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Leibniz Lectures (Spring 1947)

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[1] Leibniz occupies a peculiarly central position in philosophy. By that I don't mean that his philosophical doctrines represented a compromise. On the contrary, he was an uncompromising rationalist – the most interesting and powerful and suggestive of all the rationalists. I mean that he was a central figure in the sense that on the one hand so many diverse strains of thoughts entered into his philosophy and were transformed and combined into a highly coherent and entirely characteristic whole: and, on the other hand, so many diverse strands of thought issued from that philosophy – the germ of so many later developments, even modern contemporary developments, can be found in his thinking. He was born in the middle of the 17th century four years before the death of Descartes, and the philosophical atmosphere of his maturity was predominantly Cartesian: even though he had points of contact with Descartes, he also reached back beyond him to the Scholastic philosophers, against whom Descartes had so vigorously reacted, for some of his central ideas. In his early 30s, he met and talked with Spinoza, shortly before the death of the latter: his thought has important affinities with that of Spinoza, and also important differences: and, since Leibniz was a politic personage, and Spinoza was universally execrated as an atheist and one who denied free-will, Leibniz took care to emphasise the differences and play

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down the affinities. Leibniz and Locke were roughly contemporary: Leibniz wrote what he called the "New Essays" on as a criticism of Locke's "Essays on the Human Understanding" – using Locke's ideas, as he **[2]** used everyone's, as an instrument, a grinding-stone, for sharpening and emphasising his own. Not only was Leibniz central in relation to *other philosophical* thinkers, using their thoughts as an instrument for shaping and perfecting his own; but also in relation to all the intellectual debates of his time: he displayed an astonishing versatility and universality in his intellectual interests, weaving into the fabric of his thoughts the various strands of mathematics, logic, physical sciences, psychology and theology. If a philosopher is one who is able to synthesise the preoccupations of all these different kinds of thinking, to unify them all into a single coherent picture of the world, then Leibniz was pre-eminently a philosopher. In mathematics, he discovered the differential calculus independently of Newton; in logic, though he took over much uncritically from the Scholastics, he also anticipated the most modern developments and some contemporary doctrines that are still controversial; he used his knowledge of physical sciences, notably dynamics, to refute Descartes; from the standpoint of psychology he criticised Locke and, in doing so, anticipated modern ideas of unconscious mental events; he argued with all the notable theologians of his day and one of his ambitions was to bring about the union of the Churches (Protestant and Catholic). To all these questions he had his answers: and all these answers contributed to the harmony of his metaphysical system as a whole. Indeed this need for harmony, displayed both in his desire to heal religious dissension and in his blending together of all these so various activities of the mind, is perhaps the most important psychological determinant of the character of his metaphysical system.

[3] He wanted unity, harmony, concord: a system in which everything should contribute to a single end. If it wasn't obtainable in the world, at least he could make a model – an intellectual model – in which harmony should be realised; and then try, with untiring persuasiveness, to present it to his contemporaries and to posterity as a true model of reality.

This desire to persuade, so characteristic of Leibniz, had one consequence which, from our point of view, is regrettable: and which is the source of much difficulty in the study of him. Although his system is unusually coherent, he never wrote a single systematic work expounding it. There is no single systematic text which we can sink our teeth into, and out of which we can hope to extract all the essential elements of his thought. He corresponded at enormous length with individuals on some one or other particular aspect of his system, indicating its relation to the whole, but stressing those arguments which were most likely to convince or appeal to the particular correspondent in question. Of these letters, the "Letters to Arnauld" (which deal

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largely with the logical foundation of his system) and the "Correspondence with Clarke" (largely on the subject of space and time) are perhaps the most important. He wrote papers for the learned periodicals of his day, and conducted in print endless controversies arising out of them. Of these "The New System of the Nature & Communication of Substances" is the most important. The "New Essays on the Human Understanding", which I have already mentioned as written in criticism of Locke, Leibniz wrote for publication, but never actually published: they were not printed until after his death. **[4]** Finally, in addition to his private correspondences with learned persons – into which went much of his best work – Leibniz was always prepared to turn out a short tract for a prince or a princess with intellectual leanings. In these he tended to paint his system in bright colours, likely to appeal to the princely eye – and to leave out the difficult bits which made it worth while. It is to this "readiness to oblige" the aristocratic that we owe the most famous of Leibniz's works – "The Monadology" – which, as Bertrand Russell remarked – reads like "a kind of fantastic fairy tale, coherent perhaps, but wholly arbitrary". To the same class belong "The Principle of Nature & of Grace" and "The Ultimate Origin of Things". All these, of course, were published after Leibniz's death. At no time, however, did he take the step, which would have saved subsequent students such a lot of trouble, of writing a single comprehensive treatise fully expounding all his views and the reasons for them.

The practical point of all this, of course, is that, if we have only limited time, we have to study Leibniz in selections. So it is necessary for me to say a word about books. The two most convenient and readily available editions in English are (1) *The Everyman Edition* edited by Morris and (2) the Oxford selection edited by Latta. Of these two, the Everyman edition is greatly to be preferred, since it includes some of the correspondences – particularly a selection of the letters to Arnauld & Clarke – which is not to be found in Latta. Latta, however, has a very comprehensive introduction and notes. Best of course to have both. **[5]** Of critical works and commentaries of I will mention. (1) Latta's introduction; (2) Russell: *The Philosophy of Leibniz*; (3) H. W. Carr *Leibniz*. Of these by far the best and also the most difficult, is Russell's *The Philosophy of Leibniz*; the worst is Carr. I will also mention, for further reading, the chapter on Leibniz in Russell's *History of Western Philosophy*.

Now a few words about the course I shall trace out in these lectures. As I have already remarked, mathematics, logic, physical science, psychology and theology all played their part in shaping Leibniz's thought. Commentators have wrangled over which of these aspects of his thought was fundamental, and which were subordinate to this fundamental aspect. If this question means – which did Leibniz regard as most important? – then I think the question is probably unanswerable, and I don't think the answer is of very great im-

portance. But if the question means: – which is the best point of view to take in order to understand the *structure* of Leibniz's thought, to see how his various doctrines are related together, then I think there is no doubt at all about the answer. I think we must agree with Russell that his logical doctrines are the bones and framework and skeleton of his system and that we must understand the orientation of these elements before we can grasp the shape of the system as a whole. By his logical doctrines, I mean essentially: his analysis of propositions in accordance with the subject-predicate logic; his division of propositions into necessary and contingent; his use of the Law of Identity and the Principle of Sufficient Reason; and his conception of substance as related to his conception of the logical subject of **[6]** a singular contingent proposition. Once we have mastered the articulation of the logical bones of the system, we can clothe them with the flesh of his metaphysical doctrines. However, I shall not talk about Leibniz's logical ideas straight away. (1) First of all, and by way of introduction, I shall try to sketch briefly what he meant by the monad, the Leibnizian unit reality; and what some of his non-logical reasons were for thinking that there must be such entities and that they were the ultimate constituents of the universe. This introductory sketch of Leibniz's modification of the conception of substance will make up the first, short part of my lectures. (2) Secondly, I shall deal with those logical doctrines I mentioned, examining each one in turn and showing how it contributes to the construction of the system as a whole. (3) I shall outline the resulting picture of the universe. (4) I shall show how particular problems like those of time and space; perception; the union of soul and body; theory of knowledge; theology and ethics all fall into place in the Leibnizian scheme of things. I shall criticise and expound at the same time: the two can scarcely be separated if one is seeking to understand a philosopher.

First of all, then, to obtain some idea of what Leibniz meant by simple substances or monads, and why he thought such entities must exist as the ultimate constituents of reality. Incidentally, we shall see why he rejected the Cartesian conception of material substances as essentially that which is *extended* in space. We **[7]** might take as our text the first three paragraphs of the *Monadology* –

1. "The Monad, of which we shall here speak is nothing but a *simple* substance which enters into compounds. By 'simple' is meant, without parts.
2. And there must be simple substances, since there are compounds; for a compound is nothing but a collection or aggregation of simple things.
3. Now where there are no parts, there can be neither extension nor form, nor divisibility. These Monads are the real atoms of nature, and in a word, the elements of things".

This is an extremely compressed statement: in order to elucidate it we must turn elsewhere in Leibniz's writings. The passages to which I principally direct your attention are certain of the Letters to Arnauld [pp. 77-83 in the Everyman edition] and the first few pages of the "New System" [pp. 97-104 in the Everyman edition]. Now this compressed passage I have just quoted makes three fairly definite statements:

1. The existence of simple substances is implied by the existence of compounds, collections, aggregations.
2. Simple substances are non-spatial (i.e. they have neither extension, nor form, nor divisibility – *they have no spatial parts*).
3. They are the *real* elements of nature, and everything else is made up of them.

Notice that these conclusions, if the argument really establishes them, are very remarkable: indeed startling. The premiss is that there exist objects which Leibniz refers to as "compounds, collections, aggregates": the conclusion is that there exist a different kind of objects which have no parts, **[8]** are non-spatial, and are real in a sense in which the first kind of subjects are not real: in fact, the first kind of objects really consist of collections of objects of the second kind.

How does Leibniz argue for this conclusion? Clearly a lot depends upon what he means by "aggregates, collections, etc." He says over and over again, in the Letters to Arnauld: where there are aggregates there must be things which are not aggregate but true unities. Where there are entities whose unity is merely the manner of existence of certain other entities of a different type, then there must *be* entities of the second type in order for there to be entities of the first type. In his own words:

> It appears that what constitutes the existence of an entity by aggregation is nothing but a manner of existence of the things of which it is composed; for example, what constitutes the essence of an army is simply a manner of existence of the men who compose it. This manner of existence, then, presupposes a substance whose essence is not the manner of existence of a substance. (79)

The example helps to make the meaning clear. An army in nothing but a collection of men organised in a certain way. The army is not an entity having an independent existence: it is just a "manner of existence" as Leibniz puts it, of entities of a different type altogether, namely men. It is *convenient* to speak of it as if it were a single thing: but it is not *really* a single thing, but a multitude of single individuals. In modern logical terminology, we should say that the entity "ar-

my" was a logical construction out of individuals: Leibniz says much the same thing when he calls such **[9]** entities "fictitious" – "fictions of the mind" (83), "entities of reason" (78). If we consider how such entities as a heap of stones or the Dutch East India Company, to take two of Leibniz's examples – or a stamp-collection or a class of students to suggest two of our own – we can see, I think, that they are all entities of this kind. They are all *collections*: and any such collection can exist *only* if there exist entities which are *not collections of the same kind as that collection*. I.e. a stamp collection can exist only if there exist entities which are not themselves stamp-collections, namely stamps: an army can exist only if there exist entities which are not themselves armies, namely *men*: a heap of stones can exist only if there exist some things which are stones and not *heaps* of stones. Let us note down a list of those things whose existence implies the existences of other kinds of things; and a list of the kind of things whose existence is implied in each case, in order to see what we can notice about them.

[1] Collection	[2] Members
stamp-collection	a stamp
a heap of stones	a stone
a class	a student
an army	a man
[Type *n*+1]	[Type *n*]

Now I think it is very obvious that between the entities mentioned in the first list and the entities mentioned in the second list, there is a special kind of *relation* which is sufficiently indicated in the headings I have given to the two lists: the relation between a class or collection and a *member* of that class or collection. And I think it is **[10]** also obvious that any collection or class is a different *type* of entity from anything which is a *member* of that collection or class. We might express this by saying that the members are of a more *ultimate* or *basic* type than the classes: we might express this quasi-mathematically by fixing a number to anything which is a member of a certain class and a higher number to the class of which it is a member: if a stamp, or a man, for example, belongs to a type of order *n*, then a stamp-collection or an army belongs to a type of order *n*+1. This seems to have taken us some way from Leibniz. But it hasn't really. It helps us to see exactly what he is asserting or what he is *justified* in asserting when he says that the existence of an aggregate implies the existence of something which is not an aggregate. If he means merely that the existence of an aggregate implies the existence of something which is not an aggregate of the *same type or order*, we

may agree. The existence of any entity of type *n*+1 implies the existence of some entities of type *n*. An army can't exist without soldiers or a stamp-collection without stamps or a class without students. If an aggregate is defined as a collection, as something which has numbers, we can certainly agree that the existence of an aggregate implies the existence of some entities which are of a lower type-number than that aggregate, namely its members. But we cannot agree that the existence of aggregates enables us to infer the existence of some things which *are not aggregates at all*. **[11]** "*x* is of order *n*+1, has members, and exists" certainly enables us to infer "There are entities of orders *n* which are members of *x*". But it certainly does not enable us to infer: "There are entities which have no members". The existence of the United Nations Organization, for example, – an entity, let us say, of order *n*+1 – implies the existence of entities of order *n* – namely nations. But it does not imply that nations are not themselves collections having members of a still lower order, *n*–1 as in fact of course they are. No argument has been produced, in fact, to show that the series *n*-1, *n*-2 etc. must have an end: it might be infinite like the series of fractions between 0 and 1.

Nevertheless, although no argument has been produced to show that there must be entities which are not aggregates at all, there seems to be something quite plausible in this assertion. The mind shrinks from infinite series. And we can uncertainly agree that Leibniz has proved one point: namely that if any collection exists, some things of a lower type, a more fundamental type than that collection, must exist, namely its members. How does Leibniz use this argument to show that simple substances much be without parts in the sense of "non-spatial"? – First of all, remember that Leibniz has not yet succeeded in showing even that there must be entities which are not aggregates, in the sense of collections. He *has* shown that if there are collections, then there must be entities or a more fundamental type which are members of these collections: This **[12]** is indeed tautologous. But he has *not* shown that there must be some *members* of collections which are not themselves collections or aggregates. But although he has not shown this, we are prepared to regard it – as I say – as a plausible assertion, since we tend to shrink from the prospect of an endless series of collections of collections. We like to believe, as Leibniz liked to believe, that there are genuine unities to be found somewhere. Let us assume then for the moment that the assertion there exist entities which are simple substances (in the sense that they are not collections [or aggregates] of entities of a different type from themselves) – let us assume that this is a true and significant assertion.[1] How do we get from here to the conclusion that they

1 Question this "significant" later.

are non-spatial? That what is simple in the sense of not being a collection of entities of a different type from itself, is also simple in the sense of not having parts? There is only one way of getting from the one conclusion to the other: and that is, by making a mistake. This mistake Leibniz made. Anything extended, he said, is *as such* an aggregate because it is divisible. If everything extended is an aggregate, and no simple substances are aggregates, then it follows – with syllogistic certainty – that simple substances are not extended. That is to say, they have no spatial parts: they are non-spatial

If this conclusion was sound, then, besides being startling in itself, it at once exploded two respectable philosophical theories about the ultimate constituents of the universe, by both of which **[13]** Leibniz himself had been influenced, as he remarks in the "New System". First, it exploded the old atomic materialism, which had a classical ancestry in Greece and according to which the universe consisted of small material particles – atoms – whose relative motions produced the phenomena with which we are acquainted; since material particles, however solid and resistant and impenetrable in fact, *had parts*; they were divisible in thought; and therefore, if the Leibnizian hypotheses were correct, would not be the simple substances, which were the ultimate constituents of reality. Secondly and even more decisively, it exploded the fashionable Cartesianism according to which matter, whose essence lay in extension, in divisibility, was one of the ultimate substances: a position which, as you will remember, it shared with minds, or spiritual substances, whose essence lay in thought. The consequences of Leibniz's argument, then, if it was sound, were philosophically revolutionary at this time. Unfortunately the conclusion that simple substance is not spatial and has no parts, does not follow from the previous conclusion that no aggregate is a simple substance. For the sense of "aggregate" in which Leibniz had shown that no aggregate was a simple substance was the sense in which an aggregate may be defined as a collection of entities of a different type from itself (as stamps are of a different type from a stamp-collection and men are of a different type from armies). Leibniz, as I said, based the next step of his argument on the premiss: "Everything which has parts and is extended, is, *as such*, an aggregate." And this, of course, is the **[14]** mistake. Certainly what is extended *has parts*: That is another tautology. And what has spatial parts is divisible, at least in thought. But when you cut a piece of cardboard in half, you do not obtain two entities *of a different type* from the original piece of cardboard. A soldier is an entity of a different type from an army, a stamp is an entity of a different type from a stamp-collection, a student is an entity of a different type from a class. But half a piece of cardboard is *not* an entity of a different type from the whole piece of cardboard from which you cut it. The *mere* fact that an entity is spatially extended and hence di-

visible does *not* show that it is an aggregate in the sense of a collection of entities of a different type from itself. So the mere fact that an entity has parts does *not* show that it is *not* a simple substance, if by simple substances is meant – what Leibniz's previous arguments suggest is meant – viz. an entity that is not an aggregate. The confusion is obvious enough. It is the confusion between the relation of whole and part and the relation of collection and member. Leibniz has been at pains to show that the fact that something is a *collection* with members implies that it is not a simple substance: but, if this is intended as a *definition* of "simple substance", then it simply does not follow that something which is a whole with parts is not a simple substance.

It is important to uncover this confusion for Leibniz has really given us two separate and distinct definitions of substance: (1) as **[15]** that which is not an aggregate (in the sense of a collection with members); second, as that which has no parts. He then used the first definition to try to convince us that there were simple substances and that they were the ultimate elements of reality. We saw that this demonstration was not formally valid since, while the existence of collections does imply the existence of entities which are not collections of *that type*, it does not imply the existence of entities which are not collections at all. Or in other words it does *not* follow from the fact that there are entities which have members, that there are entities which have *no* members. But, although the demonstration was not formally valid, we were prepared to concede as reasonable the assertion that there *were* simple substances in this sense, i.e. entities which were not collections. Now, having used the first definition to persuade (rather than convince) us that simple substances are the ultimate elements of reality, he then uses the second definition to persuade us that nothing extended or spatial is a simple substance. But this convenient exchanging of definitions is not philosophically admissible. On the first definition, we are perhaps prepared to concede as reasonable the assertion that everything either is a simple substance or consists of a collection of simple substances or a collection of such collections. But if the new connotation – non-spatial, without parts – is added to the definition, we are no longer prepared to concede that as even a plausible assertion without some additional demonstration that

> (i) the existence of something with parts presupposes the existence of something without parts (which is not at all obvious)

and **[16]**

> (ii) that that which has parts *really* consists of that which has no parts (which is still less obvious).

