Two

The Metaphysics of Substances: Unity and Activity

I have argued that perhaps the deepest theme in Leibniz's metaphysics is that substances, the fundamental building-blocks of the universe, are all mirrors of God (DM 9, WF 61). The theme may have roots in the Neoplatonic tradition, but Leibniz does not of course confine himself to recycling ancient themes; he presents new arguments for the thesis which address seventeenth-century concerns and problems. In the first half of the chapter we shall see how Leibniz criticizes two leading philosophical systems of his time, those of Descartes and Malebranche, for failing to do justice to the unity and activity of substances, properties which they all share with God. We shall then go on to see how in the *Discourse on Metaphysics* Leibniz presents a positive case for these and other God-like properties of substances. In particular, we shall see why Leibniz thinks that substances are in a sense omniscient and as causally self-sufficient as is consistent with their status as creatures.

One of the primary aims of this chapter will be to introduce the reader to some of the great constants of Leibniz's metaphysics as they appear in the first works of his philosophical maturity; the unity, indivisibility, and activity of substances, for instance, are themes which are fully present in these works and never disappear from subsequent writings. But we shall also find that though these themes are set in stone, on other issues Leibniz's thought remains surprisingly fluid at this stage. We could make the point in logical terminology by saying that although the intension of the term 'substance' is fixed, its extension remains undetermined; in other

words, though Leibniz is clear about what is involved in being a substance, he is less clear about what items in the world satisfy the description. It is not until Leibniz's final turn to the theory of monads that his thought stabilizes on this latter issue, and even then (as we shall see in Chapter 3) he leaves some loose ends dangling.

UNITY: THE CRITIQUE OF DESCARTES

Perhaps the most prominent constant theme of Leibniz's metaphysics is that substances, the basic building-blocks of the universe, must be genuine unities. Leibniz defends this thesis most clearly while criticizing Descartes's metaphysics which, in his view, violates this fundamental condition of being a substance. In Descartes's austere metaphysics the universe is composed of two kinds of created substances: mind whose essence is thought, and body or matter whose essence is extension, the property of being spread out in three dimensions. We shall see in Chapter 4 that Leibniz is by no means uncritical of Descartes's doctrine of mind or thinking substance, but it is Descartes's account of extended substance which is the target of his special scorn. In the *Discourse on Metaphysics* and related writings Leibniz may be uncertain whether any body is a substance, but he is quite certain that body, as conceived by Descartes, does not fit the bill. As Leibniz remarks, if bodies are substances, their nature cannot possibly consist only in extension, that is to say, in size, shape, and motion (DM 9, WF 60).

We have seen in the previous chapter that Leibniz was critical of modern philosophers such as Descartes for their neglect and contempt of the Aristotelian tradition; as Leibniz is fond of saying, there is much gold buried in that dross. One of the nuggets of gold which in Leibniz's eyes Descartes had unreasonably rejected was the teaching of Aristotle on the nature of substance. In the *Discourse on Metaphysics* and the subsequent correspondence with Arnauld, Leibniz argues that Descartes goes astray in his metaphysics through his failure to think through the implications of Aristotle's teachings seriously.

Aristotle's central teachings about the nature of substance are composed of two main strands. In the first place, Aristotle devises a linguistic test to analyse our notion of what it is to be a substance or genuine thing; substances are 'ultimate subjects of predication'. Now Alexander the Great, for Aristotle, passes this test since, while many things can be predicated of Alexander – we can say, for example, that he was a Macedonian and a famous general – Alexander himself cannot be predicated of anything else; there is nothing of which we can say that it is an Alexander (except perhaps in a deviant, figurative sense). The same point can be made in slightly different terms by saying that the name 'Alexander' can appear only in the subject position in the sentence and never in the predicate position. Honesty, by contrast, fails to pass Aristotle's test for being a substance, for while honesty is a subject of predication, it is not an ultimate subject, since it can itself be predicated of other things; we can say, as Othello falsely did, that Iago is full of honesty (cf. Bennett 1984: 55–6). Thus Aristotle's linguistic test divides the universe into substances and non-substances in such a way that it does justice to our intuitions about which items are genuine things, and which are not.

The second main strand in Aristotle's thought is that substances are 'substrata of change'; here Aristotle expresses a characteristically Greek preoccupation with the fact that the world in which we live is one of constant flux. As Aristotle says in the *Categories*: 'The most distinctive mark of substance appears to be that while remaining numerically one and the same, it is capable of admitting contrary qualities' (ch. 5, 4a). Once again Alexander the Great illustrates Aristotle's point well. Although of course he never instantiates both properties simultaneously, Alexander the baby is 2 feet tall and Alexander the general is, say, 6 feet tall, yet it is one and the same individual throughout. Similarly, the oak tree in the park was once a sapling, and further back, an acorn; yet the properties which it has as a full-grown oak are very different from the properties which it had as a sapling or an acorn.

