seemed to me to consist largely of misunderstandings. I hazarded the suggestion that it might be possible to take the notion of Absolute Processes as fundamental, and to replace statements whose grammatical subjects are Thing-names by equivalent statements in which only Process-names appear as grammatical subjects.

(19) There are empirical facts which make it certain that there is more than one particular.

(20) It is self-evident on careful inspection that any two particulars must be dissimilar in some respect which is not a mere analytic consequence of the fact that they are two. This is called "The Dissimilarity of the Diverse". The principle does not seem to me to be *necessary*, and I have tried to suggest *possible* exceptions to it. But it may be true that every two

particulars are *in fact* dissimilar in some respect which is not analytically entailed by their being two.

(21) It follows from the Dissimilarity of the Diverse that every particular must have an *exclusive* description.

(22) If every particular has an exclusive description, then every particular must have a *sufficient* description. McTaggart's argument to prove this conclusion was found to contain three distinct fallacies. And it seemed possible to suggest a hypothetical case in which every particular would have an exclusive description whilst some particulars would not have sufficient descriptions. However, McTaggart thinks he has proved that every particular must have a sufficient description. This we call the "Principle of Sufficient Descriptions".

(23) There are two fundamentally different kinds of Determination within the universe, viz., Intrinsic, which is a connexion through characteristics, and Extrinsic, which is not.

(24) We say that the characteristic ϕ "intrinsically determines" the characteristic ψ, if and only if the proposition: "There is an instance of ϕ" entails the proposition: "There is an instance of ψ". Whilst McTaggart's statements are highly confused, it seemed certain that this was his meaning. It also appeared that he often failed to distinguish between Intrinsic Determination and a stronger kind of connexion which we called "Conveyance", and that this was the cause of the verbal confusion in his doctrine of Intrinsic Determination. To say that ϕ "conveys" ψ is to say that it is impossible that anything should both have ϕ and lack ψ. It seems doubtful whether we ever know that the relation of intrinsic determination holds except on the basis of previous knowledge about conveyance.

(25) McTaggart also confuses a dyadic relation between characteristics, which may be called "Partial Conveyance" with a triadic relation between two characteristics and a particular, which he calls "Presupposition". To say that "ϕ presupposes ψ in the instance x" means that x is characterised by both ϕ and ψ, and that ϕ partially conveys ψ. To say that ϕ "partially conveys" ψ means that ϕ conveys a

disjunctive characteristic, of which ψ is one of the alternants, but does not convey ψ itself.

(26) A given characteristic in a given instance may presuppose several characteristics, and some of the presupposed characteristics may convey others of them. When there is one-sided conveyance between two characteristics, that which conveys the other and is not conveyed by the other is said to be the "more ultimate" of the two. In this way we reach the notion of a "Total Ultimate Presupposition" of a given characteristic in a given instance.

(27) It is self-evident that, if a characteristic has a presupposition at all in a given instance, it must have a Total Ultimate Presupposition in that instance. This may be called the "Principle of Total Ultimate Presuppositions". McTaggart makes use of it in his argument about endless divisibility, but it is not really needed for his purpose there. I tried to cast doubts on the self-evidence of this proposition by discussing examples of continuous change and of determinates under a determinable.

(28) Causation is a special form of Intrinsic Determination. McTaggart really means that it is a special form of Conveyance. It holds when a characteristic of the form: "having ϕ at t" conveys a characteristic of the form: "having ψ at a moment which stands in the relation T to t". It holds between the fact that a certain particular has a characteristic of the former kind and the fact that the same particular has a conveyed characteristic of the latter kind.

(29) This analysis of the meaning of causal statements would be generally admitted. I pointed out that, since this analysis makes causal laws to be *necessary* facts, which differ only epistemologically from facts that can be known *a priori*, it certainly would not be generally admitted.

(30) If two facts be causally connected, and the date in one differs from the date in the other, that which contains the earlier date is called the "cause" of that which contains the later date, and the latter is called the "effect" of the former. This is purely a matter of nomenclature; and, when there is no difference in date, neither of two causally connected facts

can be called the "cause" or the "effect" of the other. I agreed that this conclusion does follow from McTaggart's analysis of causal statements, and I tentatively suggested a very different view of the whole matter in my independent discussion of the subject.

(31) It is neither self-evident, nor has it ever been proved, that the occurrence of every characteristic is causally determined by the occurrence of some other characteristic. The same remarks apply, *mutatis mutandis*, to the proposition that the occurrence of every characteristic causally determines the occurrence of some other characteristic.