But for this no demonstration is offered at all. All that Leibniz's arguments on this point have shown is that the existence of a collection presupposes the existence of members of that collection. They have not shown that the existence of collections presupposes the existence of things which are not collections, though we were prepared to regard that assertion as plausible in itself. Once the confusion of the collection and member relation with the whole and part relation is pointed out, it becomes obvious that the only corresponding conclusion he is really justified in asserting in terms of the second relation is that the existence of something which *has* parts presupposes the existence of the parts. It certainly does not presuppose the existence of anything without parts. Of course, if we adopt the definition of simple substance as that which has no parts, it follows immediately that nothing extended, and hence divisible, is a simple substance. But then there has been no proof that what seems to us extended matter really consists of simple substances in this sense, and indeed as proof that simple substances in this sense exist at all. The assumption that the ultimate constituents of reality are simple substances in this sense is seen for what it is – just an assumption, a postulate – if you like, a definition.

Starting, then, from this assumption – that the real elements of things are non-spatial and consequently have no spatial parts – what other characteristics does Leibniz ascribe to these **[17]** simple substances which constitute reality? The purely negative criterion of having no parts,no spatial magnitude, is satisfied by a *mathematical point* (see "New System" pp. 98 and 103-4). But, as Leibniz quite clearly saw, a mathematical point is purely an abstraction and the hypothesis that the universe consists of mathematical points is absurd. To mention only two of the arguments Leibniz uses to show that this is so. First, *change* would be totally inexplicable <Monadology para. 8>: for since a mathematical point is nothing but a position, it makes no sense to talk of the motion or change of position of such abstract entities. Or to put it as Leibniz did, if – *per impossibile* – motion did occur, the state of affairs after the occurrence of motion would be quite indistinguishable from the preceding state of affairs. But, even more final from Leibniz's point of view, since a mathematical point is defined by its position alone, it makes no sense to talk of the "real existence" of such a point unless the "real existence" of space is presupposed. But space is infinitely divisible, has parts, and is not therefore on Leibniz's view a "real existence". Committed in advance to the view that space is not ultimately real, Leibniz cannot make the ultimately real substance depend for its existence upon space. It is evidence enough, then, that simpler substances must have some positive characteristics in addition to the negative characteristic of "having no parts" or being non-spatial. Where, then, are we to find something which satisfies the negative requirement of

having no spatial parts and yet does exhibit some positive **[18]** qualities? <*26th April*> For the answer, Leibniz turned from the physical to the mental world. The conscious self or mind, or soul, is certainly in a sense non-spatial, though it is associated with a body which is spatial. Yet at the same time it exhibits a rich diversity of positive characteristics: perception and emotion of all kinds, and a great diversity of thoughts and volitions. In "what is called the *I* in us", as Leibniz puts it <New System p. 103>, he thought he had found an example of what he was seeking – the necessary combination of unity and variety: of unity and or simplicity in the sense of having no spatial parts; of variety, in the sense of having a diversity of different states. Might it not be possible, then, to conceive all simple substances as in some way *analogous* to the self; to conceive the whole universe, even what appears to us as extended matter, as made up of an infinite number of these simple substances which were *analogous* to souls. Of course, "*analogous*" is the word to be stressed. The suggestion is not at all that every simple substance is fully conscious. Even *we* experience considerable variations in the degree of clarity of our perceptions. We may *see* something, as we say, without noticing it at the time: we have, so to speak, *unconscious* perceptions. May not that which we *see* [appears] as inert extended matter – [for our perceptions are only *relatively* distinct and clear] – really be made up of non-extended simple substances whose own perceptions or successive states are always totally unconscious? The fact that we see it as extended matter will be due to the fact that even our perceptions are only *relatively* distinct and *relatively* clear. If this world **[19]** picture is acceptable, then instead of the rigid Cartesian dualism of two totally distinct kinds of substance – minds whose essence is thought, matter whose essence is extension – we have a multiplicity of substances all of one kind in that they are non-extended, but forming a minutely graduated series in respect of the clarity of their perceptions.

This suggestion, then, seems to Leibniz both to satisfy the requirements of simplicity in substances, and to represent a notable improvement on the rigid Cartesian dualism of mind and matter. There was another respect, which I shall do no more than mention now, in which Leibniz considered his revised picture of the physical universe superior to the Cartesian model. Descartes of course had maintained that the essence of material substances was extension: and that once the system of the physical universe was, so to speak, set going, the quantity of motion in that system remained the same. Motion was not an essential attribute of bodies <Letter to Bayle "Cartesian Theory of Quantity of Motion" p. 88-96 Everyman>; which, as such, were passive or inert – it was something brought in from outside (by a miracle or by God) and once introduced, its quantity remained constant. Now it was easy for Leibniz to show – from experimental dynamics – that the quantity of motion (defined as mass x

velocity) did not remain constant: that it was necessary to maintain that it was energy (or as Leibniz called it, "*force*"), not motion, that was conserved. Now, said Leibniz, the force of a body is measured by its effect; but it can't be identical with those effects. The force of a body must then be something *in* the body, a capacity for *producing* these effects, a kind of spontaneous activity: but if this is so, the essence of body cannot consist solely in extension for a merely extended substance is as such quite passive and not endowed with anything **[20]** which could be called "force". But if we conceive all simple substances as non-extended monads, analogous to minds, there is no difficulty: for just as we find in conscious minds such spontaneous activities as willing and thinking, so we can postulate, as analogous to these, a kind of unconscious activity in those inferior monads of which what we see as material objects are composed. So the hypothesis of simple substances as "living points", non-extended but active, receives confirmation from dynamics.

With the merits of this argument from dynamics, which seems to me neither clear nor convincing, I am not at the moment concerned <Anticipation (?) of modern physical theory>: though it is worth mentioning, at this stage, to indicate the cleavage between Cartesian and Leibnizian conceptions of substance, and to contribute a detail to this initial rapid sketch of some of the characteristics of the Leibnizian monad. Obviously this sketch of the positive characteristics of Leibniz's simple substances – the "real" elements of the universe – raises a simply enormous number of questions, with which we shall try to deal in due course. The point I am concerned with at the moment is a relatively restricted but extremely important one.

It is this: that as soon as he starts describing the *positive* characteristics of his simple substances, saying what sort of things they positively are, Leibniz introduces, without explicitly mentioning it, another element into his definition of a simple substance. The first definition of simple substances we considered was: that which is not an aggregate; the second definition was: that which is without parts. **[21]** Now clearly if the simple substance was to be anything real at all, it had to have *some* positive property or properties, not merely the negative property of not being spatially extended: otherwise it would be a mere abstraction, like a mathematical point. Looking, therefore, for something which is non-spatial but has some properties, Leibniz immediately hits upon the soul, the self, the "I" as the name of a substance; of something, that is, which satisfies his requirements for a simple substance. Now this, if we consider carefully the previous definitions of a simple substance, is a little surprising. For the conscious self, though it is not extended in space, is certainly continuous through time. It has perhaps no *spatial* parts: but it is not obviously nonsense to say that it has temporal parts. Now time, like space, is infinitely divisible: just as there is no finite spatial ex-

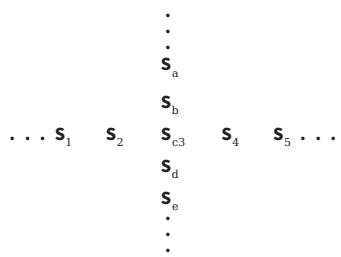
tension which is not, in thought at least, divisible, so there is no finite *temporal* duration which is not, at least in thought, divisible. If "simple" (*indivisible*) atoms are a contradiction in terms, so are "simple" (*indivisible*) instants. If nothing extended in space can be a simple substance, how is it that something extended in time can be a simple substance? Why should time be treated differently from space in this respect, and temporal parts differently from spatial parts? Our perplexity deepens, indeed, when on further investigating the Leibnizian system, we find that he does in fact treat space and time as on the same footing, and adopt a **[22]** relativist theory for both. And if we neglect the second definition of a simple substance as that which has no parts, and turn to the first definition – that which is not a collection or aggregate – the puzzle is not removed. For it is at least plausible to maintain, as Hume did and as many modern philosophers do, that the self is an *entity by aggregation* in Leibniz's sense of the term. It might be argued, that is to say, that the self is not simple at all: that what we call the self is *really* a collection of mental events related to one another in a certain unique way, the chief relational element in this unity-by-aggregation being the relation between mental states which we call memory. If we adopted such an account of the self – and it is certainly seems plausible – then it would satisfy perfectly Leibniz's definition of an entity by aggregation: to remind you of it – "what constitutes the essence of an entity by aggregation is nothing but a manner of existence of the things of which it is composed" <p. 79>. Then, for example, to say that the mental events e_1 and e_2 belonged to the same self would be to say that e_1 and e_2 were related to one another and to other events in a certain way; just as to say that two soldiers s_1 and s_2 belonged to same army would be to say that s_1 and s_2 were related to one another and to other soldiers in a certain way. Logically, then, it would seem that Leibniz should maintain that simple substances are analogous, not to selves, but to mental events. But even this analogy is not very helpful when we remember the second definition of a simple substance as that which has no parts: for it is difficult to conceive of anything which we should call a mental event which **[23]** does not extend over *some* finite period of time, however short: but to be absolutely without temporal parts, it would have to have no temporal duration at all. Logically, then, it would seem that Leibniz ought to maintain that simple substances have neither extension nor duration: that the qualities they have, they have both timelessly *and* – so to speak – spacelessly: and that the appearance which things exhibit of being extended in space and enduring through time are, *in both cases*, due to failure of clarity in the perceptions of simple substances. This is the conclusion which Leibniz should have drawn: and, in fact, this is the conclusion that he did draw: *whenever* he took the problem of time seriously. But of course, once this conclusion is drawn, there seems to be no long-

er any ground for maintaining that the self *as we know it* is a simple substance at all: for what we refer to when we talk of the self is certainly something which has duration; which *was* yesterday; which *is* today; and – we trust – *will be* to-morrow. And if this is so, the suggestion that simple substances are at all analogous to selves as we know them, breaks down.

But on the whole I think we can say that Leibniz failed to see this clearly. And if we ask why he failed to see it, I think the answer is that when he started to talk of the positive characteristics of this simple substances, Leibniz made an assumption about simple substances which was not included in his earlier definitions, and was, if interpreted in the most neutral way, incompatible with them. The two earlier definitions we are familiar **[24]** with: that which is not an aggregate (i.e. is without members) or collection; and that which is without parts. The third characteristic of simple substances which Leibniz assumes without explicitly mentioning it in the definitions is that *it is the subject of change*. (Although he doesn't make this part of the definition of "substance", he makes the assumption quite explicit in para. 10 of the *Monadology*: "I assume also … that every created being and consequently the created Monad is subject to change".) Now the most *natural* interpretation of "X is the subject of change" is "X has different properties, or is in different states, at different times". But if that which is without parts has neither extension nor duration – is not extended, so to speak, in either space or time – it is a flat contradiction to say that the simple substance is without parts *but* has different properties at different times: for a thing can have different properties at different times only if it has duration. Of course, there is a way out, as I have suggested; and it is the way which Leibniz followed when he took this particular problem seriously. And that is to say that the properties of a simple substance are related to one another by non-temporal relations which *appear,* to the confused perception of the simple substance itself, as a temporal sequence. But to take this way out is also to abandon the ground on which the self was *said* in terms of be a simple substance in the first place. For in the case of the self we were said to have *experience* or distinct knowledge of a simple substance with a diversity of states or properties <Monadology para. 16>; whereas, though we certainly **[25]** experience diversity in our states of mind, we also experience those states as enduring through time or temporally successive; and thus cannot be said to experience the self as *simple*, if "simplicity" is taken seriously as regards time as well as space. Similar considerations apply to the argument from dynamics designed to show that simple substances must be endowed with "force". "Force" is known, and measured, by its *effects*: but the sequence of cause and effect is a *temporal* sequence, and, thus, if the concept of "simplicity" is to be taken seriously, can only be the mode of *appearance* of the *real* relations

between substances. The whole concept of *change*, too, – of having different states, or properties, at different times – is thoroughly temporal: on the face of it, there is just as little reason for suggesting that a *simple* substance should be the subject of change as for suggesting that it should be extended. Why in fact should Leibniz think of his simple substances, defined as he defined them at first, as being the subjects of different states at all? Wouldn't it be a simpler hypothesis, more consistent with his original definition, to conceive of the universe as consisting of an infinity of simple substances which might be called (on analogy with Leibniz's own metaphor of "metaphysical points") – "metaphysical point-instants" – so ordered, in non-spatial, non-temporal relations, that they appeared, say, as temporally successive states of an aggregated self or spatially contiguous parts of a material thing?

[We might pause, for a moment, to construct a model of a tiny fragment of such a universe. Let S_a, S_b ... etc. and S_1, S_2 ... etc. be **[26]** simple substances, ordered in various relations.



Then the relation between S_a ... S_e etc., represented by this vertical displacement in the diagram, might be such as to constitute them what appears as successive states of a single self. The relation between S_1 ... S_5 etc., represented by their horizontal displacement, might be such as to constitute them what appears as a material thing, (say a table). S_{c3}, which belongs to both series, might be what we should describe as "the self perceiving the table". There is no need, in this model, to suppose that any *substance changes* or that any substance is extended. Change, and spatial or temporal relations, would be merely the appearance of the real inter-relations of the simple substances.]

Nevertheless, although there is nothing self-contradictory about such a model as this, and it is indeed what Leibniz's first definition of a substance (as that which has neither members, nor parts, is neither as aggregate nor a divisible whole) would lead us to expect – nevertheless it is plain that this is not the Leibnizian model. The new kind of element in his account of substance – that which is

the subject of change, has different properties at different times – is essential to the whole system: though of course, since time is only appearance, the real relations between different properties of the *same* substance must be non-temporal. This third element must, in fact, rank as part of the definition of substance. The fact that it is so diverse from the first two elements in that definition **[27]** and even difficult to reconcile with them, suggests that we have not yet dug down to the logical foundations of Leibniz's conception of substance. And it is to Leibniz's logical doctrines that must now turn, to begin the "second phase" of our attack on this philosopher. We shall find that these logical doctrines not only illuminate this particular problem of Leibniz's conception of substance, but form the framework of the whole system.

(a) The Subject-Predicate Doctrine and the Denial of Interaction

Running through the whole of Leibniz's letters to Arnauld <G II pp. 10-138> (and elsewhere in his writings) you will find one phrase that recurs, with variations, like a refrain. It is "*verae propositionis praedicatum inest subjecto*": the predicate is included in the subject of a true proposition – an old and respectable doctrine of the scholastic logic. Notice that it really says two things; or, rather, it makes *one assumption* which Leibniz, and everyone else at the time, took for granted and never thought of questioning; and then, on the basis of that assumption, makes one further *assertion* on which Leibniz laid tremendous stress and interpreted in such a way as to derive from it results which he himself calls paradoxical and surprising <Ev. p. 67, 73>. What are, respectively, this assumption and this assertion?

(i) That all propositions whatever have a certain logical form i.e. they all ascribe a predicate to a subject.
(ii) That in the case of all *true* propositions, the predicate is included *in* the subject:

or, in Leibniz's words "Of every true proposition every predicate, necessary or contingent, past, present or future, is contained in the *notion* of the **[28]** subject" <p. 71>. From this principle Leibniz claimed to devise such distinctive doctrines as the Denial of Interaction between substances, the Identity of Indiscernibles and even the Principle of Sufficient Reason. The doctrine is clearly important. What, then, does it mean?

In the course of his letters to Arnauld, Leibniz offers two arguments which are intended not so much proofs of his principle as illustrations of it. These I propose to paraphrase:

(1) Suppose, he says, I go on a journey (let us say, a journey to Paris) next week <pp. 70-73 [Ev.]>. Then the proposition "Leibniz goes to Paris at time *t*" is a true proposition; its subject "Leibniz", its predicate "goes to Paris at time *t*". But the predicate of a true proposition is included in the notion of the subject. i.e. the "complete notion" of the subject (L) is such that, if we knew it, we could deduce from it not only that L. would take this journey to Paris, but all the other predicates of this subject, that is to say, everything that ever happens to Leibniz and all that he ever does. Given the existence of Leibniz, then it is *certain* that everything will happen to him just as it does and not in any other way; because all these events can be expressed as true propositions with "Leibniz" as their subject, and all the predicates of these propositions are included, so to speak, in the *definition* of the subject-term "Leibniz". So that "Leibniz" wouldn't *be* "Leibniz" at all unless he did exactly what he does do in fact. Furthermore, if it is true that "Leibniz goes to Paris at time *t*", then it *always was* true, just as if it is true that it will rain to-morrow, then it is true *now* and always has been, even though **[29]** no human being knows for certain whether it's true or not, or has even thought about it. Similarly, every other proposition, truly asserting some state of Leibniz's or some event which happens to him, does not merely *become* true when the event occurs, but was always and timelessly true. Thus, since the predicate of every true proposition is included in the notion of the subject, the complete individual notion of Leibniz involves eternally everything that will ever happen to him, all his states, all his "predicates".

That is the first illustration. And I think our first reaction to it is to say that, if this is all the doctrine of inherence of the predicate in the subject amounts to, then it amounts to very little more than a set of tautologies. If a subject is *defined* by the totality of its predicates, then it is certainly true, but also trivial, to say that it wouldn't be the subject that it is, unless it has the predicates it has. Since we are not in a position to frame such definitions, the point is not of much practical importance. As regards the second point in the illustration, it is also tautologously true to say that all true propositions about the future are true now, though we don't know them. But from this point again, no interesting conclusions follow.

This first illustration of the principle of inherence, then, sounds at first, like an announcement of the most rigid determinism and then looks, on closer examination, like a set of trivial tautologies. Leibniz, as we shall see, would have rejected the suggestion that it was either. Let us look at the second illustration.

(2) This involves a reference to the identity of **[30]** the subject of two propositions referring to different times <p. 66 Ev>. "Leibniz was in Paris at time t_1". "Leibniz is in Germany at time t_2". By what right,

says Leibniz, can we say that the person referred to in the first proposition who *was* in Paris is the same as the person referred to in the second proposition who *is* in Germany? And, he answers, the only reason we can have for saying this is that both predicates "being in Paris at time t_1" and "being in Germany at time t_2", and all the other predicates <p. 67> associated with the subject of each of these propositions at each of these times, are included in one and the same subject. "And," he concludes, "since from the time when I began to exist, it was possible to say of me truly that this or that would happen to me, it must be acknowledged that predicates were laws included in the subject, or in the complete notion of me which caused me to be called *I*, which is the foundation of the interconnection of all my different states, and which was perfectly known to God from all eternity".