In his philosophy Leibniz seeks to do justice to both strands in Aristotle's teaching about substance. In his critique of Descartes's metaphysics, it is arguably the first strand which is most important. Although, as we shall see, Leibniz believes that it is possible to offer a deeper analysis of the nature of individual substances, he is explicit in his endorsement of the first strand in Aristotle's account: 'It is certainly true that when several predicates are attributed to the same subject, and this subject is not attributed to any other, it is called an individual substance' (DM 8, WF 59). Here Leibniz indicates that he regards being an ultimate subject of predication as a sufficient condition for being a substance. But it is clear that being an ultimate subject of predication is also a necessary condition for being a substance, for this assumption is crucial to Leibniz's attempt to show that matter, as conceived by Descartes, is not a genuine substance. In the correspondence with Arnauld, Leibniz mounts the following powerful argument against Descartes's doctrine of extended substance:

1 No aggregate is an ultimate subject of predication.
2 Any entity whose essence is extension is an aggregate.
3 Therefore, no entity whose essence is extension is an ultimate subject of predication.

Since being an ultimate subject of predication is a necessary condition of being a substance, it follows that no entity whose essence is extension is a substance. Thus Cartesian bodies cannot be genuine substances.

The argument is intriguing, but its premises are in need of clarification and support. When Leibniz speaks of aggregates, it is clear that the paradigm examples are things like armies and navies; armies are composed of soldiers and navies are composed of sailors. We may wonder, then, why an army fails the test of being an ultimate subject of predication. An army of course is as much a subject of predication as honesty; we can say, for example, that the Fifth Army fought bravely. Leibniz's explanation of why an army is

not an ultimate subject of predication is found in a letter to Arnauld: 'it would seem . . . that what constitutes the essence of a being by aggregation is only the way of being of the things that make it up; for example, what makes the essence of an army is just the way of being of the men who make it up' (WF 124). Leibniz's point is that statements about armies can be fully analysed at least in principle in terms of other statements about the individual soldiers and their relations (Sleigh 1990: 123).

The second premise of the argument is also in need of clarification and defence. No one could deny that an army or a flock of sheep is an aggregate, but it is not similarly obvious that a block of marble, as conceived by the Cartesians, is an aggregate. Leibniz does not dispute the point that a block of marble is more tightly bonded than a flock of sheep, but he does wish to draw out the troublesome consequences of the fact that any Cartesian body is composed of other bodies (Bennett 1984: 58). Now these bodies are themselves entities whose essence is constituted by extension; so they are in turn aggregates which are composed of bodies and so on *ad infinitum*; nowhere in the Cartesian theory of the physical world does one come to entities which are not themselves aggregates. Now, for Leibniz, it is of the nature of aggregates that they presuppose true unities (WF 123); thus the Cartesians have a faulty understanding of the nature of aggregates. But for the purposes of understanding the present argument the important point is that any Cartesian body is an aggregate.

This argument is important, for it shows that Leibniz can draw on traditional resources in order to refute the Cartesian doctrine of extended substance. Some readers have been inclined to doubt that Leibniz has such resources available to him. Arnauld, for instance, supposed that Leibniz is conjuring a new definition of 'substance' out of thin air. Rightly noticing Leibniz's frequent insistence that any genuine substance is a true unity, and not a mere aggregate, Arnauld charges Leibniz with introducing a stipulative definition of 'substance' as 'that which has a true unity' in place of the

traditional one deriving from Aristotle (WF 120). Arnauld believes, in other words, that Leibniz is seeking to refute the Cartesian doctrine of extended substance by means of the following argument:

1 Any entity whose essence is extension lacks genuine unity.
2 Any entity which lacks genuine unity is not a substance (by a stipulative definition of 'substance' as 'that which has true unity').
3 Therefore, any entity whose essence is extension is not a substance.

Leibniz's reply to Arnauld's criticism is highly instructive. Leibniz firmly denies that he is simply defining 'substance' as 'that which has true unity'. Nonetheless, he does recognize an equivalence between being a genuine unity and being an ultimate subject of predication; as Leibniz tells Arnauld:

> To cut the point short, I hold as an axiom the following proposition which is a statement of identity which varies only in the placing of the emphasis: nothing is truly *one* being if it is not truly one *being*. It has always been held that *one* and *being* are reciprocal things.
> (WF 124)

Thus Leibniz accepts the second premise of the argument, but he denies that it is true by virtue of a stipulative definition of the term 'substance'.

ACTIVITY: THE CRITIQUE OF OCCASIONALISM

The arguments which we have examined so far are directed against Descartes and Cartesian philosophy in general. Around the time of the *Discourse on Metaphysics* Leibniz is also concerned to argue against a highly unorthodox version of Cartesianism which was influential in his own age; this is the doctrine of occasionalism which is above all associated with the name of Malebranche. As a form of Cartesian philosophy, occasionalism, at least in its Malebranchean version, thus inherits the difficulties inherent in Descartes's notion of

extended substance, but in Leibniz's eyes it is also subject to more specific difficulties of its own.

Occasionalism is a doctrine which, at least until recently, has tended to have a bad press in the English-speaking world; it has been unfairly represented as merely an ad hoc solution to the mind–body problem which Descartes is supposed to have bequeathed his successors. In fact, however, occasionalism is a doctrine of some power and sophistication which is also of wholly general application; it maintains that no created substance – that is, no body and no finite mind – can be a genuine cause. Rather, God alone is the one true cause who exercises his causal power on the occasion of events in the created world. To say this, as we shall see, is not to say that God intervenes in time to move one billiard ball when it collides with another or to raise my arm when I decide to scratch my nose; it is rather to say that from all eternity God has laid down laws of physics and of mind–body union (psycho-physical laws) in accordance with which creatures behave as they do. The arguments for occasionalism are varied and ingenious, and we cannot survey them here; but it is important to notice that at least one argument has clearly Cartesian roots: it consists in drawing out the consequences of the Cartesian conception of matter as a purely passive substance devoid of intrinsic force.[1]

From the time of his days in Paris, Leibniz found much to admire in the doctrine of occasionalism; he was particularly sympathetic towards the thesis that there can be no genuine causal interaction between minds and bodies as conceived by Descartes. In an early letter to Malebranche Leibniz writes: 'I am entirely of your opinion concerning the impossibility of conceiving that a substance which has nothing but extension, without thought, can act upon a substance which has nothing but thought, without extension' (L 209). But Leibniz could never reconcile himself to the core thesis of occasionalism that created substances are devoid of genuine causal powers; for Leibniz, it is of the very essence of substances to be sources of activity.