(32) It is quite certain that causal determination is not, in all cases, reciprocal. And the reciprocity of causation would not be entailed by its universality, even if we had reason to believe in the universal range of causal determination.

(33) Philosophy can do nothing to justify Induction. For the utmost that could be hoped of philosophy is that it might discover some argument in favour of universal causal determination. And, even if this principle were established, it would remain impossible to see what right we have to ascribe high probability to any particular alleged causal law on the basis of uniform past experience in its favour. After allowing for a certain fallacy in McTaggart's argument, it seemed to me that his conclusion was sound.

(34) If we suppose any fact about any particular *not to be*, we cannot consistently suppose any fact about this, or about any other, particular *to be*. This is the generalised "Principle of Universal Extrinsic Determination". I noted that it is really a proposition about the connexion between *actual facts*, and not, as McTaggart says, between *characteristics*. As the result of an elaborate argument, it seemed to me that there is a sense in which it is intelligible and true to say that the nature of a particular "might have been poorer or richer in respect of relational properties than it in fact was".

(35) It follows from the Principle of Universal Extrinsic Determination that no fact is contingent, even though some facts may not be *causally* determined. I ventured to suggest that the truth which McTaggart is trying to express is that

singular facts are *non-modal*, and therefore neither contingent nor necessary. But it is quite uncertain whether he would have accepted this suggestion.

(36) A Group is a collection of particulars, or of collections of particulars, or of both. There may be one or more characteristics common and peculiar to the members of a group. In that case there are as many Classes, of which the members of the group are the members, as there are such characteristics. The members of a group may also be interrelated by one or more relations. In that case the group forms a Complex or Unity; and the same group may be several different Complexes or Unities, in respect of different relations among its members.

(37) Members of a group may overlap, and one member may be completely contained in another. In such cases the group is called a "Repeating Group".

(38) Every member of a group is a part of it, but it also has parts which are not members of it, viz., parts of its members, sub-groups composed of some but not all of its members, and parts which overlap two or more of its members without wholly including any of them. We pointed out that McTaggart takes almost all his examples from spatial wholes composed of adjoined spatial parts; and that, apart from such cases, his statements either lose plausibility or become trivial.

(39) Corresponding to every group there is something which is called its "Content". I gave a definition of "Content" on the lines of the Frege-Russell definition of "Cardinal Number", and showed that, with this definition, every group will have content, and content will have the properties which McTaggart ascribes to it. But this is certainly not what McTaggart meant by "Content", and there is no reason to believe that groups have content in any other sense than that which I assigned to the term.

(40) A "Set of Parts" of a whole is a group of its parts which together make it up and do not more than make it up. The members of any group are always a set of parts of it.

(41) Groups are particulars, and any group is a "Compound Particular".

(42) Several different groups may be one and the same compound particular. I pointed out that this is quite impossible, and that the arguments by which McTaggart supports this contention are invalid. I tried to restate McTaggart's doctrine in a form which was not open to these objections, but there then seemed to be no reason to think it true. And I tried to explain how the doctrine had come to seem plausible to him.

(43) The property of "being a universe" is the property of being a particular of which all other particulars are parts.

(44) This property belongs to one and only one entity, which may therefore be called "the Universe". I pointed out that this is not so when allowance is made for the modifications in McTaggart's doctrine which are needed in order to deal with the objections mentioned in (42) above. I then proposed an alternative definition of "being a Universe", and showed that, on this definition, there would be one and only one entity possessing this property.

(45) To every fact about any part of the Universe there corresponds a fact about the Universe itself. But the former fact will always be simpler and more fundamental than the latter.

(46) In consequence of the Principle of Extrinsic Determination we may say that each characteristic of any particular is a "Manifestation" of the nature of that particular, and not merely a *part* of its nature.

(47) On similar grounds we may say that every part of a particular is a manifestation of that particular.

(48) Each part of a whole is necessary, and all the parts together are sufficient, to manifest that whole completely. In virtue of this fact every whole may be called an "Organic Unity".

(49) It is more obvious, but not more true, that an organism is an Organic Unity than that a heap of stones is such a unity. This explains and justifies the use of the name, but the associations of this name have led to many mistakes in the subject. It seemed to me that "Organic Unity", in McTaggart's sense, is something quite trivial, and is certainly not what other philosophers have understood by the phrase.