I think the comment we are inclined to make on this illustration is similar to those we made on the first: i.e. if the complete notion or definition of a subject includes *all* its predicates or all that can be truthfully said of it, then *clearly* two predicates can be the predicate of the same subject only if they are both included in the definition or complete notion of that subject. This conclusion, like the previous conclusion that all the predicates of a given individual are included in the complete notion of that individual, **[31]** follows quite clearly from the sense in which Leibniz has elected to use the expression "complete notion". In fact we can, if we like, regard these illustrations, and many others which occur in the letters to Arnauld, as simply making clear the meaning of that expression. The concept of a "complete notion", so considered, is a bare logical concept, of no practical, or, indeed, metaphysical, importance: and the statement that all the predicates of an individual are timelessly included in the complete notion of that individual is, from this point of view, merely another way of uttering such tautologies as: "Every individual has the properties it has"; or "If an individual did not have the properties it has, it would not have those properties"; or "Any true proposition asserting that an event occurred at such and such a time is true at all times".

But, plainly, if the principle that the predicate of a true proposition is always included in the notion of the subject amounted to no more than this, Leibniz would scarcely have accorded it the importance he evidently did accord it. That importance was considerable. For he directly based his *metaphysical* conception of a substance upon this *logical* conception of the subject of a true *singular* proposition. [The qualification "singular" I shall explain in due course]. From the complete notion of a logical subject, all its predicates can be derived by a process of logical analysis without reference to anything else in the universe. Therefore – and this is a simply enormous non sequitur – all the states of a substance develop by its own internal activity, from its own **[32]** intrinsic nature, without reference to anything else in the universe. Admittedly the process of logical analysis can-

not be performed by such as ourselves: we cannot predict everything that will happen to a given individual because, with the limitations of our knowledge, we can never form the "complete notion" of that individual. "Complete notions" are known only to God; and it is God also who actualises a given "complete notion", creates the individual substance of which it *is* the notion. But *once the substance is created*, its states develop with complete necessity, unaffected by anything else in the universe, in accordance with the inner laws of its own nature. To quote Leibniz: "The proposition in question [i.e. that every predicate … is comprised in the notion of the subject] is of great importance, and deserves to be established, for it follows *that every soul is as a world apart*, independent of everything else except God; … that it keeps in its substance traces of all that happens to it." <G II 46-47 Arnauld.> Here, then, we have the logical foundation of one of Leibniz's most characteristic doctrines: the denial of interaction between substances. This logical doctrine of the inherence of predicate in subject was not the only reason for the denial of interaction: that denial was a popular philosophical prejudice of the time. But there is no doubt that Leibniz thought it an extremely cogent argument, perhaps the most important of all. Clearly then there must be more involved in this logical doctrine than we have so far discovered, and I shall have more to say in a moment about the connection between the subject-predicate logic and the denial of interaction. First of all, however, notice that this argument from logical subject to metaphysical substance also provides answers to the question with which I ended phase (1) **[33]** of these lectures. That question was: how could Leibniz consistently define the substances which formed the ultimate realities of things as *simple* i.e. as having neither duration nor extension, and yet at the same time assume without any question that simple substance was the subject of change, the subject of different attributes at different times?

The analogy of the logical subject and the metaphysical substance – I won't say, makes the answer clear, but at least indicates the form of an answer. The "complete notion" of the logical subject includes *timelessly* all the predicates of that subject, although these predicates are of the form "has property *p* at time t_1", "has property *q* at time t_2" and so on. If the metaphysical substance is to be conceived analogously to the logical subject, as the actualisation of the "notion" of that subject, perhaps Leibniz can say that the substance contains timelessly a complex property whose complexity manifests itself in the temporal order as the succession of properties *p*, *q* and so on. This, in effect, is what he did say: the complex property he christened the "activity" of the substance, i.e. the principle in virtue of which changes occurred in it as they did occur, the law of succession of its states. He goes so far as the say that activity is the essence of a substance – cf. the famous definition which begins "The

Principles of Nature and of Grace" – La substance est un être capable de l'action. <G VI p. 598 P of N & G.> But it is difficult to believe that the notion of activity really removes the time-difficulty. If the temporally successive states really are different states of the same substance, then that substance is something which endures **[34]** in time. If, on the other hand, the substance is nothing more than a timeless "law-of-succession" of states (i.e. *simply* a "*logical* subject" of a collection of true propositions), then the substance is merely an aggregate, a collection of states related to one another in certain ways; and to say that two states belong to the same substance is simply to say that they both form part of the same independent series of states related by the law of that series. Leibniz would certainly have rejected this view, [since he was convinced by his own logical argument that different states could be states of the same person only if the corresponding predicates inhered in an individual subject, since he was so firmly wedded to the analogy between "different predicates of the *same* logical subject" and "different states of the *same* substance". Logic *seemed to* require some identical something in which the different states inhered. The Leibniz who was in Germany at t_2 was the same as the Leibniz who was in Paris at t_1 only because all the predicates of each inhered in one identical logical subject: and since, as we have seen, he argued from logical subject to metaphysical substance, this meant saying that his states at time t_1 and at time t_2 inhered in the one identical substantial Leibniz.] <since he was so firmly wedded to the analogy between "different predicates of the *same* logical subject" and "different states of the *same* substance". Logic seemed to require some identical something in which the different states *inhered*.> The truth is that, most of the time, Leibniz thought of substance as something identical which endured though time, the permanent subject of change; it was only occasionally, when he faced up to the time-difficulty, that he was inclined to hedge about this.[2] The doctrine of activity as the essence of substance doesn't really get him out of this difficulty (cf. ch. IV – Russell: *Philosophy of Leibniz*, "Substance"). But perhaps the principal importance of the doctrine of activity is in connection with the denial of interaction between substances: and to this question I shall now return. <*May 3*>

2 The odd thing is that Leibniz didn't realise that his argument from logical subjects to metaphysical substances was inconsistent with his requirements of *simplicity* in substances – countless aggregates, from the Empire State Building to the Dutch East Indies Company, can stand as a logical subject of different predicates and different times. Are they all to include timelessly their predicates and be capable of spontaneous activity?

[35a] You will remember in our last lecture that Leibniz seemed to proceed as follows:

> (1) Define a complete notion of a subject as the totality of all true propositions about it; or as a notion such that all true propositions could be obtained from it by logical analysis

and then:

> (2) Assume without further argument that a substance was a kind of hypostatized "complete notion", an entity of which all the states sprang simultaneously from itself without reference to anything else in the universe.

This procedure is so obviously preposterous that we must conclude that we have failed to grasp the full significance of the logical doctrine we are investigating. **[35]**

You will remember that when we first began to consider the doctrine that the predicate of every true proposition is included in the subject, I recommended that the doctrine really contained two parts: an assumption, and an assertion. The assumption was that all propositions were of a certain form, viz. the subject-predicate form, i.e. that every proposition ascribed a predicate to a subject. The assertion was that, in the case of every *true* proposition, the predicate was included in the notion of the subject. Now this logical assumption that all propositions were of the subject-predicate form was so fundamental to Leibniz's thought that he took it entirely for granted and never even explicitly stated it, yet the assumption is extraordinarily important: for from it alone (*without* the additional claim of *inest in subjecto praedicatum*] there immediately follows the denial of the reality of relations and consequently the denial of interaction between substances.

Let us see how this is so. First of all we must ask: What is a proposition? I think the simplest answer to this question is that a proposition is the meaning of a sentence: a proposition is what a sentence expresses. Thus different sentences which have the same meaning will all express the same proposition. For example, the following sentence "The king of England is dead," "The English monarch is dead", "*Le roi d'Angleterre est mort*" are recognisably different sentences; but they all have the same meaning, they all express the same proposition. In terms of the subject-predicate doctrine, we may say that all three sentences have the same meaning or express the same proposition, *because* they all refer to the same subject, and they all ascribe to that subject the same predicate. And, **[36]** furthermore, if the subject-predicate form is the only form of proposition, if the only correct logical analysis of any proposition whatever is into (1) the

subject and (2) the predicate that is ascribed to it; then clearly the *only* occasion on which different sentences can have the same meaning or express the same proposition are occasions when they each have the same subject and each ascribe to that subject the same predicate. To say that two sentences s_1 and s_2 have the same meaning or express the same proposition will be the same thing as saying that the subject of the proposition expressed by s_1 is identical with the subject of the proposition expressed by s_2 and the predicate of the proposition expressed by s_1 is identical with the predicate of the proposition expressed by s_2.

But now consider the two following sentences:

1. Brutus stabbed Caesar
2. Caesar was stabbed by Brutus.

I think we should normally say that both these sentences had the same meaning; that they were two *equivalent* ways of saying that two individuals, Brutus and Caesar, were related by a certain relation. But if we do this, of course, then we are saying that the proposition expressed by both of these sentences alike is not of the subject-predicate form at all: it hasn't merely a subject and a predicate identical in both the sentences which express it: it contains *two* terms and a relation between them, which relation can be correctly described either as "stabbing" or "being stabbed by" according to the direction, so to speak, from which we look at it. If then we interpret these two sentences in the most natural way as describing one and the **[37]** same state of affairs, as having the same meaning in expressing the same proposition, we must give up the doctrine of the universality of the subject-predicate form of proposition and admit some propositions as irreducibly relational in form. But suppose, like Leibniz, we are irrevocably wedded to the view that all propositions ascribe a predicate to a subject. What are we to say of these two sentences? The subject of the first is *Brutus* (B): to him is ascribed the predicate *"stabbed Caesar"*. Let us call this predicate p_1. The second sentence has a different subject, namely Caesar (C), and a different predicate, namely "was stabbed by Brutus". Let us call this predicate p_2. Then the first sentence expresses a proposition of the form "B has p_1", where B is the subject and p_1 the predicate; and the second sentence expresses a proposition of the form "C has p_2", where C is the subject and p_2 the predicate. But two sentences of subject-predicate form only have the same meaning when the subject and predicate of the proposition expressed by the one are respectively identical with the subject and predicate of the proposition expressed by the other. But Brutus is certainly not identical with Caesar, nor is p_1 identical with p_2. Therefore the sentences do not have the same meanings, but express quite different propositions. There is no such thing as *the re-*

lation between B and C which can be indifferently described by saying that B stabbed C or C was stabbed by B. The so-called "relation" is only a fiction of the mind. It is a fact that Brutus has one predicate, and it is also a fact that Caesar has another predicate: but these are quite distinct facts, one a fact about **[38]** Brutus and the other a fact about Caesar and there is no real relation or connection between Caesar and Brutus at all.

This conclusion – the denial of the reality of relations – doubtless seems to us fantastic; if it followed from our doctrine of the logical form of propositions, we should be inclined to think there was something wrong with our logic sooner than accept such a conclusion. But there is no doubt that Leibniz drew it. I refer you to the correspondence with Clarke, when he considers the parallel case of a relation of difference in size between L and M <pp. 222-223 (Ev.). G VII 347-421>. (The inference from the logical form of propositions to the nature of reality is very clearly indicated by the parallelism between the subjects and predicates of propositions on the one hand, and the substances and accidents of reality on the other). What, he asks, are we to say of this "relation"? "We cannot say that the two, L and M together, are the subject of such an accident, for in that case we should have an accident in two subjects, with one leg in one and one leg in the other, which is contrary to the notion of accidents. Then we are bound to say that … being neither substances, nor accidents, it must be a purely ideal thing …" [i.e. contrary to the subject-predicate logic]. Leibniz contemplates for a moment the hypothesis that things really are related to one another: that there really is a relation between L and M, which can be indifferently described by saying either that L is greater than M or that M is smaller than L; but, because it does not accord with his subject-predicate logic, his substance-accident picture of the world, he thrusts it aside in favour of the view that L and M each have totally independent predicates **[39]** (being greater than M, and being smaller than M, respectively) out of which we manufacture this fictitious idea of a size-relationship between L and M. I will quote one more instance of this curious blindness, induced by the subject-predicate logic, on the subject of relations. This is from where Leibniz says: "You will not, I believe, admit an accident which is in two subjects at once. Then I hold, as regards relations, that paternity in David is one thing and filiation in Solomon is another, but the relation common to both is a merely mental thing, of which the modification of singulars are the foundation." <G II 486 Letter to Des Bosses> As in the case of B. and C., there is no real relation between D. and S. which can be indifferently described by saying that "David is the father of Solomon" or that "Solomon is the son of David". On the contrary, these two sentences have quite different meanings: one ascribes a predicate to David, and the other ascribes a quite independent predicate to Solomon and there is no

connection at all between two subjects except a purely fictitious one which we manufacture and call the relation between them.

We might summarise as follows the problems created for subject-predicate logic by such pairs of sentences as "Brutus stabbed Caesar" and "Caesar was stabbed by Brutus". Such a pair of sentences present us with the following choice:

1. First we can say – and this is the natural thing to say – that both sentences have the same meaning because they are simply alternative ways of describing one and the same fact, namely a certain relation between Brutus and Caesar. But if we say this, we abandon the subject-predicate doctrine and admit that some propositions are irreducibly relational.

[40]

2. Secondly we can admit that the two sentences have the same meaning, and at the same time to preserve the subject-predicate doctrine in an esoteric form by saying that ultimately there is only *one* subject – Reality or Spinoza's God or what you will – to which both sentences ascribe the same predicate. This is roughly the position of Spinoza.
3. Or finally, if you wish to avoid Spinozism, you can preserve the subject-predicate logic by denying that both sentences have the same meaning. In other words, you will have to deny relations, and say that each sentence independently describes a characteristic of its own subject, and that there is no necessary connection *between* these characteristics. This is Leibniz's solution.

But plainly it is a solution which raises a tremendous problem. Leibniz claims to have shown that relations are purely ideal; but admits that consideration of them may nonetheless be useful. Relations may be purely mental: but there is some "foundation" for our belief in them in the "modification of singulars" <p. 223>. The denial of relations involves of course the denial of interaction: since one substance cannot be said to act upon another if there is no real relation between at all. But there certainly seems to be interaction. How is the appearance of interaction to be accounted for? Is it an accident that Brutus' having the predicate which we describe as "stabbing Brutus" corresponds so exactly with Caesar's having the predicate which we describe as "being stabbed by Brutus"? But, if it is not an accident, is not the hypothesis of interaction between the substances the simplest explanation of the **[41]** correspondence? Leibniz's solution to this problem is one of the most characteristic features of his philosophy and one of which he was extremely proud <Cf. N.S. pp. 104-108 (Ev.)>. The correspondence between the predicates of different substances, he said, was certainly not accident, nor was it to be explained by the hypothesis of interaction which was quite inconsist-

ent with the whole notion of substance. The states of each substance succeeded one another in accordance with the laws of its own nature and entirely uninfluenced by any other. But the laws of development of each substance were such that at each moment its states *corresponded* exactly with the states of every other substance. So that although there was no interaction, there was a complete and unfailing harmony between the state of any substance at any time and the state of any substance at that time: and it was this unfailing harmony that we took for causal interaction. Furthermore, since the complete relation of a substance included once for all everything that ever happened to it; or, in other words since the principle of activity of a substance was timelessly in that substance; then, once a mutually harmonising set of substances was created, their natural adjustment did not call for periodical interventions of the Creator, but was ensured, once for all, by the initial act of creation.

This fortunate dispensation Leibniz referred to as "The Pre-Established Harmony", and was perhaps more pleased with it than any other of his inventions; or, as he might have preferred to put it, his discoveries. In particular, although it was of course of much wider application than this – he thought it provided the solution to the problem of mind-body interaction which had bothered everyone intensely **[42]** ever since Descartes shirked the question so badly. Descartes' followers, left with this awkward problem on their hands, had resorted to the absolute expedient of making God intervene, on every occasion on which a bodily modification occurred, to produce a corresponding modification in the mind, and vice versa – a hypothesis known as Occasionalism. They couldn't see otherwise how to bridge the gulf between spatial substance whose essence was extension, and non-extended minds whose essence was thought. Leibniz must have thought the necessity for making these continual adjustments a little inconsistent with the divine dignity: he certainly considered that his own hypothesis of one supreme adjustment made at the moment of creation and never calling for maintenance or repair, reflected more credit on the deity.

However, this is to anticipate the general picture a little. My purpose in examining this first logical doctrine on which Leibniz lays so much stress – the principle that "*verae propositionis praedicatum inest subjecto*" – is to show how it provides the key, or at least an important part of the key, to a good many of his *metaphysical* doctrines: the doctrine of the *activity* of a substance; the spontaneous unfolding of its states without external influence; the denial of interaction between substances; and the doctrine of the Pre-Established Harmony. These three aspects of the Leibnizian picture of the world and of substances – which we cannot yet regard as complete, even in outline – are obviously closely related to one another, and to the logical doctrine we have been discussing. The logical subject, time-

lessly containing all its predicates, is an abstract model of the metaphysical substance, timelessly containing the principle **[43]** of succession of all its states.

Why did this argument from logic, which seems to us preposterous, seem to Leibniz convincing? Well, I think it has in common with many metaphysical arguments the following feature. The logical doctrine *can* be interpreted in such a sense as to be tautologously true: in this sense it is also trivial and no interesting consequences follow from it. This is the way in which I interpreted it to begin with; and, as I said, it is an enormous non sequitur to argue from thence to the denial of interaction. Or the logical doctrine *can* be interpreted in such a sense as to entail the denial of interaction, and the other interesting consequences that Leibniz draws: but in this sense the logical doctrine is obviously false. Metaphysical conviction is produced by changing senses at the right moment. Then it is a tautology to say that the complete notion of a subject timelessly includes all its predicates, if the "complete notion of anything" is defined as "the totality of true propositions about that thing", and a predicate of anything is defined as "any true proposition about that thing". For in that case the principle means merely: "Any true proposition about something is one of the true propositions about that thing". And how can we proceed from this to the denial of interaction?

[43a] On the other hand, the logical doctrine may be interpreted in quite another sense: in a sense in which it rests upon and presupposes the logical assumption that all propositions are of the subject predicate form; that all apparently relational propositions are reducible to this form; that relations are fictions of the mind (albeit useful ones) and that substance and accident are the only categories of reality. Certainly from this assumption the denial of interaction follows: along with other consequences perhaps (like the denial of plurality of substances) which Leibniz would have regarded with less satisfaction. The denial of interaction, notice, follows from the denial of relation alone which is implicit in the subject-predicate doctrine. The further assertion that the predicate of a true proposition is *contained in* the notion of the subject must be regarded (as we shall see later) as an assertion to the effect that the succession of predicates is not arbitrary, but arises in accordance with the inner law of the substance's nature, the principle of activity which is essential to it. In fact not only the denial of interaction, but the principle of sufficient reason, are embodied in this second and more startling interpretation of that sentence "*verae propositionis praedicatum inest subjecto*" which *can* be made to look like a harmless tautology. From this second sense of the principle, then, in which it is based upon the subject-predicate dogma, the denial of interaction certainly follows. But in this second sense it is obviously false.

[44] It is in the word "predicate" that the shift of meaning is con-

cealed: at one point it is used in the narrower sense in which to say that a sentence is "predicative" is to deny that it is relational. In another, it is used in the wider sense in which a "predicate" of a thing is simply any true proposition about that thing. Then the harmless tautology "All the predicates of a thing are predicates of that thing" becomes the metaphysically dangerous falsity "All true propositions about a thing are predicative".