In a characteristic way, Leibniz criticizes occasionalism in many different places in his writings, and he does not always clearly mark the distinctions between his various criticisms. But his principal objections to the doctrine seem to be three. One objection is that, as a proposed solution to the mind–body problem, occasionalism really fares no better than Descartes's interactionist thesis, for 'it does not save the disturbance of the laws of nature' (H 157). Leibniz's point, then, is that occasionalism, like its Cartesian ancestor, violates the principle of the conservation of momentum, for it implies that when I raise my arm, a change of momentum occurs which is not counterbalanced elsewhere in the physical system. More generally, occasionalism violates a metaphysical principle to which Leibniz, like Spinoza, is deeply committed; this is the rather modern-sounding principle that the physical realm is causally closed; that is, every physical event has exclusively physical causes. Occasionalism, by contrast, maintains that some physical events like the movement of my arm when I will to raise it have mental events, such as volitions, at least as their occasional causes.

The first objection targets occasionalism simply as a proposed solution to the mind–body problem. A second objection is of more general application. The trouble with occasionalism is that it introduces perpetual miracles into the world, and that it is contrary to the divine wisdom to act in this way. Bayle, with his characteristic intelligence, voices a sense of puzzlement at this objection which will be shared by readers with at least a cursory knowledge of occasionalist teachings. Although Bayle focuses on the mind–body problem, he could just as well have drawn his examples from apparent interaction between bodies:

> The reason why this clever man [Leibniz] finds the Cartesian [i.e. Malebranchean] system not to his taste seems to me to be based on a false supposition; it cannot be said that the system of occasional causes, with its reciprocal dependence of body and soul, makes the actions of God into the miraculous interventions of a *deus ex*

> *machina*. For since God intervenes between them only according to general laws, in doing so he never acts extraordinarily.
>
> (WF 197)

In other words, Leibniz's objection seems to miss the mark, for occasionalists such as Malebranche recognize that God acts through general laws which are his general volitions. If a miracle is defined as a violation of a law of nature, and if, according to occasionalism, God's activity in the world is governed by laws, it cannot be correct to object, as Leibniz does, that occasionalism introduces perpetual miracles.

Leibniz's reply to Bayle's challenge is instructive, and comes in several stages. First, he insists on defining a miracle, not as a violation of a law of nature, but rather as an event which exceeds the causal powers of creatures (WF 205). But, according to occasionalism, creatures have no genuine causal powers of their own; thus all events exceed their causal powers. It trivially follows, then, that for occasionalism all events must be miraculous. Here Leibniz may seem to be merely arguing past the occasionalists, for it is clear that they will not accept the Leibnizian definition of 'miracle'; indeed, for Malebranche, a miracle is an event which is produced by one of God's particular volitions. Leibniz's second reply to Bayle cuts deeper. Leibniz is prepared to concede that occasionalists recognize the existence of regularities in nature, but he insists that such regularities are not sufficient to constitute genuine laws; for genuine laws must be based on the natures – that is, the causal powers – of creatures, and for occasionalists creatures have no natures in this sense (WF 205). Even here Leibniz is in some danger of overplaying his hand, for he complains that the divinely ordained regularities which occasionalists call laws are simply arbitrary. It is true that, for Malebranche, the regularities which God ordains are not grounded in the natures of things, but it does not follow that they are arbitrary in the sense that God has no reason for choosing them. On the contrary, Malebranche has a story to tell here which is very

much like Leibniz's own; God is guided in his choice of laws by considerations of what is best or most fitting. Despite this mistake on his part, Leibniz does at least succeed in isolating a central difference between himself and the occasionalists. For the occasionalists such as Malebranche scientific explanation is in terms of laws in the sense of regularities; for Leibniz, by contrast, scientific explanation is ultimately in terms of causal powers or forces. Here again Leibniz reveals his fidelity to the Aristotelian tradition.

Leibniz's final objection to occasionalism is that it leads to the Spinozistic heresy that God is the only substance. According to Leibniz, it is of the very essence of substances to be bearers of genuine causal powers; thus, on occasionalist teaching no created being can be properly regarded as a substance, since they are all devoid of such powers. Now, according to a shared ontology, everything is either a substance or a mode; since they are not substances, minds and bodies must be regarded by the occasionalists as modes of the one being which they do recognize as causally active and thus a genuine substance, namely God:

> This again shows that the doctrine of occasional causes which some defend can lead to dangerous consequences . . . though these consequences are doubtless not intended by its very learned defenders. Far from increasing the glory of God by removing the idol of nature, this doctrine seems, with Spinoza, to make God into the very nature itself of things, and to reduce created things to mere modifications of a single divine substance. For that which does not act, which has no active force, which is robbed of any distinguishing characteristic, and finally of all reason and ground of pemanence, can in no way be a substance.
>
> (WF 221)

Leibniz is clear, then, that he is not charging Malebranche with crypto-Spinozism; he is simply pointing out that his doctrine of occasionalism, in conjunction with other commitments, entails the thesis that God is the only substance.