(50) There is no special connexion between Organic Unity and Value. Such a connexion has been thought to exist only because the name "Inner Teleology" has often been used as a synonym for "Organic Unity", because Inner Teleology has been associated with External Teleology through the use of the same noun in both phrases, and because External Teleology is commonly and mistakenly thought to have a specially close connexion with Value. Here again it seemed to me that McTaggart, though he is pointing out fallacies which have all been committed by someone or other, is in the main being deliberately "naughty", and is most regrettably occupied in making butter-slides for Bosanquet.

(51) In every group there are two "Exclusive Common Qualities", i.e., characteristics which belong to every member of the group and to nothing which is not a member. But these two are of an entirely trivial kind. Apart from the Principle of Determining Correspondence there is no reason to believe that in every group there is an exclusive common quality of a non-trivial kind, i.e., one which does not involve in its analysis exclusive descriptions either of all the members of the group or of all particulars which are not members of the group.

(52) Apart from the Principle of Determining Correspondence there is no reason to believe that the universe is a system possessing either causal order, or serial order, or classificatory order.

(53) Apart from the Principle of Determining Correspondence there is no means of discovering whether groups, which seem to us to be composed of intimately interconnected members and to form important natural units, are really more intimately interconnected and unified than others which seem to us to be loose in structure and of slight importance.

(54) It is self-evident on careful inspection that every particular must be composite. It may be indivisible in one or more "dimensions", but there must be at least one dimension in which it is divisible.

(55) No particular is perceived by us as being indivisible in every dimension, for every particular which we perceive is perceived as having duration.

(56) The fact that there must be simple *characteristics* is no reason for doubting the proposition that there cannot be simple *particulars*.

(57) Even if geometry requires indivisible points, they need not be indivisible in every dimension. It suffices that they should be indivisible in all *spatial* dimensions, and this is compatible with their having other dimensions in which they are divisible.

(58) Philosophers who asserted that there must be simple substances have generally meant by "substances" continuants. But occurrents are also particulars, and are called "substances" by McTaggart. So it is not certain that anyone has maintained that *all* particulars are either simple or composed of simple particulars.

(59) On the other hand, McTaggart admits that it is possible that the endless divisibility of all particulars may seem self-evident to him merely because he cannot *imagine* an indivisible particular, or because of the desirable consequences which he thinks follow from this proposition and cannot be proved without it. I pointed out that McTaggart assumes that what is called a "continuant" is identical with what would commonly be called "the history of that continuant", and that this would not commonly be admitted. I also pointed out that there is no inconsistency between a group having a set of parts whose members are themselves groups, and so on without end, and its *also* having a set of parts whose members are *not* groups but are simple particulars. Again, it seemed to me that there is one and only one dimension, viz., duration, or what appears as duration, in respect of which it is plausible to hold that every particular must be divisible. Yet McTaggart holds that particulars are either *indivisible* in this dimension, or are composed of particulars which are indivisible in this dimension. In view of all this I was not prepared to admit the self-evidence of McTaggart's proposition that every particular must be divisible in some dimension or other.

(60) In any series of sets of parts of a particular there must be some term, such that its members, and the members of all

terms which are subsequent to it in the series, are sufficiently describable without reference to their successors. The argument is based on the Principle of Sufficient Descriptions. I pointed out that, even if this premise be admitted, McTaggart's conclusion is stronger than his premises warrant.

(61) If no term in the series were a "descriptive ancestor", there would be no term whose members *must* be sufficiently describable without reference to their successors. A "descriptive ancestor" in a series is a particular which has a sufficient description from which there can be derived sufficient descriptions of every member of every term in the unending series of sets of parts of this particular.

(62) The following two propositions are incompatible. (i) "There must be some term in the series, such that every member of every term after it is describable without reference to its successors"; and (ii) "There is no term in the series, such that every member of every term after it must be describable without reference to its successors". Now (i) is supposed to have been established (cf. (60) above). And it has been shown that the supposition that no term in the series is a descriptive ancestor involves (ii) (cf. (61) above). So this supposition must be rejected. Therefore there must be some set in the series which is a descriptive ancestor. I pointed out that, in this argument, McTaggart has been betrayed, through an ambiguity of language, into a gross logical fallacy. So his principle, that every series of sets of parts of a particular must contain a term which is a descriptive ancestor, is an invalid inference from uncertain premises.

(63) The sufficient descriptions of the subsequent terms, which are derived from a certain sufficient description of the ancestral term of a series, must be *synthetically conveyed* by the latter, and not merely *analytically contained* in it. The essential point is that there must be some general rule in accordance with which we can construct, in a uniform way, sufficient descriptions of all members of all terms after the ancestral term out of sufficient descriptions of the members of the ancestral term.