<7 May>

(b) Contradiction and Sufficient Reason: Truths of Reason and Truths of Fact

Let us now return to Leibniz's other great logical doctrines: the distinction between necessary and contingent propositions, and the uses, in connection with the former, of the Principle of Contradiction and, in connection with the latter, the Principle of Sufficient Reason. These doctrines, together with those we have been discussing and others derived from them – e.g. The Identity of Indiscernibles – serve to determine the main outline of his system. They are briefly introduced and described in paragraph 31 and the following paragraphs of the *Monadology*: and reference to them is scattered throughout his work. In what follows I shall again refer primarily to the Letters to Arnauld.

To begin then with the all-important distinction between necessary and contingent propositions, or, as Leibniz sometimes calls them, Truths of Reason and Truths of Fact. Truths of Reason he sometimes refers to as "eternal truths". In the *Monadology* he announces the distinction in the following terms. **[45]** "There are two kind of truths, those of reason and those of fact. Truths of reason are necessary and their opposite is impossible: truths of fact are contingent and their opposite is possible". The truth of necessary propositions, he goes on to say, is guaranteed by the Principle of Contradiction. But in the case of contingent propositions, though there is, indeed, always a sufficient reason for this truth, the principle that this is always so is the principle of Sufficient Reason – yet there is nothing self-contradictory or impossible in the supposition that they should be false. In other words, if "*p*" is a necessary proposition, then "not-*p*" is self-contradictory. But if *p* is a true contingent proposition, it is not the case that not-*p* is self-contradictory, though it *is* the case that there is always some sufficient reason for the truth of *p*. Examples of necessary propositions are all the truths of logic and mathematics like the proposition "All the diameters of a circle are equal"; and "2 + 1 = 3". Examples of contingent propositions or truths of fact would be any propositions stating that some event or other took place, or any prop-

osition about the state of some particular substance at some particular time, or any general proposition derived from such particular cases like the causal laws of physical science. The laws of motion, for example, are general contingent propositions; examples of contingent propositions about individual substances would be: "Leibniz made a journey to Paris in such-and-such a year", "Spinoza died at the Hague" and so on. Whereas there is nothing self-contradictory or impossible **[46]** in supposing that Leibniz did not make this journey, or that Spinoza died somewhere else, or that the laws of motion of material particles are different from what they are, it *is* self-contradictory to say that the sum of 2 and 1 is not equal to 3, or that the diameters of a circle are not all equal to one another. It would be self-contradictory to say this because if we carried out an analysis of the notions or concepts involved in these and other mathematical propositions, we should find in the end that – to use these examples – what we *mean* by "3" is the arithmetical sum of 2 and 1, and what we *mean* by a circle is "a figure which has all its diameters equal". So we are contradicting ourselves and saying something which has no meaning if we deny the truth of these propositions. They are true, so to speak, by definition. Their opposite, in Leibniz's words, is impossible: their truth is guaranteed by the Law of Contradiction. But this is by no means the case as regards the contingent propositions we instanced.

Now there is no doubt at all that the distinction which Leibniz here draws between necessary and contingent propositions is a real and very important distinction. And the account which he gives of the distinction seems to be substantially correct – and, I think, would be accepted by many, though not all, logicians to-day. It is when we consider it in relation to Leibniz's doctrine that all the predicates of a subject are contained once for all in the notion of that subject that we start encountering the difficulties and raising the questions which so seriously troubled the theologian, Arnauld, when Leibniz first expounded to him this doctrine. For if, said Arnauld, the **[47]** notion of Leibniz includes once for all everything that has happened or is going to happen to him (just as the notion of a triangle includes the notion of having three sides), then it is just as impossible for Leibniz not to have made his journey to Paris as it is for a triangle not to have three sides: for the supposition that a subject does *not* have a predicate which is included in the notion of that subject is self-contradictory. But on Leibniz's hypothesis *every* state of *every* substance is included eternally in the notion of that substance. So every true proposition describing anything that has happened or will happen in the universe is as absolutely necessary as the proposition that a triangle has three sides. <Cf. D. de M. G IV p. 437> Since the truth of necessary propositions does not depend upon God's will (even God cannot make 2 + 1 not equal to 3), and since – said Arnauld – if Leibniz is right, every true proposition whatever is necessary; then eve-

rything that happens, happens with absolute necessity and not only man's freedom but God's is an illusion – and we must either abandon the belief in the power of God, which is tantamount to abandoning belief in God altogether, or we must equate him as Spinoza did with the necessary totality of things and events which make up the universe. This was the reaction of the scandalised theologian. And, even if we do not share his particular worries, we must agree that at first glance, Leibniz's position looks highly paradoxical: if all the states of a substance are included, so to speak, in the definition of that substance, then it does seem to follow that every true proposition about that substance will be true by definition i.e., necessarily true. Then the distinction between necessary and **[48]** contingent propositions will be simply a mistake, and contingency will vanish from the universe. And this is certainly queer: for we don't really believe that the proposition "I am lecturing to you now", say, is logically necessary, like the proposition "A proposition cannot be both true and false" or "The angles of a triangle are equal to 180 degrees".

Leibniz's answer to this difficulty is brilliantly clever, and of capital importance for the understanding of his whole position. To make it as clear as possible, I shall not confine myself to the letters to Arnauld, but go to other sources as well. To begin with he points out (New Essays Book IV ch. 11, sec. 14) that necessary propositions do not involve any assertion of existence. In his words: "As to eternal truths, it is to be noted that at bottom they are all conditional and say in effect: such a thing being supposed, such another thing is". Necessary propositions are hypothetical. E.g. the proposition "All the diameters of a circle are equal" does not depend for its truth upon the existence of anything which is a perfect circle. It is true whether there exists such a figure of not, because all it says is that "if there is such a figure, then all its diameters are equal". It is true because it asserts a necessary connexion between certain general truths or abstract ideas, or, in Leibniz's language, "incomplete notions" – the notion of "circularity" and the notion of "equality of diameters" – and those notions are necessarily connected by reason of the very *meaning* of the terms, irrespective of whether there exists anything which exemplifies them or not. **[49]** Necessary propositions asserting connections between incomplete notions determine the character of what actually exists to this limited extent, viz. that no combination of existing things is possible the idea of which contradicts any necessary truth. But any set of existences which is compatible with necessary truths is possible: and there are an infinite number of such sets. Consider for example a particular existing apple. If it is red all over, it must coloured; and if it is green all over, it must be coloured. For it is a necessary truth that whatever is red is coloured, and whatever is green is coloured. But no necessary truth determines whether the colour it actually has shall be red or green. Both are equally possible. But

both are not *com*possible. If the apple is red all over, it cannot also at the same time be green all over – that is another necessary hypothetical truth. As far as these necessary truths are concerned, then, we can imagine an infinite number of possible worlds or sets of existences, some features of some of which, however, are incompatible with some features of others.

But let us now consider a particular contingent proposition like "Leibniz goes to Paris at time *t*" <p. 72>. It is obvious that however many general terms or predicates we heap up to describe our idea of Leibniz (e.g. "philosopher, born in Germany, frequent visitor to Paris" etc.), they can never logically necessitate the predicate "goes to Paris at time *t*", in the way that the general term "red" applied to any subject necessitates the term "coloured" applied to that subject. Of course this is not in itself **[50]** an answer to the difficulty, since it is only an appeal to our ignorance of the "complete notion" of Leibniz, which is said to include all his predicates.[3] If this were all that could be said, then our criticism would be: "You have not shown that the proposition about Leibniz is not on your view a necessary proposition: you have only shown that owing to our limited knowledge, we can't *see* its necessity." And this criticism would be just, but for the one essential feature of contingent propositions which has not yet been mentioned: *namely that they all involve the assertion of existence*. The complete notion of Leibniz certainly involves the predicates "goes to Paris at time *t*" and involves it necessarily. But the necessary proposition is only hypothetical: it does not assert existence. Let us call the complete notion "N". Then the necessary proposition is: "If 'N' is actualised (i.e. if there exists a substance of which 'N' is the complete notion), then Leibniz (that substance) goes to Paris at time *t*." But the proposition: "'N' is actualised"; or "There exists a substance of which 'N' is the complete notion"; is not necessary. So the proposition "Leibniz goes to Paris at time *t*" is not necessary; for it involves a covert assertion of existence; and no existential proposition is ever necessary, for no necessary proposition ever asserts existence. All judgements of fact, all contingent propositions, rightly analysed, involve such an assertion of existence.[4] For instance our judgement that Leibniz goes to Paris at time *t* amounts to saying: "There *exists* an individual who, in addition to all the predicates **[51]** which we have in mind when we use the name 'Leibniz' has the further predi-

3 [*Note at top of page:*] ~[(∃x) . Nx . ~Φx] (x)Nx ⊃ Φx (x)Nx ⊃ Φx . (∃) Nx
If anything is Leibniz, it goes to Paris at time *t*. Leibniz exists = (∃x) . (y)Ny ≡ y = x . x = Leibniz.

4 Any contingent statement, correctly analysed, is an existential statement of every fact in the universe.

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cate 'goes to Paris at time *t*'."[5] Even if we had knowledge of the complete notion of Leibniz (which, he says, only God can have), and saw consequently that this predicate necessarily followed from that notion, our judgement would still be contingent since it would involve the assertion that the notion was actualised, that there existed the individual of which it was the notion.

Thus Leibniz avoids the ultimate rationalist absurdity of saying that all true propositions whatever are logically necessary; and avoids it very sensibly and successfully by this doctrine of pointing out that all propositions about particular circumstances (or general propositions derived from these) involve the assertion of existence, and the assertion of existence is always contingent. But then we are driven once more to ask: Then what, after all, is the point of saying that the complete notion of a substance includes all its predicates, all that will ever happen to it? Is this after all more than adding to the false subject-predicate doctrine the tautology that a thing has all the predicates it has, or that all the true propositions about a thing are true propositions about that thing? We have seen that the denial of interaction follows from the adoption of the subject-predicate logic alone, from the assertion that all true propositions are predicative. But the assertion that the predicate of a true proposition is always *included* in the notion of the subject seems to be something more than the assertion of the universality of the subject-predicate form: it seems to take that assertion for granted, and to make some further assertion. What is this further **[52]** assertion? I think we shall find the answer if we remember the Principle of Sufficient Reason – the principle that while no contingent proposition is necessarily true, there is always a *sufficient reason* for its truth – which we mentioned earlier, but of which so far we have made no use. I think there is no doubt at all that this is the further assertion that Leibniz intends to make when he says that the predicate is *included* in the notion of the subject, viz. that the sufficient reason for the truth of a true contingent proposition is always to be found in the complete notion of the subject of that proposition. Or, in other words, that if we *know* this complete notion, we should not only see *that* the individual subject in question had this particular predicate, but also *why* the subject had this predicate: we should not only see that the proposition in question was true, we should also see why it was true. Let me quote a passage from one of the letters to Arnauld, to bear this out: "It is in this sense only that I say that the individual substance includes all its events and all its denominations, even those that are commonly called extrinsic, … [that] … there must always be some

5 [*Note at top of page:*] like a set of predicates of which Φ is one & being called L another.

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foundation of the connection of the terms of a proposition, which foundation must lie in their notions. This is my chief principle, on which I hold that all philosophers ought to be agreed. And one of its corollaries is the common axiom that nothing happens without a reason, which can always be given to explain why the thing turned out thus rather than otherwise … It will be seen," he **[53]** goes on, "that from the aforesaid principle I draw surprising consequences" <p. 73 [Ev.]. Cf. also p. 46 G II>.

<*May 10*> Let us look at these "surprising consequences". In order to do so we shall have to examine rather carefully the distinction between "incomplete notions" and "complete notions". Let us try to define these terms in accordance with Leibniz's usage. Let us first define a *predicate* as "anything that *can be said* of any individual subject or person" i.e. any property whatever, or "whatever can be expressed as the grammatical predicate of a sentence". Thus "having a drink in 'The Lamb' at 10 to 10" will be a predicate and so will "having a deaf grandmother". Then let us define a notion as the idea of any predicate or collection of predicates. And finally let us define a "complete notion" as "a notion such that it seems to determine *uniquely* a *possible* individual" <Ev. p. 66. G II p. 42, 54>.[6] Any notion that does not seem to determine uniquely a possible individual will be an "incomplete notion". I think this is pretty well in accordance with Leibniz's usage. And I think it is obvious that a complete notion so defined is not an easy thing to form. Suppose we list all the predicates we can think of pertaining to a given individual called, say, "Brown", giving the circumstances of his birth and death an enormous number of true propositions about him. Can we ever make the list so comprehensive that it is *inconceivable* that there should have been a (different) individual having all those predicates and yet having some predicates different from those which truly appertain to Brown? Obviously **[54]** we cannot. We have omitted to mention, say, the colour of his maternal grandmother's hair or the name of the flowers which stood on his desk on such and such a morning. So our notion is incomplete; it does not suffice to determine *uniquely* a possible individual. It is still possible to form the notion of an individual who has all the predicates we have ascribed to Brown, and yet had a grandmother whose hair was a different colour from that of the grandmother of the actual Brown; who had daffodils, say, and not primroses on his desk. And if we add these two predicates, we are no nearer a complete notion – even if we range right up the scale of Brown's ancestry and down the scale of his descendants, adding all the facts we can think of, it is still possible to conceive of a world in which all these propositions should be

6 A notion determines a possible individual uniquely when it serves to enable us to infer all propositions whatever about that individual. (?) Dis. de Mét. G. IV 433.

true and which would yet be different from the actual world inhabited by our actual Brown. To quote Leibniz's own example: p. 65 [Ev.] … "When in considering Adam … appropriate." The point is, of course, that as long as we use general terms (and our language is made up of general terms, [and of names which simply disguise our ignorance of complete notions]), we can never *say* exactly what it is that makes an individual the individual he is, and not another. No finite multiplication of predicates will ever yield a complete notion: any notion which *we* can form is applicable to more than *one possible* individual and thus is incomplete.

We should notice in passing that since Leibniz defines a substance (or individual), as opposed to an **[55]** accident (or general term) – as that of which the notion is complete [cf. Discours de Mét. G IV p. 433], his famous principle of the Identity of Indiscernibles ("There can be no two substances differing only numerically") follows at once from the definition of substance. A complete notion is defined as a notion applicable to one possible individual only. A substance is that of which the notion is complete. Therefore no two substances can be exactly alike. For if they *were* exactly alike, their notions would be identical: but a complete notion applies only to one possible individual: therefore, if they were exactly alike, they would be the same individual, i.e. they would be identical. But more of that later.

To return to our "complete notions". Is the idea of a complete notion (a notion uniquely determining a possible individual) a meaningless idea altogether? Not at all, says Leibniz. Complete notions could be formed by an infinite understanding, and doubtless were (though in the past tense, this verb should strictly be tenseless) formed by God. But a complete notion of an individual, say, in the actual world would involve a reference to everything that has ever happened, or will ever happen – i.e. to the complete series of events in the universe. The complete notion of an actual individual is nothing less than the complete notion of the entire universe from a certain point of view. Given that complete notion (and the knowledge that it was complete) we could deduce from it every predicate of the individual concerned, leaving nothing vague or undetermined. But nothing less than this will suffice to the unique determination of the **[56]** individual concerned. For if our notion fails to specify *completely* the series of events making up the universe of which the individual concerned is a member, then it is always possible that that notion might apply to some member of a different possible universe i.e. to some different individual.

As far as I can see, this argument is valid. Taken in conjunction with Leibniz's subject-predicate logic and his denial of relations, it yields yet another characteristic doctrine of his system. The complete notion of an individual includes a reference to everything that happens in the universe of which it is a member. The complete notion of

that individual also represents the totality of its predicates. Since, on the subject-predicate logic, all its predicates, in this wide sense, are also predicates in the narrow sense (i.e. states of the substance considered independently of every other substance) then it follows, in Leibniz's words, that each individual substance "mirrors" or "expresses" the whole universe <p. 76>: i.e. there is a modification in each individual substance corresponding to every change or modification in every other element in the universe (though *not* of course the result of *interaction* with those other elements).

So here we have independent logical confirmation of the Pre-Established Harmony (though dependent once more on that fatal assumption of the universality of the subject-predicate form of proposition).

Now we undertook this investigation of "complete notions" with the object of discovering the significance of the Principle of Sufficient Reason. The sufficient reason for the truth of any contingent proposition (i.e. any proposition ascribing a predicate[7] to an existing subject) was to be found in the **[57]** notion of that subject. Now this pronouncement is susceptible of two interpretations both of which are correct, but which are complementary – i.e. both are necessary to the understanding of Leibniz's position, and his use of the Principle of Sufficient Reason. In the first interpretation we can see it as another way of expressing the denial of interaction. If there is no interaction between substances, if as Leibniz puts it "the state of a substance is not [is never] the immediate consequence of the state of another substance" <p. 76>, then the immediate cause of the present state of any substance (i.e. the *immediate* reason for the truth of some proposition about that substance) must be sought in some preceding state of the same substance, and, generally, in the laws of development – or the laws of succession of states – of that substance. This does not mean that our ordinary way of expressing ourselves on the subject of causes is wrong. True, we normally give the reason for any particular occurrence (the *cause* of that occurrence) by speaking in terms of interaction. We say that one body impels another and causes its motion <p. 77>. And, says Leibniz, owing to the Pre-Established Harmony and the fact that each substance expresses the whole universe from its own point of view, this is quite a legitimate way of speaking. It is quite true, on the other hand – owing to the Pre-Established Harmony, – that one body never "begins to have a certain tendency" except when another body "has a proportionate loss". *And* it is quite true,[8] since every substance expresses the universe, that the modification in me which is my "perception of the first

7 [Or any general proposition of (causal) law – but see later.]

8 Cf. p. 77 for the passage, of which this is a paraphrase.

movement" is the immediate cause of the modification in one which **[58]** is "my perception" of the second movement. (The "movements" themselves are fictitious constructions – phenomena – out of the co-ordinated series of "expressions (perceptions) of the movement" occurring in each substance.) In fact, what we regard as the physical laws (the causal laws) of the world *are* the distinct but harmonising laws of development of each particular substance – since each substance expresses the universe from its point of view. In Leibniz's own words: "Each possible individual of any world include in its notion the laws of its world" <p. 63>.