There is no record of any reply to this objection, either by committed occasionalists or fair-minded neutral parties such as Bayle. But it is interesting to note that occasionalists could easily have met this objection in the same spirit in which Arnauld responded to Leibniz's earlier charge that Cartesian bodies, by virtue of lacking any internal principle of unity, could not be genuine substances. It would be natural for an occasionalist to respond that once again Leibniz is simply introducing a stipulative definition of 'substance'; instead of defining it in the traditional manner as an ultimate subject of predication or that which is neither mode nor state, he is defining it as 'that which is genuinely active'. Indeed, in support of this charge it can be noted that on occasion Leibniz does appear to define 'substance' as a being capable of action (WF 258). But if Leibniz sometimes seems to define 'substance' in these terms, it is clear that in his view he also has the resources to respond to this criticism in the same way he did to Arnauld: that is, he is not introducing a new-fangled definition of his own; rather, he is drawing out the consequences of a more traditional definition. To understand more fully how this reply would go, we must turn to the positive arguments of the *Discourse on Metaphysics*.

THE LOGICIST STRATEGY

We saw in a previous chapter that the refutation of occasionalism and allied doctrines provided the stimulus for Leibniz's first mature statement of his positive case for his central metaphysical doctrines. In a section heading of the *Discourse on Metaphysics* Leibniz announces that, in order to distinguish the actions of God from those of creatures, it is necessary to explain the nature of an individual substance (DM 8, WF 59); that is, a proper understanding of this issue is essential in order to show the falsity of the occasionalist thesis that there is strictly no division of causal labour between God and creatures, and that everything is done by God. Now, as we have seen, in this section Leibniz expresses his approval of the Aristotelian thesis that substances are ultimate subjects of predication. But in the next

breath he goes on to indicate that the Aristotelian analysis does not go deep enough: 'But that is not enough, and such an explanation is merely nominal'. Leibniz then states in what this deeper analysis consists:

> It is necessary, therefore, to consider what it is to be truly attributed to a certain subject. Now it is obvious that all true predication has some foundation in the nature of things, and when a proposition is not identical, that is to say, when the predicate is not expressly included in the subject, it must be virtually included in it. This is what philosophers call *in-esse*, and they say that the predicate *is in* the subject. So the subject term must always involve that of the predicate, in such a way that anyone who understood the subject notion perfectly would also see that the predicate belongs to it. This being so, we can say that the nature of an individual substance or of a complete being is to have a notion so complete that it is sufficient to include, and to allow the deduction of, all the predicates of the subject to which that notion is attributed.
>
> (DM 8, WF 59)

In the following sections of the *Discourse* Leibniz develops a distinctive strategy of argument which consists in drawing out the consequences of this last thesis so that the falsity of occasionalism is exposed.

If Leibniz is to refute occasionalism without appealing to a stipulative definition of 'substance', he must be in a position to say that the definition on which he draws is a traditional one. Leibniz seems to believe that he is doing just that, for he appears to regard the claim that individuals have complete concepts as offering a deeper analysis of Aristotle's definition of substance rather than a replacement for it. In one way Leibniz's claim that he is drawing on traditional resources is surprising, for it is clear that his analysis of the nature of individual substances is derived from a theory of truth, and this theory of truth is anything but traditional. The traditional theory of truth is surely a version of the correspondence

theory; that is, truth consists in a relation of correspondence between propositions and states of affairs in the world. It is this theory that Aristotle seems to have had in mind when he defined truth as saying of what is that it is, and of what is not that it is not (*Metaphysics* 1011 b 27). For Leibniz, by contrast, truth consists not in a relation between propositions and states of affairs in the world but in a relation of containment between concepts. Although Leibniz hints at this theory of truth in Section 8 of the *Discourse on Metaphysics*, he states it best in the subsequent exchange of letters with Arnauld. 'In all true affirmative propositions, necessary or contingent, universal or singular, the notion of the predicate is always in some way included in that of the subject . . . – or I do not know what truth is' (WF 111–12). Let us call this 'the concept-containment theory of truth'.

Leibniz's concept-containment theory of truth is perhaps best understood as a bold generalization of a theory which seems natural in the case of universal truths. Consider the proposition: 'Gold is a metal'. It is plausible to say that what makes this proposition true is the fact that the concept expressed by the predicate term is contained in the concept expressed by the subject term; in other words, an analysis of the concept of gold reveals that the concept of metal is one of the constituent concepts. (Analysis is to be understood here in terms of replacing a given term by its definitional equivalent.) Leibniz now wishes to extend this theory so that it applies to singular propositions such as 'Julius Caesar crossed the Rubicon'. For Leibniz, a proper name is not an arbitrary label; like a general term, such as 'gold', it expresses a concept. Thus the proposition: 'Julius Caesar crossed the Rubicon' is true because the concept expressed by the predicate 'crossed the Rubicon' is contained in the subject concept expressed by the name 'Julius Caesar'. From the concept-containment theory of truth Leibniz's thesis that individual substances have complete concepts follows as a special case; by virtue of the general theory, all the predicates which are true of an individual substance are contained in its complete

concept. (As we shall see in Chapter 5, this poses special, intractable problems for Leibniz's attempt to find room for contingent propositions in his philosophy.)