(64) The last proposition is proved by use of the premise

that any description which is adequate for a given purpose must either be or contain a description which is just and only just adequate for that purpose. This is not self-evident to me.

(65) A supplementary argument is used, which, it is alleged, gives an extremely high probability *both* to the principle that every series of sets of parts of a particular must contain a descriptive ancestor, *and* to the proposition enunciated in (63) above. This argument assumes the truth of the proposition enunciated in (60) above, and it appeared to me that the latter was unproven. It also appeared to me so difficult to judge what is antecedently likely or unlikely in these highly abstract subjects that no argument which uses the notion of antecedent improbability can here be very convincing.

(66) The conditions enunciated in (62) and (63) above will be fulfilled for any particular P, provided that the following propositions are true of P. (i) That there is *at least one* series of sets of parts of P which fulfils the conditions enunciated in (62) and (63); and (ii) That any part of P which is not integrally a member of any term of such a series has a set of parts each of which is a member of some term of such a series. Such a series of sets of parts of P may be called a "Fundamental Hierarchy for P".

(67) A society of minds which perceived themselves and each other, and their own and each other's perceptions, and perceived nothing else, would, on certain assumptions about the nature of perception, be an instance of a Fundamental Hierarchy. In such a hierarchy the relation of "being a perception of" would be an instance of a "Determining Correspondence Relation".

(68) By generalising from this example we can give a general definition of the notion of a "Determining Correspondence Hierarchy" and the notion of a "Determining Correspondence Relation".

(69) It is possible to generalise these notions somewhat further by relaxing certain conditions in the original example which were needlessly rigid.

(70) The only possible kind of Fundamental Hierarchy is a Determining Correspondence Hierarchy. Consequently the universe must either *be* a Determining Correspondence Hierarchy, or must have a set of parts each of which is such a hierarchy. I showed by means of a geometrical example that there *can* be a Fundamental Hierarchy in which the relation is *not* a Determining Correspondence Relation. So this conclusion is unproven.

(71) It cannot be shown *a priori* to be impossible that there should be several different relations answering to the description of determining correspondence relations. But McTaggart cannot think of any relation which does answer to this description except the relation of "being a perception of". And this answers to the description only if we accept McTaggart's very special views about the nature of perception. I was not able to think of any alternative example of a determining correspondence relation. But I felt no certainty that wiser heads than mine might not do so. And I pointed out that, if we had allowed ourselves to play such tricks with the apparent properties of Matter and Space as McTaggart has had to play with the apparent properties of Mind and Perception before he could make "being a perception of" an instance of a determining correspondence relation, we might have provided non-mental examples of Determining Correspondence.

(72) There must be a stage in the hierarchy of parts of any particular after which the parts have *no other* characteristics beside those which are entailed by their positions in the hierarchy. The argument is similar to that described in (65) above, which makes use of the notion of antecedent improbability. It appeared to me that, in addition to the general weaknesses already pointed out, the argument has a special defect in this particular application.

(73) The proposition that the universe must either *be* a Determining Correspondence Hierarchy or have a set of parts each of which is such a hierarchy may be called the "Principle of Determining Correspondence". It follows from it that there must be "Exclusive Laws within the Universe", i.e.,

laws about characteristics which belong to more than one and less than all particulars.

(74) It also follows that some of these laws will be about characteristics whose concepts are not *a priori*, and that they will be propositions which are neither self-evident nor deducible from self-evident premises. It seemed to me that the first clause of the above conclusion really does follow from the Principle of Determining Correspondence, but that the second does not.

(75) The conclusion drawn in (74) above is of no avail to justify the inductions which we make in daily life or in natural science.

(76) The Principle of Determining Correspondence entails that there is at least one natural and intrinsic system of classification within the universe, and that all the classes in this system are groups in which there is an exclusive common quality of a non-trivial kind.

(77) Every particular which is not itself a member of one of the classes in such a fundamental system of classification will have a set of parts each of which is a member of some class in this system.

(78) In such a system there are no *infimae species*, and the principle of further subdivision at every stage is given by a single general rule.

(79) We may not be able to decide, with regard to any given system of classification based on empirical knowledge, whether it nearly coincides with, or is widely divergent from, the fundamental system of classification based on Determining Correspondence.

(80) Particulars which are members of some class in some fundamental system of classification may be called "Internal Particulars". Those which are not may be called "External Particulars". External particulars can be classified by reference to a fundamental system in consequence of the fact that each of them has a set of parts each of which is a member of some class in the fundamental system.