Now this is undoubtedly part of what Leibniz means by saying that the sufficient reason for the truth of any proposition ascribing a predicate to an existing substance is to be found in the complete notion of that substance. But it is also quite certainly not *all* that he meant. For it would be true of *any* possible world that the complete notion of any individual of that world would include the laws of succession of states of that individual (i.e. the laws of that world) i.e. the "explanation" of any particular state of that individual. But it is the essence of any true *contingent* proposition, as we have seen, that it asserts *existence*: it says that such-and-such actually happened to such and such an actual, *existing* individual. So to give a sufficient reason for the *truth* of a contingent proposition ascribing a certain state to a certain individual, it is not enough to appeal to the laws of that individual's world (i.e. the laws included in the notion of that individual); it is necessary to give a reason for the **[59]** *existence* of that individual, laws and states included: it is necessary to give a sufficient reason for the *actualising* of that notion. Let me put this again more briefly. A contingent proposition ascribing a predicate to a substance involves – this is what makes it contingent – the assertion of the existence of that substance. To give a sufficient reason for its truth, then, is to give a sufficient reason for the existence of the substance. But this is not to be done *merely* by citing the *laws* which are included in its notion: for the demand for a sufficient reason for the existence of the substance is ultimately a demand for the sufficient reason for the truth of these laws. They themselves are contingent, not necessary: there are possible worlds in which they do not hold.[9] The sufficient reason for the truth of a simple contingent proposition about a particular substance, then, can be given only by giving a sufficient reason for the "actualisation" of its notion (not by appealing to anything *included in* its notion). But its "notion" refers to the whole series of events in the universe; it mirrors or expresses the whole of the actual world. The demand for a sufficient reason for the truth of a single contingent proposition, then, is the demand for a sufficient reason for

9 Cf. paras. 36-37 of the Monadology.

the existence of the whole universe, as it is, rather than any other of the infinite number of possible universes. The reason for the truth of any one of the series of contingent truths must be outside that series altogether; must be the reason for the truth of the series as a whole.

I have put this argument as clearly as I can, in a way which shows its connection with the rest of his doctrines. But **[60]** you will find it in various forms throughout his writings, some of which make its connection with his thought as a whole clear, some of which make it sound like an independent argument. I refer you, for an example, to paragraphs 36 and 37 of the "Monadology".

The next step is probably familiar to you. Any set of existences is possible which does not conflict with any necessary truth or truth of reason. But truths of reason are always hypothetical: they never assert that anything must exist, only that *if* such-and-such a thing exists, such-and-such another thing must be the case. It is necessary that if anything is red, it should be coloured; but not that there should be a coloured thing. It is necessary that, if there are two things and two things, there are four things, but not that there should be two things or any number of things or indeed anything at all. Thus there are an infinite number of possible worlds or possible sets of existences, of varying complexity and character. For any set of existences is possible, the idea of which does not involve a logical contradiction. What reason is there for the existence of the actual world rather than any of the possible alternatives?[10] Of all the possible worlds, we are told, God elected to actualise this one for the sufficient reason that it was the best of them all (paragraphs 53-55 of the Monadology). Necessary truths determine what "complete notions" are possible: God's decision determines which of the multiplicity of such notions shall be actual. And his decision, though free, **[61]** is not *arbitrary*, but represents a choice of the best *because* it *is* the best. Thus the sufficient reason for every truth of fact is ultimately the preferability in God's eyes of the actual world over the infinity of other possible worlds that he might have created. In Leibniz's own terms "God's decision … about particular things is a consequence of his decision about the whole universe" <p. 64>; for, we will remember, "each individual substance expresses the decision that he has taken in regard to the whole universe" <p. 76>.

Into this rigorously logical treatment of the problem, then, there suddenly bursts a conception which is, on the face of it, not purely logical (or "scientific") at all – but normative: the conception of the "best". Though in the *ordinary* course of our investigations of na-

10 [*Here a deleted sentence:*] By way of answer, Leibniz re-introduces into metaphysics the hypothesis of a final cause: banished by Descartes, and treated with such superb contempt by Spinoza.

ture, it is certainly our business to seek mechanical explanations of things and think in terms of efficient causes;[11] but, in the last analysis, the sufficient reason for things can be given only if we take account of the purposive character of the universe as a whole: that it is *designed* to realise the *best* possible. The Principle of Sufficient Reason reveals itself as not merely a logical, but also a theological, principle. However, there are still questions we can ask. If we examine this answer a little more clearly, it reveals itself as rather less *theocentric* than it at first appears: though Leibniz, who was no doubt sincere enough in his piety, was at pains to emphasise (p. 55 of *Monadology*) the theocentric aspect. For the important question to ask about this answer, of course, is: "What is meant by the *best* possible world?" "What makes one possible world *better* than another?" Leibniz is becomingly shy of giving a very definite answer to this question. But on one point he is **[62]** quite definite, and I think – if the theistic hypothesis is to be entertained at all – quite sound. It is *not*, says Leibniz, the fact that God created the world, that makes it the best possible: it is *because* it is the best possible that God created it. [Any other hypothesis, says Leibniz, would be most impious; for any other hypothesis would involve saying either that God's creation of the world was quite arbitrary, that he had no reason for it at all; or that he is not supremely good – for what other reason would operate with the supremely good except the choice of the best possible as such? (cf. *Discours de Mét.* G IV 427-430). But, in that case, since to say "this is the best of possible worlds" is *not* to say the same thing as "This is the world God created", but, on the contrary, is to say something about the world which is the reason for it being created, then it remains permissible and necessary to enquire: What are these features of the actual world which make it the best possible? To give a detailed answer to this question, says Leibniz cautiously, [Dis. de M. V; G IV p. 430] is too much for our limited intelligences. But he ventures certain general suggestions which are extremely interesting. In general, he says, the best and most provident arrangement of any kind is that which produces the maximum of effect with the minimum expenditure of effort. Obviously the conception of economy of effort does not only apply as such to God, who is infinitely powerful: but something parallel to it may be found in the degree of simplicity, elegance and economy in the general laws or hypotheses which are true of a particular world. In general, then, we may suppose that the best possible world will be one which the greatest unity and richness in phenomena will be combined with **[63]** the greatest simplicity in hypotheses ["le plus simple en hypothèses et le plus riche en phénomènes" G IV p. 431] cf. Monadology paragraph 58.

11 Leibniz is always stressing this.

<*May 14*> [Obviously the hypothesis of the pre-established harmony – whereby every modification of every substance is "represented", with infinite graduations of clarity or obscurity, in every other – is a good candidate for inclusion in such a system. (Question – whether this isn't a feature of every possible world? – if an individual substance can be "defined" – complete notion – only as a member of such and such a system.)] Of the particular hypotheses which God chooses when he chooses this world, the Laws of Motion exemplify admirably this union of diversity in phenomena with simplicity in hypotheses. These are perhaps the most important of *efficient* causes – i.e. of the laws we use to explain the actions of *bodies*. The general law which God has established to regulate the action of *souls* (i.e. self-conscious individuals) is that they shall always pursue what seems best to them. Thus, says Leibniz, "souls act according to the laws of final causes, through appetitions, ends and means. Bodies act according to the laws of efficient causes and that of final causes or motions. And the two realms, that of efficient causes and that of final causes, are in harmony with one another" (paragraph 79 *Monadology*). We ought to note that between what Leibniz calls "final" causes and what he calls "efficient" causes *within* the series of events which make up the universe, the difference is only one of degree of clarity in the perceptions which are the successive states of the monads concerned. The "perceptions" of these monads which make up what we call "bodies" are unconscious: the "perceptions" which are successive states of the monads we call mind are, though confused, sometimes conscious (apperceptions). The brute (or unconscious) monad and the conscious monad alike change their states by a spontaneous activity in accordance with the inner laws of their nature; as, as we **[64]** have seen, these laws are perfectly harmonised. The conscious monad is really no more spontaneous in its activity than the unconscious: but where spontaneity (or activity) is joined to reflective consciousness, we speak of "*ends*" and means, and "final causes": though, in all cases alike, the monad is merely following the law of its own development.

But to return to the question of what makes one possible universe better than others, and the actual universe the best of all. When we examine Leibniz's tentative classification of the nature of this surpassing excellence, then the one final and sufficient reason for everything being as it is, appears far less of an ethically or normatively optimistic, and theistically centred, answer than it did at first. The maximum richness of effect, with the maximum economy of means. The greatest diversity of phenomena, with the greatest simplicity in hypotheses. The criterion of excellence seems to be a mixture of the purely quantitative – as *much* as possible – with a mathematician's demand for elegance in theoretical construction. The possible world which possesses these characteristics in the highest degree

will have, as Leibniz somewhere expresses it, the greatest "claim" to existence. Since necessary truths, independent of God's will, determine what worlds are possible and hence what are the characteristics of the possible world possessing the greatest claim to existence, the rôle of God is reduced to that of recognising and giving effect to this claim. It is always difficult to assess the exact significance of the use of the word "God" in seventeenth-century philosophy. He couldn't be left out, but he tends to become increasingly an abstraction, a philosophical concept, the name for **[65]** a philosophical theory or doctrine, and perhaps an expression of a philosopher's attitudes towards his own world-picture – as pre-eminently, for example, in the philosophy of Spinoza. And it is perhaps possible to regard Leibniz's use of the term just as a name for his principle that: "The sufficient reason for the truth of any proposition asserting or implying existence is that, of all logically possible universes, that one exists which exhibits in the highest degree the combination of richness in content with simplicity in causal hypotheses". And this interpretation is supported by fragments on "existence" scattered throughout his unpublished works.

Russell cites the following definition of existence: "The existent may be *defined* as that which is compatible with more things than is anything incompatible with itself". Whether this is to be taken as meaning that existence follows from essence alone by a *logical* necessity, without the need for an act of creation, I don't know. It is not at all clear that Leibniz ever fully worked out the implications of his view on this point. What, after all, with or without God, is the cash-value of the Principle of Sufficient Reason? I don't think a single answer, a single interpretation, can be given. I don't think it is one principle at all: but one name for several elements in his thinking which presented a certain *analogy* to each other (though in very different fields and perhaps ultimately difficult to reconcile with one another). Leibniz, the logician, I suggest, meant one thing by the Principle of Sufficient Reason, Leibniz the man of science another, Leibniz the theologian another and the Leibniz who had a certain emotional attitude to the world as a whole, a fourth. Logically, the **[66]** principle appears as a correlate, for the contingent propositions, of the Principle of Contradiction which guarantees the truth of necessary propositions. When the logician predominates – but this is only allowed to happen in private – the distinction between contingent and necessary propositions tends to disappear; or, more accurately, contingent propositions appear as a certain sub-class (those that assert existence) of necessary propositions. Necessary propositions other than those asserting existence (i.e. *hypothetical* necessary propositions) determine what sets of existences are possible: from the whole body of these necessary propositions together with the logical definition of existence, there follow logically all the true propositions as-

serting existence. The difference between contingent propositions, and those necessary propositions which are hypothetical, resides on this hypothesis, in the fact that contingent propositions logically presuppose the whole body of hypothetical necessary propositions, and thus could be seen as *necessary* only by an infinite intelligence, never by ours. On this interpretation, the Principle of Sufficient Reason can be regarded as an exact correlate of the Principle of Contradiction. While the latter asserts: "Only what is possible exists"; the former says: "Only what exists is possible".

There is, then, some support in Leibniz's writings for this extreme, rationalist interpretation of the Principle of Sufficient Reason. I don't propose to comment on it or do more than mention it. It is, I think, obviously indefensible and dangerously near to nonsense: it is, moreover, inconsistent with Leibniz's more usual views, and quite as scandalous as the Spinozism from which he was so anxious to disassociate himself. In the end, it would make nonsense of the distinction, on which he was always at such pains to insist, of the distinction between the necessary and the contingent. We **[67]** may notice, however, how easy it is it *seems* to escape Spinozistic impieties and superimpose a more orthodox theological pattern on this logical framework, simply by dropping the logical definition of existence, and making the actualisation of the contingent dependent on the free decision of God. Infinite intelligence, contemplating all necessary truths, sees what worlds are possible; infinite goodness chooses what is best (i.e. the richest in content and simplest in laws!); infinite power creates it. It is to be noted that this answer presents the contingency of the actual world only on the assumption that either God's existence, or his goodness, are contingent: both of which suggestions have more than a hint of impiety. Spinozistic necessity does not, after all, seem to be so easily avoidable.

The truth is, I think, that there is a deep-hidden confusion, which amounts to a contradiction, in Leibniz's conception of a *sufficient reason* for *all* contingent truths. He says that this principle is roughly equivalent to the common maxim that everything has a cause <E. p. 73>. But, if we study it carefully, I think it's plain that his principle is not equivalent to that maxim. It's roughly true, I think, that we do assume that the question "Why?" as applied to any event in the contingent series of events always has an answer. But if we consider what sort of answer we expect to that question, it's obvious, I think, that the answer we expect is always a reference to *some other event* belonging to the contingent series of events; and, explicitly or implicitly, to some empirical rule (causal law) connecting the two. And, if, we take it seriously that the event about which we are asking the question "Why?" is a contingent event, then we must also accept the fact that the **[68]** answer can *only be* a reference to a contingent rule exemplified in the contingent series of events, and that the

question can *never* be significantly asked about the series of contingent events as a whole. For if we attempt to ask the question about the series of contingent events *as a whole*, then we shall *either* get an answer which mentions another contingent event or rule, in which case the series of contingent events is extended by *one* and the question remains unanswered: *or* we shall get as an answer a necessary proposition. But if this is the right answer, i.e. if the series of contingent events really follows from (is explained by) the necessary proposition, then the series of contingent events is not contingent at all but itself necessary. This is the fatal dilemma which underlies the case of the Principle of Sufficient Reason.

Now, since we certainly cannot give up the view that the actual series of events is contingent (i.e. not logically necessary), it follows that, if we persist in asking the question "Why?" of the whole series, we are not *really* asking at all the same sort of question as when we enquire the cause of some particular event (or the reason for some particular decision): for, as we have seen, it makes no sense to ask *that* question of the whole series of contingent events. What then is the significance of this question as asked about the whole series of events? I imagine that normally it is a request for some description of that whole series which shall be found satisfying in some emotional or religious or ethical sense. And I think that when Leibniz proposed to give **[69]** the sufficient reason for everything, he was in part satisfying that demand and in part making a valuable recommendation about scientific procedure. I remarked that the normal use of the question "Why?" asked about some particular event or set of events was a demand to be told of some contingent rule (causal law) exemplified in the phenomena in question. Now Leibniz points out (*Discours de Mét.* VI, G IV p. 431) that, however complicated and irregular any phenomena might be, it is always possible in principle to construct some rule of which they may be regarded as the exemplification ("*De quelque manière que Dieu aurait créé le monde, il aurait toujours été régulier et dans un certain ordre général*"). That is to say, whatever the world was like, it would always have been possible in principle to answer the question "Why?" – This shows quite plainly that the Principle of Sufficient Reason is *not* equivalent to the Law of Universal Causality i.e. the principle that it is always possible to answer the question "Why?", to exhibit phenomena as exemplifying a rule of some kind. For this, Leibniz shows, would be true whatever the world was like, however complicated it might have been: so the Principle of Sufficient Reason must say more than this, since it is said to state that there is a reason why the actual world exists rather than any other of these possible but more irregular worlds.

But though any world would have been regular in a sense, Leibniz goes on, ours – and this is why it was chosen – combines the maximum of regularity in its laws with the maximum of diversity in its

content. It is, therefore, a valuable heuristic maxim in **[70]** scientific investigation always to look for the simplest possible hypothesis to explain a given set of phenomena, for that hypothesis is the most likely to be true. When looking for efficient causes, bear in mind final causes: bear in mind God's preference for elegance and economy in achieving his effects.

This is the scientifically useful element in Leibniz's principle. But we may note that it is simply a recommendation as to procedure; not really a description of the world. To say that a given hypothesis is the simplest possible way of explaining all the facts is the same thing as to say that it is true. A true hypothesis is not something *additional* to the fact: it is simply the systemisation of the facts; and the simplest hypothesis is always the most acceptable just because it is the simplest. It makes no sense, in fact, to speak of a world which would have the same events as the actual world, but which would differ from the actual world in having a less simple set of true hypotheses (i.e. of causal laws). To say, then, that the most satisfactory results in scientific investigations are obtained by seeking the simplest hypothesis consistent with all the facts, is not to describe a feature of this world (and, hence, a reason why is should exist in preference to others); but simply to formulate a rule of procedure in scientific investigation applicable alike to all possible worlds whatever.

Finally, what are we to say of the Principle of Sufficient Reason, regarded as embodying an optimistic attitude to the actual world; that is to **[71]** say, as calling attention to some feature of it which is held to be emotionally satisfying or comforting, or pleasing to religious or ethical sentiment. Regarded from this point of view, the Principle, I think, says something like the following. If full account is taken of the infinite richness and diversity of phenomena in the world; of the endless interconnections of things; and of the simplicity of the laws governing these interconnections – then it will be realised that nothing in the world could be different, no event could happen otherwise than it does, without the world as a whole being less admirable than it is. Individual events, – sins and sufferings – we may deplore; but the sufficient justification (reason) for their occurrence is the excellence and harmony of the whole of which they form a necessary part.

On this doctrine the comment which I find myself immediately inclined to make is that it seems to me plainly false. On second thoughts, however, it is evident that the doctrine is not really a doctrine at all; that it belongs to that class of "proposition" which cannot significantly said to be true *or* false. It doesn't make a statement; it expresses an attitude. Or rather it makes a statement, first – calling attention to the great richness of phenomena in the world and the relative economy of causal laws. And *then* it expresses an attitude: it says: "How much more admirable I find all this than I should if it were different in any respect!" I don't think that is an attitude which many

people share now; although it has often been quite common among the really comfortable members a stable society. It flourished perhaps most in the eighteenth century: and you will find Leibniz's principle **[72]** neatly, if somewhat superficially, versified, in Pope's "Essay on Man". One cannot criticise an emotion as if it were a philosophical theory. One can only confess to not sharing it. But it is perhaps worth pointing out that the apparent cheerfulness of "All is for the best in the best of possible worlds" is rather deceptive. It is not much consolation to the sinful and suffering individual to be told that the cosmic picture which includes his sin and suffering is more impressive, more elegantly simple in construction, than it would have been without it. In general one feels the weakness in the Leibnizian attitude is an over-estimation of the excellence of simplicity in the connection of things. Admittedly, causal laws being what they are and the material of the universe what it is, much that we find excellent could not in fact occur without the occurrence of much that we deplore: but the laws connecting the two are themselves contingent: and on the whole, most of us would, I think, be prepared to barter some of their elegant simplicity for the sake of respite from some of the more obvious evils of existence.[12]

<*May 17*> This brings us to the end of our consideration of the second great set of logical doctrines in Leibniz: the distinction between necessary and contingent propositions; and, side by side with the Principle of Contradiction, which guarantees the truth of the former, the invocation of the Principle of Sufficient Reason which underlies the truth of the latter. The distinction we saw to be a real and important one; but threatened, in Leibniz's own system, by the use he makes of **[73]** the Principle of Sufficient Reason. That principle itself we saw to be a curious amalgam of logical contradictions, theological acknowledgements, scientific recommendations and value-judgements. Leibniz himself regarded the principle as of the first importance in metaphysics: evidently it can be employed for a lot of purposes, but its exact meaning is by no means clear. We also examined Leibniz's distinction between incomplete and complete notions and saw how his definition of a substance as that of which the notion was complete, coupled with the denial of interaction founded on the subject-predicate logic, leads him to the conclusion that every substance "expresses" or represents in itself the whole series of events in the universe. This deduction seems to me quite sound, *given the premisses*; and provides useful confirmation of the Pre-Established Harmony.