In subsequent sections of the *Discourse* the theory that individual substances have complete concepts not only serves as a springboard for exposing the falsity of occasionalism; it also serves as a basis for deriving some of the central doctrines of Leibniz's metaphysics. It is not surprising, then, that some commentators have spoken of Leibniz's strategy of deriving his metaphysics from his logic; that is, Leibniz seeks to derive his main doctrines about the properties of substances and their relations from his concept-containment theory of truth (via the thesis that substances have complete concepts). Whether, as Louis Couturat thought, this 'logicist strategy', as we may call it, is the key to Leibniz's metaphysical thought as a whole may be strongly disputed, but there is little doubt that it can be safely attributed to Leibniz on the basis of the *Discourse on Metaphysics*. It is possible to come up with slightly different lists of the doctrines that are so derived, but there are five major doctrines which are generally included:

1 The Identity of Indiscernibles: there cannot be two substances which are exactly alike.
2 The expression thesis: every substance expresses or mirrors the whole universe.
3 The denial of causal interaction between (created) substances.
4 Every substance is the causal source of all its (non-initial) states.
5 The hypothesis of concomitance (or what is later termed by Leibniz 'the pre-established harmony'): the states of substances are harmonized by God so that they give the appearance of causal interaction (the phrase 'pre-established harmony' is also sometimes used by Leibniz and commentators to refer to the conjunction of theses 3–5).

The relation of these doctrines to Leibniz's logic is more problematic in some cases than in others. In the case of (at least one

version of) the Identity of Indiscernibles, the derivation is relatively straightforward. The complete concept of an individual substance is presumably a concept under which no more than one individual can fall. Thus if there were two substances exactly alike, there would be two substances with the same complete concept, which is impossible. It should be noted, however, that the complete concept theory seems to provide a basis only for a weak version of the Identity of Indiscernibles; for all the argument so far shows, the principle would be satisfied by two substances which differed solely in terms of their spatial relationships. However, for reasons which will become clearer, Leibniz in fact subscribes to a stronger version of the Identity of Indiscernibles to the effect that two substances cannot be exactly alike in terms of their intrinsic (i.e. non-relational) properties.

Leibniz's most popular statements about the Identity of Indiscernibles can be unhelpful. For example, Leibniz sometimes tries to provide a posteriori support for the principle by means of an anecdote; he tells how a courtier was challenged to find two leaves exactly alike, and how after a while he abandoned the search as fruitless (L 687). Picturesque as it is, this story is doubly misleading. First, insofar as it follows from the complete concept theory, the Identity of Indiscernibles is a thesis about substances. Strictly speaking, for Leibniz, as we shall see, dead leaves are not substances but at most aggregates of substances. Second, and more importantly, the Identity of Indiscernibles is not an empirical generalization but a necessary truth. The thesis is not that as a matter of contingent fact there are no two substances exactly alike, but that there could not be two such substances.

More serious problems are presented by the other main metaphysical theses 2–5. Different commentators tend to locate the main difficulties in different places, but they agree in the general diagnosis: Leibniz tends to slide from what is true at the level of concepts (in the mind of God) to what is true at the level of substances in the world. Leibniz may have been unwittingly encouraged in this

tendency by the imprecision of his terminology; as used by Leibniz, terms such as 'subject' and 'predicate' are dangerously ambiguous. The word 'subject' for example is ambiguous between subject concept and the substance in the world which instantiates this concept; *mutatis mutandis* the word 'predicate' is similarly ambiguous. Bearing this ambiguity in mind, in the remainder of this section we shall, then, examine the problems presented by 2–4.

Despite the unusual terminology, on one level at least the expression thesis is straightforward. Leibniz was pressed by Arnauld as to what he meant by 'expression' and in reply he made clear that it was a technical term which he explained as follows: 'one thing *expresses* another (in my language) when there is a constant and ordered relation between what can be asserted of the one and what can be asserted of the other' (P 71). When Leibniz says that every substance expresses the whole universe, at least part of what he wants to say is that, given a complete knowledge of the concept of any individual substance, say Alexander, it is possible in principle to read off the predicates (i. e. the predicate-concepts) of every other substance. We can see that Leibniz must hold this by virtue of the fact that there are relational truths linking Alexander to everything else in the universe. It is a fact about Alexander, for example, that he was born so many years before George W. Bush became President of the United States of America. It follows, then, that all such relational predicates must be contained in the complete concept of Alexander, and so on for every other substance. Thus if one really knew the complete concept of Alexander, one would *ipso facto* also know everything there was to be known about the universe.

When Leibniz says every substance expresses the universe, he also wants to assert a more controversial and more metaphysical thesis. Leibniz claims that

> in the soul of Alexander there are for all time remnants of everything that has happened to him and marks of everything that will happen to him – and even traces of everything that happens

> in the universe, although it is only God who can recognize them all.
>
> (DM 8, WF 60)

But of course it is not easy to see how from the fact that the concept of Alexander timelessly includes the predicate of dying in 323 BCE, it follows that there must be a mark of the event in Alexander's soul before it happens. It has been suggested that Leibniz is thinking along the following lines. Since it is a timeless fact about Alexander that he dies in 323 BCE, throughout his history there must be something about Alexander himself by virtue of which the proposition is true; there must be some persistent structural modification of Alexander corresponding to the fact of his dying. This modification remains quiescent until the event when it bursts into activity; subsequently it reverts to a state of quiescence (Broad 1975: 24).