(81) It follows that every particular, whether internal or external, is a member of some group in which there is an exclusive common quality of the non-trivial kind.

(82) It follows from the Principle of Determining Correspondence that there are two kinds of particulars, viz., Primary Wholes and External Particulars, which are more appropriately said to be "built out of" their parts than "differentiated into" their parts. And it follows that there are two other kinds of particulars, viz., Primary Parts and Secondary Parts, which are more appropriately said to be "differentiated into" their parts than "built out of" their parts. (If the only relation of determining correspondence be that of "being a perception of", Primary Wholes will be "mutual admiration societies" of a certain special kind; Primary Parts will be the selves which are the members of these societies; and Secondary Parts will be the perceptions in these selves of themselves, of each other, and of their own and each other's perceptions.)

(83) Since the universe either is a single Primary Whole or has a set of parts each of which is a Primary Whole, and since it is only Primary Parts and Secondary Parts which are more appropriately regarded as differentiated into parts than as built out of parts, we must take a pluralistic, rather than a monistic, view of the structure of the universe. (If the only relation of determining correspondence be that of "being a perception of", the universe will be either a single "mutual admiration society" or will have a set of parts each of which is such a society.)

(84) The Primary Parts of any Primary Whole may be distinguished from each other in several different ways. But we cannot be certain *a priori* that every primary part has a characteristic which belongs to *several*, but not to *all*, primary parts.

(85) The Principle of Determining Correspondence is compatible with at least six different hypotheses about the structure of the universe. The internal unity of the universe would be greater or less according as one or other of these hypotheses was true. There is no means of deciding, on *a priori* grounds, between the alternatives.

(86) If that hypothesis were true which gives to the universe the greatest possible degree of unity, the universe would

be a "Self-reflecting Unity". In such a unity the structure of the whole is reflected in each member of a certain set of its parts. Though it would be false to say, even on this hypothesis, that "the whole is in each part" or that "each part expresses the whole nature of the whole", these phrases would be rhetorical expressions of genuine and important facts.

Though the synopsis just completed is too condensed to be intelligible to anyone who has not read the rest of this book, it will, I hope, be found useful, as a brief summary of the main points, by anyone who has done so. It is plain that the essential doctrine which McTaggart has striven to establish in this volume is that the universe either *is* a single Determining Correspondence Hierarchy or *has* a set of parts each of which is such a hierarchy. Much else, of great interest and importance, has emerged in the course of his argument; but this is the foundation on which the rest of his construction is to be built.

Now it is very likely that *some* of the many criticisms which I have made on the various links in the chain of argument by which McTaggart professes to prove the Principle of Determining Correspondence are positively fallacious. The fact that a thinker so careful and acute as McTaggart has committed such a logical mistake as that which is mentioned in (62) of the synopsis, so far from encouraging the critic to give himself airs of superiority, should rather be a ground of diffidence to him about the validity of his own reasoning. Where angels have fallen in fools may well fear to tread. Again, it may well be that some of the criticisms which are valid could be obviated by a slight modification of the argument.

But, when all due allowance has been made for these possibilities, I cannot but think that enough thrusts must have got home to riddle so long and so sinuous an argument. I conclude then that the Principle of Determining Correspondence, like all the other interesting and exciting propositions which speculative metaphysics has claimed to prove in the last two thousand years, remains unproven. It is intelligible, and I know of no reason why it might not be true; but no reason has

been produced for believing that it is true. It thus enjoys one and only one advantage over the Athanasian Creed.

Now many of the conclusions, both negative and positive, which McTaggart claims to prove in Vol. II of the *Nature of Existence* presuppose the truth of the Principle of Determining Correspondence. All such conclusions must be regarded as unproven. It does not follow that we can afford to ignore Vol. II. In the first place, some of its most characteristic and interesting doctrines, e.g., the denial of the reality of Time, are independent of this Principle. Secondly, it contains the most strenuous attempt that has ever been made, so far as I am aware, by any Absolutist to deal with the general problem of Error, to connect it with the fundamental error of perceiving what is timeless as being temporal, and to reconcile it with the perfection of the Whole. Lastly, even if we regard the Principle of Determining Correspondence as unproven, it is of great intellectual interest to take it as an hypothesis and to see what consequences a man of McTaggart's ingenuity and constructive power can draw from it; just as it is of great intellectual interest to some people who are neither Christians nor theists to see what a man like St Thomas Aquinas can derive from the theistic hypothesis in general and the Christian hypothesis in particular.

END OF VOLUME I

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