12 Incidentally when we talk of "interconnection of things" in the philosophy or Leibniz, it should be remembered that what are really interconnected are states internal to each separate monad. Interaction between monads is apparent, due to Pre-Established Harmony.

(c) The Identity of Indiscernibles and the Conception of Substance

Before we take leave of the fundamental logical doctrines, we must glance at one further principle of great importance: which I have already mentioned *en passant*: viz, The Identity of Indiscernibles. This is the principle that no two substances can be exactly alike: if any two substances differ numerically (i.e. are two), then they must differ in respect of their predicates. This is an important doctrine for three reasons: (1) it really does follow from certain of Leibniz's other principles; (2) it is used by him in developing other important philosophical conclusions, particularly as regards time and space; and (3) it reveals a fatal weakness in his whole conception of substance as a genuine entity, a single unified *something* in which different **[74]** predicates inhere, or which is the subject of different states.

First as to the deduction of the principle.

(1) Leibniz sometimes deduces it from the Principle of Sufficient Reason <e.g. Clarke pp. 213-14>. If two indistinguishable substances were conceivable, he says, God would have no reason for choosing between them and would thus create neither. Therefore there can be no indiscernible substances among created things.

This is not a very good proof: (i) because it uses the Principle of Sufficient Reason and any proof which does that is suspect, in view of the curious and ambiguous nature of that principle; (ii) because it only proves that indiscernible substances do not exist, not that they are impossible – which is what the principle of Identity of Indiscernibles maintains. But plenty of alternative proofs are available.

(2) It can be deduced from the subject-predicate doctrine and the denial of the ultimate reality of relations. For suppose there are two indistinguishable substances, A and B. There must be some relation between them which makes them numerically distinct (e.g. they may be differently situated in space and time). But relations are only ideal and their foundations lie in some predicates of the terms concerned. Thus A must have some predicate corresponding to "being to the left of B" or "being earlier than B" or "being (in some other way) different from B" <cf. Russell p. 58>. But B cannot have the same predicate, for B cannot be different from itself. Therefore A and B have different predicates and do not differ only numerically. – This proof is quite valid, given **[75]** the premisses. The only objection to using it is that the "numerical difference" is most easily conceived in spatio-temporal terms; and this argument hence tends to presuppose a relational view of space and time which the Identity of Indiscernibles is used later on to establish.

(3) The simplest demonstration of all arises, as we have already mentioned, from the definition of a substance as that of which the notion is complete. <D. de M. G IV 433. L. to A. Ev. p. 65> A complete notion is defined as a notion which uniquely determines an individual.

If two substances are numerically different, then, their complete notions must be different. But a notion is a collection of predicates, so their predicates must be different. I.e. any two substances have different predicates.

[(4) An argument which, as far as I know, Leibniz did not use, but might consistently have used, could be drawn from his doctrine that each state of every substance "expresses" the whole universe from the point of view of that substance. If two substances were indistinguishable, their "expression of the whole universe" would be indistinguishable. But their "expressions" could be indistinguishable only if their points of view were indistinguishable i.e. if they were the same substance.]

Of Leibniz's use of this principle I shall speak later. The point I want to make now is this: that the very fact that this principle follows so easily from the definition of substance which Leibniz's logic and his belief that the self is a substance lead him to adopt, shows that this definition is incompatible with his other requirements of "true unity" and "simplicity" in substances. The **[76]** identity of indiscernibles states that any two distinct substances necessarily have different predicates. I.e. given that a set of predicates (P) – which may be an infinite set – is the totality of predicates of a substance S_1, and that an exactly similar set of predicates in the totality of predicates of a substance S_2, then it follows, by the definition of a substance, that S_1 is identical with S_2. But if substance is so *defined* that identity of predicates entails identity of substances, then clearly a substance is nothing more than the *collection* or totality of its predicates (including those predicates which correspond to and are the basis of spatio-temporal position): and to say that a certain state is the state of a certain substance is to say merely that it is a member of a certain series of states, the totality of which *is* the substance in question. Any such an account of substance as this is obviously totally and completely irreconcilable with the view of substance as a true unity, something that is neither an aggregate with members, nor a whole with parts, but a simple, single, indivisible identity. It is plain, I think, that any attempt to achieve consistency by retaining one of these elements in the doctrine of substance while sacrificing the other would lead to the total wreckage of the Leibnizian system: That system can survive only with a contradiction at its very core and centre, namely in the doctrine of substance.

[77] This brings us to the end of the consideration of the characteristic logical doctrines of Leibniz, and, I think it is clear that with their aid we can fix the outlines of the Leibnizian picture of the universe. (For more than that – e.g. for a detailed examination of its parts – I'm afraid we shan't have time). But that at any rate we can attempt.

Reality, then, consists of an infinite plurality of simple substances. None is to be conceived as acting upon any other, nor as being act-

ed upon by any other. Each is a world apart. They are not to be conceived of as existing in space and time. That is, we are not to think of them as occupying different points in space, or as lasting yet changing through time. Rather space is to be conceived of as the *appearance* of a certain non-spatial order among different substances; and time is to be conceived of as the *appearances* of a certain non-temporal order among the different states of any given substance. What, then, is meant by speaking of a plurality of substances? What differentiates one from another? The answer is that they differ in representational capacity, in the emphasis and degree of clarity of their perceptions. When we use the word "perception", however, we must be careful. We must not think of it as some action or influence of the perceived upon the perceiver. The series of perceptions which make up the states of monad A are quite independent of anything else in the universe and spring from A alone by that inner principle of activity, that spontaneity which is its essence. But we are justified in calling them "perceptions" for two reasons. First of all, there is a point-for-point correspondence between **[78]** the state of any one substance and the "simultaneous states" of all other substances, so that we can say that the state of any one substance at any moment is a *representation* of the states of all other substances (i.e. of the entire universe) at that moment.

(Just to digress for a moment about "representation": one thing represents or *expresses* another when (in Leibniz's words) <Ev. 84> there is a constant and ordered relation between what can be asserted of the one and what can be asserted of the other. Thus a map may represent a geographical area, and a line on a graph may represent or express attendance-figures or production or a patient's temperature. So long as there is a certain structural or symbolic identity between what represents and what is represented, there need be no other kind of similarity.)

The absolute spontaneity of the succession of states of any one substance, and the unfailing correspondence between the states of these independently developing substances, seems to require some further explanatory hypothesis: and it is duly forthcoming in the shape of the pre-established harmony. The one timeless adjustment ensures the harmony of what *are* separate, and *appear* as temporally developing, substances. Nor is this the only sense in which it is reasonable to call the passing states of a substance "perceptions". For if we consider those passing states of which we are *conscious,* it is evident that the contents of consciousness, though only phenomena, are not a totally illusory guide to reality: they are well-founded phenomena in that they *symbolise* reality. Thus space is only appearance and nothing is *really* extended: but the **[79]** infinite divisibility of extended matter is a *symbol* of the infinite number of simple substances: and in fact, corresponding to every smallest part of what we perceive as matter,

there is an infinity of monads. Or again, what we perceive and speak of as the action of one substance and upon another is a symbol of their initial mutual adjustment <Ev. p. 108>. When it is convenient to *explain* what appears as the state of our substance *by reference to* what appears as the state of another, then it is legitimate to speak of the one "acting upon the other", provided we avoid the mistake of thinking that there is real interaction between substances: "For it may fairly be said … [New System Ev. p. 108] … *acting* upon the other". Or again, since space is a plenum and all matter is connected together, we may see in the material interaction of all parts of the universe (the fact that one motion anywhere has effects everywhere else in proportion to its distance) a symbol both of the fact that each monad mirrors the universe and of the fact that a monad may have a specially close relation to certain other monads, corresponding to what appears as physical proximity. [cf. para. 61 of Monadology].

<*May 21*> The individual character [N. Sys. p. 105 Ev.] of each monad, then, consists in a certain spontaneous power or force or capacity, unique in each, which expresses itself in the temporal order as a succession of these passing states or perceptions. The tendency to pass from one perception to the next is called "appetition": *desire* is conscious appetition just as apperception is conscious perception. Now although each monad without exception is *active* in the sense that all its states arise spontaneously from itself; and although each has the *same* representational capacity in that **[80]** each represents the whole of the universe – yet at the same time there is a sense of "active" and a sense of "representational capacity" in which no monads are *completely* active, and in which they are all different from one another in respect of activity and representational capacity. In this second sense, activity refers not to "spontaneity" (in respect of which all monads are alike), but to clearness and distinction of perception (in respect of which they are all different). In proportion as a monad's perceptions are confused or obscure, or (so to speak) the range of their clarity is restricted – then in that degree the monad may be said to exhibit passivity. God alone is purely active: in that his perceptions alone embrace everything with an equal and absolute clarity. But in all created monads there is an element of passivity. At the lowest end of the scale, among those monads which correspond to what appears to us as inorganic matter, all perceptions are completely unconscious, though even at the level of unconscious perception we must say that these monads *represent* some elements in the universe less obscurely than other elements. As we rise higher in the scale, we reach eventually the levels of conscious sensation (which we share with the animals), and self-conscious thought (peculiar to those monads we call "minds"). Notice that there are two senses in which the element of *passivity* which is present in every created monad may be regarded as the foundation of *matter*. For one

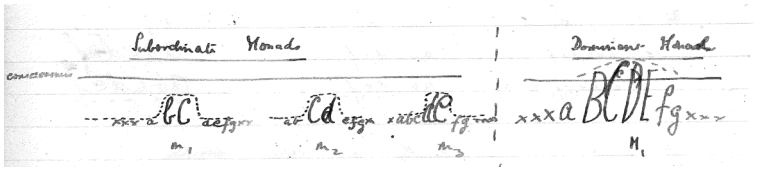
thing, it is because, we conscious beings or animals are purely passive in this sense **[81]** that we have *sense*-experience, sense-perception, at all. Sense-perception is confused and obscure thought. Pure activity would be pure thought: completely non-sensuous. Secondly, the greater the element of passivity in any set of monads, the more certainly will that perception or set of perceptions of ours which correspond to it be a perception of what we call brute matter, inorganic matter. The monads which underlie (or appear as) supremely passive matter are themselves the supremely (though not entirely) passive monads. Passivity in a monad displays itself both in the type of perception of which that monad is itself capable; and in the appearance which (conjointly with others) it presents in the perceptions of conscious beings. Passivity breeds rationality both in the *way* of perceiving (*sense*-perception → unconsciousness) and in what the perceiver is perceived *as* (animal or sheer body). The pure mind and the pure matter of Descartes are both abstractions: and every monad is in some degree *both*. For every monad is active in being the *source* of its *own* perception: but every monad is in some degree passive in respect of the *obscurity* of those perceptions. Leibniz sometimes speaks of the element of activity as "entelechy" and the element of passivity as "materia prima": every monad exhibits both.

Leibniz speaks as monads as differing not only in respect of the degree of clarity *with* which they represent the universe, but also in respect of the point of view *from* which they represent it. Point of view is clearly conceived on analogy with spatial position: but quite clearly we can't in Leibniz's system say that difference in point of view is the *result* of difference in spatial position, but must say that difference in what appears as spatial position must be the result of some other difference in their perceptions internal to the monads which is metaphorically described as difference in point of view. Does this mean, then, that difference in point of view is nothing else than difference in degree of clarity of perceptions? That **[82]** difference in degree of clarity is the only way in which monads can differ from one another? I think if Leibniz were compelled to say this – that the difference between say one state of one monad and the simultaneous state of any other, was simply a difference in *degree* of clarity – then it would be even more difficult to give a plausible account of the relation between the monadic and the apparent or physical world than it is in any case. But I don't think this is necessary. I think, having posited a *variety* in the passing states of monads, Leibniz can say that his monads, which have the same *overall* degree of clarity in their perceptions, nevertheless differ in respect of the *relative* clarity of different but *corresponding* elements in the passing states of each. And I think this is essential to his account of extended mass, of organic body and its relation to the soul. Let me try to make the point clearer with an explanatory model: it can be nothing more than that.

Let letters with subscript figures represent the different elements in the passing state of a monad i.e. different elements in a single total perception. The fact that each monad mirrors/expresses the universe (i.e. there is a correspondence between any state of one monad at a given time and the states of all other monads at that time) is expressed by the fact that the letter and subscript figure are the same for each monad. The temporally successive states are distinguished by change of subscripts. A line of such letters represents a single perception. A series of such lines one above the other represents the successive states of a single monad. Then let degree of clarity of perception be represented by the height of the letters. Then, **[83]** if, as between monads, there was but one variable factor, namely the degree of clarity (a certain coefficient different for each), we should have to represent the universe something like this:

M_1	M_2	M_3
$\dots a_1 b_1 c_1 d_1 e_1 f_1 \dots$	$\dots a_1 b_1 c_1 d_1 e_1 f_1 \dots$	$\dots a_1 b_1 c_1 d_1 e_1 f_1 \dots$
$\dots a_2 b_2 c_2 d_2 e_2 f_2 \dots$	$\dots a_2 b_2 c_2 d_2 e_2 f_2 \dots$	$\dots a_2 b_2 c_2 d_2 e_2 f_2 \dots$

the series extending infinitely in either direction. Now this model most certainly wouldn't do precisely because it would fail to make intelligible the sense in which monads whose perceptions approximated to each other in clarity could nevertheless have widely differing points of view: it would fail to make clear, in fact, the source of what appears as difference in spatial position, and of the fact that a given monad is more "influenced by" (i.e. represents more clearly) some monads than by others. We could perhaps at a pinch say that M_1 represents M_2 more clearly than it does M_3: but the only kind of spatial order of substances which this model could be held even approximately to explain would be something like a set of concentric circles or spheres – which is not at all analogous to the spatial order of things that we know. But our model is quite evidently incomplete. We can quite evidently introduce another kind of variation between monads besides the variation in overall clarity of perceptions: and, that is, by permitting relative variations in clarity within the total passing state. This will serve to explain (i) difference in point of view and, simultaneously, the appearance of spatial position; (ii) a monad's more clearly perceiving one monad than another monad; (iii) the relation between monads which Leibniz expresses by the metaphor of "domination". (i.e. the soul is said to be the **[84]** dominant monad of that cluster or group of monads which form its "organic body". Let me try to illustrate this:



Clarity of perception, in fact, can vary not only in degree, but, so to speak, in *distribution* over the whole range of elements of a given state. When there is a systematic *and continuous* variation in distribution as illustrated in the case of monads m_1–m_3; and when all the monads concerned are below the level of *conscious* perception; then monads so ordered may be held to constitute what appears as a physical body. When there is a monad whose own perceptions rise above the limiting level of unconsciousness, and, furthermore, are related systematically to the perception of such a group of monads as constitute a physical body, (the distribution of intensity in the conscious monad being the mathematical resultant of the distributions of clarity in the associated unconscious monads), then the conscious monad is said to be the *soul* of an *organic body* formed by the associated group. Roughly speaking *distribution of clarity* determines point of view (and apparent spatial position): overall *degree of clarity* determines the grade (whether brute monad, soul, or mind) of the monad concerned.

Interaction between monads, physical or spatial proximity and the perception of one monad by another are all different (and variously suitable) ways of speaking of a simultaneous rise **[85]** in clarity (relative to the other elements in the passing state of each monad) of corresponding elements (or nearly corresponding elements) in the passing states of different monads. A fact which demonstrates very clearly that (i) all motion [and even all spatial position] is relative; (ii) that it is a matter of convenience what we say acts upon what; and (iii) that to speak of the "perception of" one monad by another is simply to say (a) that such a correspondence occurs and, possibly, (b) that one of the two is conscious. The point is also illustrated that the problem of soul-and-body interaction is merely a special case of the *general* problem of interaction. All monads are totally independent of one another: but all *correspond* to one another *more or less closely*. Those monads which together form the organic body of a soul simply correspond to one another and to the dominant monad in a particularly close, systematic and organised way. Hence, in Leibniz's words, "bodies act as if there were no souls and souls act as if there were no bodies, and both act as if each influenced the other" [Monadology para. 81].

But the relation of the dominant to subordinate monads is not confined to those cases in which the dominant monad is above the lev-

el of unconsciousness. There is no reason why this kind of highly organised correspondence of one monad to a plurality should not be repeated below that level. If there is no reason against it, there is a sufficient reason for it. For it will add to both the *quantity* of things, the richness of the content in the universe, and to the degree of *organisation* in the world. Let us suppose, then, that *every* monad is a dominant monad, with an organic body: if we suppose that the number of monads is **[86]** infinite, there is no contradiction in this. The relation of subordinate to dominant may be compared with the relation "square root of": If x is $\sqrt{y}$, there is some other quantity which is the $\sqrt{x}$; and there is some other quantity which is the square root of the square root of x: and so on. Similarly the relation of subordinate to dominant may be repeated over and over again, without end. Monad x may be subordinate to y, but is itself dominant to a further set of monads each of which is itself dominant to a further set; and so on. (This would have to be shown diagrammatically by continual reduction in scale).

This is the point which is developed in paragraphs 64-70 of the Monadology. The combination of a dominant monad with its organic body is called by Leibniz a "living being". And the point is summed up in the paragraph (66) in which he says: "Whence it appears that in the smallest particle of matter, there is a world of creatures, living beings, animals, entelechies, souls" – and again, in the following paragraph "Each portion of matter may be conceived as like a garden full of plants and like a pond full of fish. But each branch of every plant, each member of every animal, each drop of its liquid parts, is also some such garden or pond". There is no doubt that Leibniz thought that the microscopical researches of his day were providing confirmation of this view at the phenomenal level: that, if we had powerful enough instruments, we should continue indefinitely to find minute organisms within each part of any organism, and indeed with each part of matter. This was simply a mistake about a matter of fact. But the factual mistake contributed to the **[87]** metaphysical fancy.