Commentators have similarly stressed the difficulty of seeing how theses 3 and 4 follow from Leibniz's logic. From the fact that every individual substance has a complete concept Leibniz infers that all the states of a substance are consequences of that concept; from this he concludes, apparently, that there is no causal interaction between created substances. But this argument seems fallacious. Consider the proposition: 'Julius Caesar was killed by Brutus and Cassius'. Here a causal relational predicate 'killed by Brutus and Cassius' is truly ascribed to Caesar. This causal predicate must be contained in the concept of Julius Caesar. But then it clearly does not follow from the complete concept theory that there is no causal interaction between created substances. Nor does it help matters to point out that, though in the *Discourse*, Leibniz derives 4 from 3, he sometimes reverses the order of derivation. For if it is difficult to see how 3 follows from the complete concept theory, it is no less difficult to see how 4 follows from that theory.

One way of dealing with these problems is to suppose that the derivation of thesis 3 from Leibniz's logic is mediated by a doctrine

that we have not so far discussed; this is the doctrine that 'there are no purely extrinsic denominations', which is itself a consequence of the 'marks and traces' version of the expression thesis (AG 32). The claim that there are no purely extrinsic denominations is one of Leibniz's more obscure doctrines, but is generally taken to assert the reducibility of relations; in other words, all relational truths about individual substances can be deduced from non-relational truths about those substances. For example, the relational proposition 'Smith is taller than Jones' is reducible in the sense that it can be derived from the non-relational propositions 'Smith is 6 feet tall' and 'Jones is 5 feet 10 inches tall'. Thus by virtue of the thesis that there are no purely extrinsic denominations, Leibniz would claim that the proposition 'Julius Caesar was killed by Brutus and Cassius' is derivable from propositions which ascribe only non-relational predicates to those individuals. But this approach does not really solve the problem. The thesis that there are no purely extrinsic denominations asserts at most that relational propositions are theoretically dispensable; it does not assert that such propositions are actually false. But it seems that it is the stronger thesis which is required if the claim that there are no purely extrinsic denominations is to provide a basis for 3; for Leibniz is committed by 3 to saying that propositions which assert causal relations between created substances are all of them, strictly speaking, false.

An alternative way of dealing with these problems is to reinterpret Leibniz's notion of a complete concept. One writer, in particular, has been impressed by those passages in which Leibniz tells Arnauld that the complete concept of an individual contains the laws of its world (Loeb 1981: 286). On this basis it has been suggested that a Leibnizian complete concept is constituted by a combination of basic (i.e. non-relational) predicates and laws – the laws of the universe. These laws are taken to include a law of succession for the states of the substance; such a law would imply that a substance's states causally depend only on itself. On this interpretation, then, there is no danger that the complete concept of Julius

Caesar, say, will contain causal predicates such as being killed by Brutus and Cassius; such a predicate must be excluded because it suggests of course that a state of Julius Caesar causally depends on other created substances. We may still wonder, however, whether this interpretation can do justice to the expression thesis, given that relational predicates are excluded from complete concepts. But here again the crucial point is taken to be that laws are built into complete concepts. The idea is that the concept of an individual substance contains non-causal laws of co-existence with other substances; from this it follows, as the expression thesis requires, that the predicates of all other substances can be deduced from the concept of a given substance. It is in this sense, then, that 'every individual substance contains in its perfect notion the entire universe' (AG 32). This interpretation is attractive, for it frees Leibniz's argument from its otherwise obvious invalidity. But as its proponent acknowledges, it does so at a heavy price; a complete concept turns out not to be a purely logical notion, for Leibniz has packed some of his metaphysics into it. Thus the difficulty now is not that Leibniz's argument involves a non sequitur but that it is effectively question-begging.

The weaknesses of such arguments have led some readers (such as Ayers) to question whether Leibniz does really seek to derive his metaphysical doctrines from his logic (Ayers 1978: 45). It has been suggested that Leibniz rather tailors his logic (i.e. his theory of truth) to a metaphysics to which he is independently attracted; perhaps Leibniz is in the grip of the time-honoured assumption that the structure of language mirrors the structure of reality. Yet it is clear that in a number of places Leibniz does employ the language of derivation; he speaks of 'several considerable paradoxes' (i.e. the central doctrines of his metaphysics) as following from the thesis that individual substances have complete concepts (DM 9, WF 60). Perhaps Leibniz himself may have become aware of problems with the logicist strategy, for it disappears from his later public presentations of his system.

Despite the apparent weaknesses of his arguments, it is easy to see why the logicist strategy must have appealed to Leibniz, for it seems to promise a way of achieving two important goals. In the first place, by means of this strategy Leibniz aims to refute the doctrine of occasionalism by showing that activity is indeed of the essence of substance in general. He also aims to extend and deepen our understanding of the way in which all created substances are mirrors of God. Created substances are not merely active in the sense of possessing the kind of causal powers which occasionalists deny them; they are also endowed with a degree of causal self-sufficiency which is as great as possible consistent with their status as creatures; they are thus mirrors of the divine perfection of omnipotence. Further, all substances express the universe according to their point of view; they thus mirror the divine perfection of omniscience.