Of course the rough explanatory model I have been using to exhibit the real relations of monads and the sense in which each may be said to mirror the remainder is quite incomplete; it takes account only of the *passing state*. It allows for the appearance of the spatial but not of temporal relations. This is not enough of course, since the passing state of the monad not only "mirrors the whole universe from its point of view", but also "contains traces of all its previous and all its subsequent states". The complete picture of the monad is more comprehensive than we have so far allowed. We might complete the picture by replacing the lines with matrices (a table of lines): one line will differ from the next by variation in the *shape* of the letters (and these variations will be common to all the monads) and further variations in height and height-distribution (clarity and clarity-distribu-

tion). We must conceive the lines we can give as *selections* from a set of lines in which the variations are continuous. With the aid of such a picture as this, we can see how the organic body of a monad can *change* (paragraph 71) i.e. relative clarity-distributions may alter so that a monad which forms part of one subordinate system at one time may form part of another subordinate system at another. Monads may sink below and rise above the level of consciousness. The matrix itself is as "timeless" as a mathematical expression: the fact that we represent it spatially an accident of exposition. For the reasons **[88]** clearly given, every matrix has a set of subordinate matrices. Death and birth (in the absolute sense of separation of soul from body or ingress of a previously unbodied soul into a body) are therefore impossible. This conclusion is not in itself particularly interesting or significant since death and birth in this sense would be defined as involving merely the existence of a monad which was not a dominant monad of any subordinate set. It still remains possible for a monad to rise above or sink below the level of consciousness, or the higher level of *self*-consciousness (memory and reason). That such *risings*-to-new-levels occur Leibniz of course asserts in the case of spermatic animals generally, and – most spectacularly – in the case of man. He would also admit intermittent sinkings-below-the conscious level of those creatures who have once attained it – in sleep or stupor. This is, indeed, all very obvious. He does, however, make the further claim of immortality in the interesting sense (of retention of memory and self-consciousness) for *minds* (i.e. self-conscious monads). But clearly the general doctrine of monads, or simple substances, implies no particular support for this dogma; and accordingly recourse is had to theological and moral considerations, and the Principle of Sufficient Reason. Minds obviously possess more positive perfection; are richer in dynamic content (because having clearer perceptions); have less *passivity* than any other created substances. Consequently they will have more value in God's eyes than anything else, and the organisation of the universe will be ultimately and supremely adapted to the spiritual and **[89]** moral requirements of free and self-conscious beings. These apparently include personal survival, and the divine apparatus of reward and punishment. Leibniz's treatment of these questions is orthodox and not very interesting: a striking contrast with the more original parts of his system.

<*May 24th*> One more respect in which minds enjoy a uniquely privileged position deserves comment. Leibniz often expresses it by saying that while monads in general are representative of the universe of created things, minds are, in a sense, representative of God himself [para. 83 of M.]. All monads mirror the universe: but minds in some degree mirror God. The point seems to be that beings endowed with reason are capable of knowing necessary propositions, or truths of reason. Such knowledge cannot be derived from sensi-

ble experience alone, since such experience can never yield absolute certainty of necessary propositions <cf. N.E.>. In so far as our knowledge is knowledge of necessary truths, it is quite free from obscurity and confusion: *these* perceptions are absolutely clear. Now God's knowledge is all of this kind; all clear and all certain: (even, we have seen, as regards individual substances, since he knows their complete notions which we can never know). In so far, then, as we know necessary propositions, we have knowledge of the same kind (though not of course to a comparable degree) as God. Sometimes, however, Leibniz goes farther and speaks as if the connection between necessary propositions (or "eternal truths") and God were more intimate than this. He speaks of the "understanding of God" as "the region of eternal truths" and argues, **[90]** in paragraphs 43-44 of the *Monadology*, that the fact that these are necessary propositions, or eternal truths, is itself proof of the existence of God. Necessary truths (or essences) determine what is possible, and without God, nothing would even be possible.

This is a very bad argument. It amounts to saying: the truth of necessary propositions proves the existence of God, because unless God *knew* them, they would not be true or necessary: their necessity (or truth) consists in being known by God. But in any sense of the word "know", "A *knows* p" implies "A *believes* p *and* p is true". That a proposition should be true is a precondition of being known: it makes no sense to say that its being known is a precondition of its being true. The argument is valid only if "being known by God" is being used in a *queer* sense to *mean* "being necessarily true". But this is dangerous: it reduces God to a set of logically necessary propositions. He ceases to be the sort of being who can *know* anything in any intelligible sense and becomes the bare principles of abstract logical necessity. If truths of reason are *the same thing* as God's understanding, they cannot be the *object* of that understanding: and it is difficult to see what is meant by *calling* it an understanding at all.

There are one or two other subjects which cropped up in the course of this rapid outline which call for further comment – I didn't want to break the thread by lingering on them at the **[91]** time: and I shall have time only to say a very little about them now. The three subjects I particularly have in mind are: (1) unconscious perceptions; (2) space and time; (3) freedom.

(1) *Unconscious perceptions*. Leibniz loves to dwell on the necessity of admitting unconscious perceptions (*unapperceived* perceptions) and the importance of the role they play in his system. [Cf. esp. "New Essays" – e.g. Everyman pp. 148-152]. Their importance for his system can't be disputed. If you think of our matrix model of a monad, you will see at once that by far the greatest part of the elements making up the successive states of the most highly developed and clearly perceiving monad must be below the consciousness-level. It

is only in virtue of these unconscious elements that the monad can be said either (a) to mirror the universe (i.e. to represent or "correspond to" every other monad); or (b) to contain within itself at any one time "traces of all its past and future states". Since they are essential to these two features of monads, they are essential likewise to the Pre-Established Harmony. Nor does the theoretical indispensability of unconscious perceptions end there. They are the unapperceived determinants of choice where the matter appears to be quite indifferent. [e.g. two apples on a plate, with "nothing to choose" between them – how *do* we choose?]. They supply those continuous gradations which Leibniz thought to be necessary between one state and another. [This was but one aspect of his beloved Law on Continuity – part of his prejudice in favour of "as much as possible" – but seems to be by no means self-evident and in fact mistaken: cf. Quantum Theory]. He seems to **[92]** have thought also that (a propos the denial of interaction) unconscious perceptions made it more plausible to say that the pain of the wasp-sting had nothing to do with the wasp: but was the result of a gradual build-up of unobserved sensation (!) – "Observable perceptions come by degrees from those too small to be observed" <p. 152 E.>. (This was perhaps getting confused about his own views, since there was no objection to saying that the "waspish" *perceptions* were involved in the causation of the "sting" *perceptions*). Finally, unconscious perception helped to explain the Identity of Indiscernibles, since they showed that things apparently alike might differ by insensible variations. Altogether, then, the unconscious perceptions were an indispensable piece of metaphysical apparatus.

Now obviously in the sense in which unconscious perceptions are required for his whole system, they stand or fall *with* that system: and we note that in this sense the word "perception" means nothing more than "a state of a substance correlated, or corresponding, with the state of other substances" – or, even, "an element in such a state". We may accept this use of the word "perception" as a Leibnizian technicality: and note that it is rather a confusing use of the word, since the normal use of the world "perception" is to describe what Leibniz must call a "conscious perception" and distinguish from perceptions not so qualified. Let us use "perception (L)" to indicate Leibniz's usage and "perception (O)" to indicate the ordinary usage. As I say, the acceptance "unconscious **[93]** perceptions" in Leibniz's sense depends upon our attitude to his system as a whole, since they form an integral part of that system. Nevertheless, Leibniz uses some independent arguments of a psychological nature for the occurrence of unconscious perceptions. I don't propose to examine these arguments in detail. They are of varying value, and tend, I think, to show different things. But, speaking generally, I think that they indicate some confusion in Leibniz's thought over the use of this word "per-

ception". He tends, using our ordinary causal language for talking of perception, to argue from the fact that there are unapperceived causes of our conscious perceptions to the conclusion that these are unconscious perceptions. (e.g. our hearing the roar of the ocean depends upon the fact that each wave makes a noise not in itself audible). But the conclusion seems to me to follow only if it is already granted that to every modification of any substance, there corresponds some modification of every other; that the real causes of all perceptions (O) are perceptions (L) of the same subject; and the rest of the Leibnizian doctrines. Without this pre-assumption of the Leibnizian scheme of things, I see no reason why the audible shouldn't result from the inaudible without it being supposed that my conscious hearing presupposes some "unconscious hearings".

(2) *Space and Time*. [Cf. Letters to Clarke Ev. pp. 198-226] Leibniz makes a brilliant use of the Principle of Sufficient Reason and the Identity of Indiscernibles to establish the relational character of space and time; i.e. to show that they are not "absolute real beings" (substances), but are **[94]** constructs from spatial and temporal relations. I can't possibly do justice, in the limited time available, either to the arguments or to the question in itself. Very briefly, if I were to try to put the argument in non-Leibnizian terms, I think I should do so as follows. If we use the word "universe" to mean the total of things and events (physical or mental), then, whereas it always makes sense to enquire, of anything *in* the universe, *where* it is or *when* it took place or *how long* it lasted; it makes no sense to ask these questions of the universe as a whole. It makes no sense to say: "Where is the universe?" or "When did the universe begin?"; and it is only by a confusion of logical types that these questions seem significant. Because they seem significant and are not, people make the mistake of thinking that "space" and "time" are the names of absolute existences, instead of being – what they are – ways of referring to the fact that things are related in certain ways. That this is so can be seen by considering the sort of answers we give to the question: "When?" and "Where?". We always answer these questions *by reference to something else*. Where is A? – It is to the left of B – or just beyond C in the direction of D. When did *x* happen? Oh – just before (or just after or at the same time as) *y*. There is no absolute space in which we can fix the position of things and no absolute time in which we can fix the date of the occurrence of events. All the answers we give are *relational* answers.

In Leibniz's hands, the argument assumes a **[95]** rather different form. If space and time had absolute real being, then the universe must be regarded as occupying a determinate position in this absolute space and this absolute time; and that position could, logically, have been different from what it actually is. e.g. it would be possible for the whole universe to be turned through 90°, say, or for the

whole course of events to have started a year (i.e. a period of time corresponding to what we call a year) earlier than it did. And since time and space, so conceived, are entirely uniform, there would be no reason why one position in space and time for whole course of events should be preferred to any other. If time and space are absolute, then, God acted without any reason in choosing the position in time and space that he did choose for the whole course of events. But God never acts (and nothing ever happens) without a sufficient reason. Therefore time and space cannot be absolute.

Given the principle that nothing ever happens without a sufficient reason, this argument can be stated without reference to God. Another way of doing it (which Leibniz also uses) is by reference to the Identity of Indiscernibles. Suppose that space and time are absolute. Then everything at a given moment has a position in absolute space. Call that state of affairs "A". Then imagine that everything simultaneously moved through 90° in absolute space, with no other change (e.g. in the *relative* position of things) taking place. Call this state of affairs "B". Now if space is absolute, "A" must be different from "B". But, as a matter of fact, there is no distinction between A and B. If you try to think of such a difference, you can do so only by assuming that **[96]** something *in* the universe remained unchanged from A to B, so that there was some *relative* change of position. If you think of *everything* changing together, the second state is no different from the first and there has been no change. [A *difference* is (not indeed an *observed*, but certainly) an *observable difference*] <224>. Then, by the Identity of Indiscernibles, A is identical with B. Therefore space is not absolute. The same arguments apply to time; if, for example, you try to imagine that the whole course of events remaining exactly the same except that the *whole thing* happens a year earlier. There is no difference between the "two" sequences, and we can imagine a difference only if we illegitimately introduce a *relative* time-variation. But if there is no difference, then, by the Identity of Indiscernibles, they are not two sequences, but one. Time is not absolute, but relative. To quote Leibniz: "There is no determination of the when and where of the universe, other than the determination of things and their relations. Time and space apart from things have nothing real in them, nothing to determine them, indeed nothing discernible" <225>.

These arguments, which seem to me eminently sensible, establish, I think, that temporal and spatial facts are always and necessarily relational facts. This conclusion is not in the least surprising and does not involve saying anything absurd like "space and time are ultimately unreal", so long as relations are admitted as ontologically ultimate; or, in other words, so long as relational propositions are admitted as logically irreducible. But for **[97]** Leibniz, for whom relations are ideal; for whom substance and accident are the only ontological categories; for whom all propositions are of the subject-

predicate form; the discovery that spatial and temporal facts are relational facts is equivalent to the discovery that space and time are "ideal", "mere appearance", "*not* ultimately real", and so on. And this conclusion is, indeed, required not only by Leibniz's logic; but by the whole anti-Cartesian prejudice in favour of simplicity (in the sense of indivisibility or "having no parts") in the ultimately real. Space and time, if they were real existences, would be supremely, indeed infinitely, divisible: they are therefore supremely unreal. Nor can things spatially extended, and therefore having parts which are spatially related to one another, be admitted as ultimately real. The atomists' picture of tiny indivisible bodies bombinating in the void, though it may, says Leibniz <p. 213>, satisfy the imagination, will not satisfy the reason. It is, on the contrary, disallowed on all counts: the Identity of Indiscernibles, the requirement of simplicity, the ideality of relations. (The high degree of coherence of Leibniz's philosophy, the extent of the logical articulation of its elements, is well exhibited in connection with this "spatial" question).

Leibniz has further arguments designed show that space and time are neither substances nor accidents and are therefore unreal. I refer you to the correspondence with Clarke. Also for an ingenious account of how we come to "form the notion of space" (pp. 220-222) out of similar **[98]** relations. If at time t_1 *x* is related to A and B in a way which we could describe by saying "*x* is between A and B"; and at time t_2 *y* is related to A and B in a way we could correctly describe by saying "*y* is between A and B"; then we say that *x* at t_1 occupied *the same place* as *y* at t_2. Out of *similarity* of relations we construct for ourselves the notion of *identity* of place: and the notion of *place in general*, or all *places* taken together, yields us the notion of *space*.

The account is not worked out in detail, and we have no time to consider it. But here at any rate is the beginning of a relational theory of space – ruined of course, by Leibniz's absurd refusal to take relations seriously.

(3) *Freedom*. – Just a word – no more – about the freedom of the will in Leibniz. It is customary to say that while Leibniz made a great parade of ensuring the freedom required by morality, he actually denied it. Since I am not at all certain as to the sense in which freedom *is* required for moral responsibility I find it difficult to pronounce upon this question. But there are a few things I can say.

1. The fact that all actions are *contingent* in Leibniz's system is irrelevant. No one ever supposed that "morally free" meant "not logically necessary".
2. The fact that there is no *interaction* in Leibniz's system is irrelevant: for this is true of *all* monads, including many whose "activity" would not be called free in any relevant **[99]** sense.

3. The principle that the complete notion of a subject timelessly includes all its predicates is irrelevant. As Leibniz points out, one of those predicates may be that of "doing such-and-such an act freely". Generally, "freedom", whatever the required sense, must be characteristic of acts and agents in *time*: the characteristics of the timeless monadic world are irrelevant to it.
4. If "free" in the required sense is opposed to "determined", then Leibniz certainly denies freedom. The notion of an undetermined choice he declares even to be contradictory, since a choice must be motivated. More generally, he holds fast to the principle that every action of a substance is determined by some antecedent state of that substance, in accordance with the laws of that substance. I do not personally consider that this involves the denial of freedom in the sense required for morality. As Leibniz himself points out, however complicated phenomena might be, it would always be possible in principle to regard them as exemplifying some rule. Determinism in this sense is not a feature of the world incompatible with some other feature, called "freedom", of certain acts. It is merely a principle of procedure, a hint to look for the simplest rules.
5. Where Leibniz does seem to me to threaten freedom in a sense in which it is required for moral responsibility is where he speaks of the nature of the "final causes" (i.e. motives) which operate for self-conscious beings as invariably being "what seems to us (with our relatively **[100]** unclear perceptions) the best". If, then, we fail to pursue what is good, this is not a failure of will, but of insight. If we do wrong, it is from ignorance. Now this seems to me quite certainly fatal to moral responsibility for wrong-doing; which seems to me to require that we should *choose* to do something, *knowing* it to be wrong. It is not, then, Leibniz's *determinism* which seems to me to be fatal to "freedom" in the sense required for moral responsibility: but his doctrine that our motivation is *all of a piece*; that we always do as well as we *see*; that it's never our will, but always our understanding, that is at fault.

Just one final word in criticism of Leibnizian, and many another, metaphysics. It is exposed to the general criticism that it is self-contradictory: that its premisses are denied in it conclusions. The argument so often goes like this: since the world has such-and-such characteristics (say "A"), then is must *really* have such-and-such others (say "B"): but if it really has B, then it hasn't got A. B are "monadic", A "phenomenal" characteristics. Leibniz, in fact, uses common-sense beliefs as the premisses of an argument which concludes by denying those beliefs: a plainly illegitimate procedure.

An example will illustrate my point. Why **[101]** does Leibniz believe that there are a plurality of monads corresponding to the material world, the world of physical objects? Because, of course, he starts from the common-sense assumption that matter is real, that there are physical objects made up of real parts. He then goes on to give these "real elements" characteristics which are incompatible with their being *parts* of physical objects, of extended matter: and then degrades physical objects, extended matter, to the status of *appearance*, of *phenomena*. But this knocks away the whole ground of his argument for the existence of a plurality of real elements corresponding to physical objects. Why assume monads corresponding to the physical world at all? Why not be content with the harmonising perceptions of *conscious* monads, and leave out brute monads? The only argument left in favour of the latter is the poor one: – the more of everything, the better. But the addition of brute monads will make no observable difference (since, remember, our perceptions are not in the regular sense perceptions of anything, but entirely self-generated) – except perhaps to God.

One might go farther and ask: Why believe in a plurality of monads at all? It's very questionable whether such a belief is compatible with the subject-predicate logic and the denial of relations. Spatial and temporal relations Leibniz has declared to be *unreal*, mere appearances. But, underlying them, in the monadic world, there must be "relations of co-existence" (as he calls them) between different substances (if there *are* different substances); and there **[102]** must be "relations of succession" between the states of a given substance, relations of "simultaneity" between the states of different substances – all of these relations *appearing* as spatio-temporal relations. But surely these relations, whatever they are, are quite as incompatible with the subject-predicate logic as spatio-temporal relations: why should reality be denied to the latter and permitted to the former? Either have done with a plurality of substances altogether and join Spinoza with one timeless substance: or, since a plurality of substances involves relations of some kind, admit the reality of spatial and temporal relations. As soon as they are admitted, of course, the whole Leibnizian metaphysics crashes to the ground in ruins. And surely it's obvious that Leibniz's whole conception of a substance presupposes real spatio-temporal continuity, just as surely as his belief in a plurality of substances underlying the physical world presupposes a common-sense acceptance of the reality of the latter. The substance is essentially conceived as that which endures through time, changing both its states and its position in relation to other substances: and this conception is not intelligible except in spatio-temporal terms. The arguments from the logical subject rest as plainly upon the assumption of the reality of temporal relations, as the arguments from dynamics rests upon that of the reality of motion. The

fact that time, space and motion are subsequently condemned as mere appearance is simply another illustration of the fallacy of assuming the reality of the phenomenal world in the premisses, **[103]** and denying it in the conclusions, of your metaphysics. The full extent and enormity of this fallacy was nearly – not quite – apparent to Kant a hundred years later. But Leibniz was unconscious of it: and so was able to step cheerfully from the phenomenal to the monadic world and back again without realising that the step was one he could not possibly (i.e. logically) make; and sometimes without even realising that he had made it.