CAUSALITY AND CREATION

One weakness of the logicist strategy is that it leaves at least one of Leibniz's doctrines concerning causality shrouded in mystery. Leibniz is committed not merely to the spontaneity thesis and to the denial of interaction between created substances, but to the further thesis that God acts causally on such substances. The logicist strategy provides no grounds for this last thesis, for the strategy depends on a theory of truth which is wholly general; it applies no less to true propositions about God than to true propositions about finite substances. The strategy is thus incapable of furnishing a basis for restricting the denial of causal interaction to the realm of created substances. From the point of view of the logicist thesis this restriction must appear wholly unprincipled and ad hoc. To say that God (alone) can act on created substances may be good theology, but it can receive no support from the theory of truth.

To see why Leibniz is not simply making an ad hoc exception in the case of God, it is necessary to look beyond the logicist strategy, and to understand what it is that Leibniz is attacking.[2] When Leibniz

denies that created substances can causally interact, he has a very specific model of causality in mind: this is the 'influx' model which Leibniz, rightly or wrongly, associates with the Scholastics such as Suarez. (Although, as we have seen, Leibniz believed that there were nuggets of gold in Scholastic thought, he also believed that there was much dross as well.) According to the influx model, causal transactions between substances in the world are understood as involving a process of contagion, as it were; when substance A causes a change of state in substance B, A infects B with one of its properties, or strictly speaking, property-instances (tropes). Thus when the kettle boils, the gas infects the water inside the kettle with its own 'individual accident' of heat, in Leibniz's terms. In other words, there is something which literally 'flows in' from substance A to substance B; hence the term 'influx'. For Leibniz, such a model of causality is deeply incoherent, for it involves the metaphysical fiction that accidents can become detached from their own substances and wander over to other substances. As Leibniz says, 'no created substance exerts a metaphysical action or influx on any other thing . . . one cannot explain how something can pass from one thing into the substance of another' (AG 33).

Leibniz sometimes speaks of God's action on creatures in terms of influx or at least influence, but it is abundantly clear that he does not conceive of divine causality in terms of the model described above. For one thing, the process of influx is understood in terms of one substance causing a change of state in another substance which is already in existence; in other words, this second substance is not supposed to depend causally for its existence on the first. By contrast, when God, for Leibniz, acts causally on creatures, he does not send out causal influence into things which are independent of him for their existence; rather, he acts on substances by conserving them, and conservation, for Leibniz, is what it is for Descartes: it is a process of continuous creation. In the 'New System', for instance, Leibniz writes that 'all things, with all their reality, are continually produced by the power of God' (WF 150). When Leibniz affirms

that God acts on creatures he is not making an ad hoc and unprincipled exception to his denial of causal interaction between substances, for what he ascribes to God is a form of action which is quite different from what he denies in the case of creatures. (In logical terminology, 'influx' or 'influence' is not a univocal term with respect to God and creatures.)

Divine causality, then, takes the form of conservation or continuous creation; it does not involve influx in the objectionable sense of the transfer of accidents from one substance to another. This distinction proves helpful in another way. Some readers have wondered whether Leibniz can consistently hold intrasubstantial causality (i.e. causality within the substance), while denying causal interaction between substances. The objection is that intrasubstantial causality might succumb to the same difficulties that infect the latter. We are now in a position to see how Leibniz would respond to this objection. For Leibniz has given arguments which seek to establish that all created substances are mirrors of God, and he wishes to extend this thesis to the causality of created substances; that is, such causality is modelled on the conserving and creative activity of God. Influx between substances is a metaphysical fiction, but for Leibniz, God's creative activity is not only possible but actual. There is thus strong reason to believe that any causality that is modelled on divine creative activity is also not only possible but actual.

The claim that the causality of creatures is modelled on divine creation may be greeted with some surprise. But it is important to remember what is at issue here. The claim is not that created substances are strictly creators (they do not for instance create *ex nihilo*); it is rather that their causality provides an analogy to divine creation. Created substances are not God, but they are mirrors of God. In fact, the analogy proves surprisingly strong. In the first place, as we have seen, substances cause new states in themselves by activating a disposition; a mark of a future state which was latent becomes actual. In a similar way when God creates the world he activates a disposition; God creates by activating a possible

world, that is, a world which exists potentially in his intellect. Further, as we shall see in more detail in subsequent chapters, created substances are always striving to bring about what seems to them to be good. In a similar way God's creation is directed towards the good, for he creates the *best* of all possible worlds.