It is, however, irrelevant to condemn Leibniz (or anyone) for failure in metaphysics: since there is no such thing as success in metaphysics. His breadth of interest, and inventiveness, are obvious. Of the power of his logical ideas I have already spoken at length. I will conclude by mentioning once more that profound sense of the "harmony" of things which was probably the most important psychological determinant of the character of his system. He had a quite peculiarly strong sense of order, pattern, purpose: of a universe in which nothing was wasted and nothing was irrelevant, but everything contributed to form a whole of consummate excellence. These are of course subjective criteria. Such remarks tell us much about Leibniz and nothing about the world. But, whether we share it or not, Leibniz's vision (or dream) must have been a powerful one: for logic and religion, and all the sciences and all the disciplines, are pressed into service to contribute to a model of the universe which would conform to that vision.

Revision Lectures

[1] In these four revision lectures I shan't attempt to repeat all that I said in the first term. That would be tedious, and, I think, unnecessary. But I shall discuss in a general way some of the ideas which were introduced in that term's lectures and which we have taken for granted since: especially those whose central importance was not perhaps fully grasped at the time.

(1) "*Names*". And first of all I want to make some distinctions between "names" and general words, which we have taken very much for granted after first making it; and about the way in which the expression "names" is used in logic. Consider first how the expression is used in ordinary speech. It's a bit of an over-simplification which I shall risk making, to say that, in ordinary speech, the expression has two main uses:

(1) A *name* is an expression beginning with a capital letter used to refer to a "particular": and by a "particular" is meant an individual *person* (like John Jones) or *place* (London, Wales) or *thing* (the

Eiffel Tower) or *institution* (like the Midland Bank) or *event* (The Boston Tea Party) or *collection* of things or persons or events. The word to be stressed is *individual*. Not any bank in the Midlands is "The Midland Bank"; and not any tea-party in Boston is "The Boston Tea Party". When we use a name with a capital letter, we want to refer not to a *kind* of thing or to anything **[2]** of a certain kind, but to a unique something. It is *this* characteristic of names in-the-ordinary-sense-with-capital-letters, that causes us to make the use of the term that we do in logic. <Names-in-the-sense-with-capital-letters are called "Proper Names">.

(2) There is however another and quite different ordinary usage of the term "name". If I am going for a walk, and ask my companion – "What is the name of that tree?" or "What is the name of that flower?" – I don't expect an answer which has, so to speak, a capital letter: I don't expect an expression ("James!") used to refer to that *particular* tree. I am really asking for a *general word* for the *class* of trees to which that tree belongs. If you like, we may express this by saying that I am asking for a *class-name*: the name of the class of which that tree is a member. But if we do this, we must remember that a *class* is not a particular, not a *unique something*: it is only by courtesy that it can be called a "thing" at all; and that any general world whatever (like "red" or "angry") has just as much right to be called a class-name as any which (like "oak" or "daffodil" in the answer to our question) applies to a natural species.

Obviously these two normal usages of "name" are very different from one another; and neither is an *exact* usage. And neither is identical with the logical use. But the logical use is a great deal closer to the first popular use than it is to the second popular use. What, then, is the precise significance, in our logical use, of this term "name"? It is far more difficult than it seems to give a simple answer. But here is an attempt. **[3]** By "name", in logic, I mean any expression whose primary function is to pick out, denote, refer to, identify an actual individual, – a unique something, to use the phrase I used just now; and any connotative force that expression may have (i.e. anything it may tell us about the *properties* of that individual or something), is irrelevant to its main purpose – which is simply to indicate *what* is going to be talked about, and not to say anything *about* it. If you reflect about this, I think you will see two things straight away: (1) that this really is the essential function or ordinary purpose of names; (2) that our definition of a name in the logical sense implies that many expressions are *names* in this sense which are not names in the first popular sense (i.e. ordinary proper names with capital letters).

That this *is* the essential function of names becomes obvious if you consider how totally arbitrary the choice of ordinary proper names

may be. An ordinary proper name, (say "Leslie") may be applied to anybody and anything whatever: and will serve its purpose whatever it's applied to, since its essential function is not to say anything about that to which it is used to refer, but merely to refer to it – to be a tag, a "handle" (in the expressive popular metaphor). For the job it has to do, one name is, literally, as good as another. There is (it is scarcely necessary to add) nothing of the same successful arbitrariness about the use of general words. In order for one to be able usefully to apply the word "red" to something, it is generally desirable that that thing should have a certain property, i.e. that it should be red. If I *systematically* ignore this requirement, then **[4]** I am altering or destroying the *meaning* (i.e. the *connotation*) of the word. But nobody says that the meaning of "Leslie" has been altered when another child is christened with that name: the reason is that the word, in so far as merely functions *as* a name, has no general meaning. Its purpose is to denote – to pick out, identify, select, point to – a particular individual.

A lot of expressions, I said, must be admitted as names in the logical sense which are not names in the ordinary sense. The pronoun "I" for example is always a name: it refers to the particular individual who uses it, picks him out with complete success as the individual to be talked about – and yet, in itself, says nothing about the individual. The other pronouns are often, not always, names. Not always; because they may have special grammatical functions to perform, or they may be standing as shorthand for a descriptive phrase. The demonstratives "This" and "That" are supremely names. They too indicate that which is to be talked of, but themselves say nothing about it. And we must make another addition to the list which perhaps seems a little stranger. And this is the use, as a name, of a general word with the definite article. Such expressions as "the table", "the child", "the dog", "the horse", "the sheep" we must admit as frequently having the logical status of *names*. That is, they serve in their context unambiguously to pick out a certain specific particular. Of course this use of names cannot be arbitrary: they can be so used to refer only to a particular which have the properties (being a table, a dog etc.) which they connote. But the point is **[5]** that their connotative force is quite subservient to their purpose in this use – which is to pick out the individual. Sometimes a general world may be used as a name even without the article – this is particularly evident in the case of family relationships – "father", "mother" etc.

A *name* in the logical sense, then, is essentially an expression *used* to pick out an individual, to denote a unique something. I have said of some that their connotative force is subservient to their distinctive purpose i.e. its "pointing-out" purpose. And I have also said, rather loosely, of others (like "this" etc.) that they had no connotative force at all, that they merely picked out something, without say-

ing anything about it. This is obviously not *quite* accurate; and the first way of speaking is to be preferred. Even such a colourless word as "This" may be said to have some meaning (connotation): usually something like "What is present-to-one-now". Even a strictly proper name like "Leslie" may be said to have the *general* meaning: "A person or thing referred to by the name 'Leslie'". But the point is that it is not their connotative force, but their *use* in a certain context, that gives them their *unique* references. When we begin a sentence "This" or "The child" or "The table", such general connotative force as the word has *helps* us to make the unique reference we want to make: it is the beginnings of an indicator – but it is the context of the use of the expression that does the main part of the job. The unique reference of a name is never given by its connotation, its general meaning, alone: but by its general meaning together with its context. It is only *in a use* that **[6]** the expression *becomes* a name. Consider the phrase "The child", and you will see what I mean. It is obviously "designed" for use as a logical name: it is not, as "child" is, a *general* word or phrase: but it is only in use that it becomes, so to speak, the name it is – that it acquires its unique reference and becomes distinguished from other occurrences (as *different* names) of the same phrase.

Now this is a very important point. For it serves to distinguish name in the logical sense from definite description and from "disguised" definite description; and explain why proper names, which are sometimes shorthand expressions for definite descriptions, are not always names in the logical sense. If we were to define a name in the logical sense merely as an expression with a unique reference (i.e. applicable to only one individual), it would be difficult to explain why descriptive phrases such as –

The present king of France
The author of the Iliad
The tallest man in the world
My cat

– should not be regarded as names: for clearly, if they are applicable to anything at all, each is applicable to one thing and one thing only. But in the case of these expressions the claim to uniqueness of reference is made as part of the connotation (the general meaning) of the expressions. If I speak of "my cat" you will understand one as asserting that there is one and only object which is cat and is mine. Thus you can interpret these phrases as having a unique reference by virtue of their connotation alone, without any independent knowledge of the object to which they uniquely refer **[7]** and even if there are no such objects. But if we remember that an expression is never a name *solely* in virtue of its general connotational meaning, there is no longer any temptation to regard these expressions as names:

instead, we can all them uniquely descriptive phrases. And we may notice, too, that any proper name which is merely a shorthand way of expressing a descriptive phrase – in a concealed description – is according *not* a name in the logical sense [e.g. "Homer" = "The author of the Iliad"].

A name, then, is an expression which, as used in a certain context, serves to pick out a particular individual person of object or event as the person or object which is to be talked about. It has a unique denotation as used in that context; but its unique denotation does not depend upon its connotation (or general meaning) alone. And this is particularly obvious is the case of such words as "This" which have almost no connotation (general meaning) at all, and yet can function quite successfully as names: and almost as obvious in the case of such expressions as "The child" or "Father" which have a very wide general meaning, and yet which, when used in certain contexts, function successfully as names i.e. serve to denote one unique particular, to pick out unambiguously a unique something. Clearly, then, the fact that such phrases can function successfully as names presupposes some independent knowledge, on the part of all those who successfully understand their functioning as names, of the particular or individual to which they refer i.e. knowledge of that particular independent of the connotation of the expression used as a name. The **[8]** name-phrase that serves simply to direct our attention to that particular which we know independently of what the name-phrase tells us *about* it. If we enquire: – What is the nature of this independent knowledge of the particular required in order that we can (logically speaking) *name* it, the easiest answer to give (and the one that I gave in my first term's lectures) is, I think, that we should be "directly acquainted" with that particular. I am not altogether happy about this answer: [It seems to me that "acquaintance" is a matter of degree, or at any rate a not-at-all-easily-definable relation]: but, to avoid plunging too deep into problems of logic and knowledge, we may accept it as approximately correct. Anyhow we may say that it is *some* independent knowledge of this kind which is the condition of the successful use of an expression as a name. If we are in a picture-gallery which is in total darkness and *you* have never been there before; it is no good my saying "This picture is good" accompanied by a gesture. As far as you are concerned I have not succeeded, (by the use of the phrase "this picture") in *naming* a particular object. It is necessary for you to be able to *see* the object, to have some direct knowledge of it independently of what I tell you about it by the use of the phrase "This picture", in order for the phrase "This picture" to function, as far as you are concerned, as a name – as a means of letting you know *what* particular is to be talked about, what individual is picked out in order that something may be said about it. In the absence of such independent knowledge (by acquaintance) on your part of the particular referred to, my sentence is

merely existential – the **[9]** "this" has no function – and it merely says that there is a picture in the room which is good – there is an *x* such *x* is the picture and in the room and good.

This suggests another criterion for distinguishing between an expression being used as a name in the logical sense, and expressions not so used: a criterion which we have encountered elsewhere. When an expression is used as a name, it is not significant to enquire whether the particular to which it refers *exists*. Thus the question "Do I exist?" is meaningless; and, quite generally, "Does this exist?" or "Does this so-and-so exist?" is not a question which has any sense. But where an expression is used as a (uniquely) descriptive phrase, it always makes sense to enquire whether there exists an individual (object or person or event) to which it applies.

Let us underline these points about names by considering a few examples of (a) expressions not used as names, but descriptively (b) expressions used as names.

(a) To use again the phrase I instanced earlier, in a sentence

(i) The tallest man in the world is French. NB. It seems by connotation alone to refer uniquely to one individual – but, for that very reason it is *not* a name. It says: "There is a man who is taller than all other men and is French" i.e. is existential (might be false as an assertion of existence – two top men might be of equal height).

(ii) Homer was blind.

– Instance of a proper name acting as shorthand for a descriptive phrase – Translate "There was one man who wrote the *Iliad* and the *Odyssey* and was blind and was called Homer". **[10]**

(iii) The present King of France is / England is … bald.

(There is a man who … etc.)

(iv) My cat is called "Cooper" $(\exists x)$. *x* is a cat of mine and called "Cooper".

Note that any of these verbal expression *might* be used as names i.e. with the object of picking out one particular in order to talk about him: but in order for this to be done, the expression would have to lose its primarily connotative use and there would have to be an appeal to some knowledge of the particular independent of the connotative force of the phrase. Cf. the use of the following expressions as names.

(b)	(i)	*The child* is crying	Φa
	(ii)	*I* am thirsty	Φa
	(iii)	*This* is an inferior blackboard (*The blackboard* is inferior)	Φa
	(iv)	*Paul* is taller than *John*	aRb
	(v)	*The college* is cold.	Φa

In all these cases the fact that the sentence is pronounced when and where it is will determine the denotative function of the name-word: i.e. will determine what the expression is the name of. But quite obviously the natural use of each of the underlined expression in these sentences is as a *logical name* in the sense that we have given the phrase and have chosen to symbolise with the small letter at the beginning of the alphabet. All our examples will be the of the form Φa, except the one relational sentence of the form aRb.

I hope this rather lengthy digression makes clear the answer to the question "What do we mean by a "name" in logic – or, as it is sometimes expressed, by a "logically proper name"?"; and shows just how far the class of names **[11]** in the logical sense is and is not co-extensive with the class of ordinary proper names. Just to sum up:

(i) Any expression is used us as a name in the logical sense when it is used to pick out or identify a particular individual (event, object, person) about which something is to be said. It cannot do this in virtue of its connotative force alone; but only by the combination of its connotative force, or general meaning (which may be negligible), with the context of its use. In all cases, therefore, it use as a name depends upon some independent knowledge of the particular concerned (i.e. independent of the connotation of the expression); it is suggested that this independent knowledge is knowledge by acquaintance.

(ii) Many ordinary proper names are used as names in this sense, but many expressions which are not ordinary proper names are also used as names in this sense. Ordinary proper names are given to those particulars which seem to us outstandingly important or which we frequently want to refer to. Persons, animals and ships are not the only things to receive proper names.

(iii) Some expressions which would ordinarily be called "proper names" are used sometimes, not as names in the logical sense, but as shorthand expressions for (uniquely) descriptive phrases.

(2) *General Words and Classes: Connotation and Denotation*. From this discussion of names, several profitable lines of enquiry seem to lie open. Perhaps the most obvious subject is that of general words:

since names and general words between them go to make up these sentences which we said to be logically the simplest, viz. sentences of atomic form. The difference between an expression **[12]** used as a name and a general word, is easily stated. The function of a name is to pick out or determine an *individual*: the function of a general word is to pick out or determine a *class*. One expression may function in both ways: both generally, and (with or without the definite article) as a name. The word "father" for example. We may use it as a name, to pick out a certain individual, and say something else about him: if we were writing it in this sense, we should spell it "Father". Or we may use it generally to talk about a certain characteristic which is common to that individual and all other members of the class of fathers. In that case we spell it "father". When we use it in the first way, it is not the individual's membership of the class that we are primarily interested in: we simply use that characteristic to pick out the individual we want to say something else about (e.g. "Father is playing bridge"). But when we use the word *generally* in a statement of a fact as in "John Jones is a father" – *then* it is the individual's membership of that class which primarily interests us: having picked him out by some other expression used as a name, what we have to say *about* him is precisely that he has the characteristic connoted by the word (or is a member of the class determined by its connotation).

I don't propose to repeat all I've said about denotation and connotation, since we went into that fairly thoroughly; and it's to be found in Miss Stebbing. Notice that the denotation of a general word is the same thing as the membership of the class determined by the connotation of that word. The relations "being denoted by" and […*pages missing?*]

[Lecture plan?]

Introduction

1. The search for true unities – aggregates – the rejection of atomist or extensional thesis <R. p. 105 seq. 239-243> (Descartes) – on both metaphysical and dynamical grounds – the suggestion of the "metaphysical point"
[Arnauld – aggregates etc. p. 77-83
New System p. 98-104
Weldon pp. 17-20]

2. The logical doctrines. (Arnauld passim and extracts from R.)
   (a) The subject-predicate doctrine – inherence of all predicates in the subject – denial of relations <223>, and hence of interaction (how logic accords with popular philosophical prejudice here) [Pre-Established Harmony

Arnauld pp. 57-75
Russell pp. 8-10 and notes.

(b) Distinction between necessary and contingent propositions (arising out of apparent denial of freedom implicit in former)

Necessary propositions as hypothetical and dealing with *incomplete notions*.

The *complete* notion of the individual – completely determines for that *x*, and yet contingent whether that *x* or another.

Principle of sufficient reason as providing <204, 212>

(a) connexion between predicates
(b) ground of selection of actual existences.

The compossible – the possible and the actual. <p. 210-211> (final causes and efficient causes), (the best i.e. the most and most economical)

(c) The complete doctrine of substance <and law> and the identity of indiscernibles. <N.S. 105-8, 213, *224*.>

3. The pre-established harmony – each monad as mirror of the universe – theory of "representation" – defense of the automaton <N.S. 104 seq. Foucher 115. 120-140.>

4. Application to specific question. <198 seq. 220>

(a) Space and time *and* materia secunda
(b) Perceptions – clarity and confusion – Dynamics, activity and passivity – entelechy and materia prima
(c) The dominant monad – soul and body interaction
(d) Confused or unconscious perception <NE 148-156>
(e) Theory of knowledge – innate idea <143-147, 167-74, 181-91>
(f) God in Leibniz
(g) Ethics (free will)

5. The radical inconsistencies and failures.
Plurality of substances
Representation
A logical subject form constituted precisely by the spatio-temporal continuity of states, which relation Leibniz attempts to deny.

Abbreviations

Arnauld	Leibniz-Arnauld Correpondence
D. de M.	*Discours de Métaphysique*
Everyman / Ev. / E.	Leibniz, G.W. (1934). *Philosophical Writings*. Selected and translated by M. Morris. London: Dent (Everyman's Library).
G	Leibniz, G.W. (1875-90). *Die philosophischen Schriften*. Edited by C.I. Gerhardt. 7 vols. Berlin: Weidemann.
N.E.	*New Essays on Human Understanding*
N.S.	*A New System of the Nature and Communication of Substances*
Russell / R.	Russell, B. (1900). *A Critical Exposition of the Philosophy of Leibniz*. Cambridge: Cambridge University Press.
Weldon	Weldon, T.D. (1945). *Introduction to Kant's Critique of Pure Reason*. Oxford: Clarendon Press