THE PROBLEM OF ONTOLOGY

In the first writings of his philosophical maturity, then, Leibniz is clear about the conditions for being a created substance: substances are genuine unities; they are genuinely active to the extent of being as causally self-sufficient as is consistent with their status as creatures; they express the whole universe, and thus reflect the divine perfection of omniscience. In all these ways substances are mirrors of God. Moreover, Leibniz is clear that they all satisfy the demands of the principle of the Identity of Indiscernibles. These themes are unambiguously present in these works, and are never abandoned or recanted by Leibniz in any of his subsequent writings. However, although he is clear about the conditions for substantiality, he is much less clear at this stage about what items in the world satisfy these conditions. In fact, it is striking that in the *Discourse on Metaphysics* Leibniz has not made up his mind on the issue whether any bodies qualify as substances. Leibniz's hesitation on this issue is evident in the drafts of the work:

> If bodies are substances their nature cannot possibly consist only in size, shape, and motion; there must be something else.
>
> (DM 9, WF 60)

> I believe that anyone who thinks about the nature of substance . . . will find [either that in metaphysical strictness bodies are not substances (as indeed was the view of the Platonists), or] that the whole nature of body does not consist solely in extension, that is to say, in size, shape, and motion.
>
> (DM 12, WF 63)

> {Something I don't attempt to decide is whether, in metaphysical strictness, bodies are substances, or whether, like the rainbow, they are only *true* phenomena, and consequently whether there are substances, souls or substantial forms which are not intelligent.}
> (DM 34, WF 86)

In the writings of the middle period Leibniz, it seems, is torn between the claims of two main theories about what items are truly substantial.[3]

One option that Leibniz seriously entertains at this stage is rather surprising. In the drafts of the *Discourse on Metaphysics* Leibniz is attracted by the idea that all substances, the basic building-blocks of the universe, are of the nature of minds or spirits. Thus Leibniz writes that minds 'are either the only substances there are in the world – if bodies are only true phenomena – or else at least they are the most perfect' (DM 35, WF 87). In other words, Leibniz was prepared to entertain a form of idealism which Berkeley was later to adopt wholeheartedly: the only true created things are minds, and bodies are merely phenomena or appearances. On this view, in perceiving the world of bodies each of us would, as it were, be really engaged in watching a private film.

One advantage of this theory is obvious; it does clear justice to the thesis that all substances are mirrors of God. For if all substances are minds or spirits, then they are all endowed with high-level cognitive capacities (perfections); they have reason, self-consciousness and a capacity for knowing the eternal truths of logic and mathematics. Moreover, all minds or spirits are at least in some degree endowed with virtues, and thus mirror the moral perfections of God. And of course there is scriptural warrant for the thesis; according to the Book of Genesis, God made man in his own image. For Leibniz, the class of created minds is not limited to human minds, but the Genesis text could be taken to apply with no less warrant to superior spirits.

But if the advantages of this theory are obvious, its disadvantages are no less so. At this stage such an uncompromising form of

idealism seemed needlessly paradoxical to Leibniz; certainly we know that Berkeley encountered incredulity when he maintained that the only genuine things are spirits, and that bodies are purely mind-dependent. Further, at this stage Leibniz may not have seen a way of giving a plausible account of the status of bodies within such an ontology; a form of idealism which restricts substances to minds encounters notorious difficulties in accommodating our intuitions about bodies – for instance, that they have a continued existence and that they are public objects which can be perceived by different observers. More speculatively, Leibniz may have seen no way of reconciling such an ontology with his attempt to provide metaphysical foundations for physics. For as we know, Leibniz wished to say that the physical forces of bodies are grounded in the forces of substances, but it is hard, perhaps impossible, to make sense of this claim if the only substances are minds or spirits.

It is not surprising, then, that by the time of the correspondence with Arnauld, Leibniz no longer seems to entertain this option; here he seems more attracted by an ontology of corporeal substances which has its roots in Aristotle's metaphysics. According to this thesis in its purest form, it is living organisms which are the fundamental building-blocks of the universe; every body is either itself an organism or an aggregate of organisms. Such living bodies, unlike inanimate objects – for example, tables, chairs, and computers – satisfy the unity requirement for substances by virtue of possessing a soul or principle of life which animates them. The body, considered in abstraction from the soul, is not a substance but an aggregate of smaller corporeal substances which are themselves informed by a soul; and these smaller corporeal substances in turn have bodies which are aggregates of still smaller corporeal substances, and so on to infinity. At least according to the purest version of the theory, the soul is not a substance in its own right, but a substantial form which organizes the matter of the body: 'Moreover, the soul, properly and accurately speaking, is not a substance but a substantial form existing in substance, the first act, the first

active faculty' (AG 105). More typically, however, Leibniz is prepared to say that the soul is a genuine substance in its own right. In that case, strictly speaking, there are two kinds of substances – simple (souls) and corporeal or composite (organisms) – but there is no suggestion that organisms are reducible to souls. Thus the theory is not a form of idealism.

The theory of corporeal substances has some obvious attractions which are quite different from those of the idealist theory of spirits. For one thing, the theory maintains a real continuity with the teachings of the Aristotelian–Scholastic tradition; for Aristotle, at least in the *Metaphysics*, it is organisms which are the paradigm cases of substances. Yet, equally, the theory is not simply an antiquarian relic, for it could claim at least some empirical support from the new science. The recent invention of the microscope had revealed a mass of tiny living creatures where none are visible to the naked eye. The theory of corporeal substances thus satisfied Leibniz's characteristic desire to reconcile the teachings of the Ancients and the Moderns.

More importantly, the theory of corporeal substances has significant philosophical strengths. It is plausible to maintain that if any bodies satisfy the unity requirement for substances, then organisms are the best candidates (Broad 1975: 74). Such bodies do indeed seem to be endowed with intrinsic, non-conventional unity, and it seems correct to locate the source of this unity, as Leibniz does, in the soul or principle of life. We can see this most clearly in the case of a human being. When I am engaged in writing, my hand is closer to the paper than it is to my foot, but it is natural to say that my hand and my foot belong together as parts of a genuine unified whole in a way that my hand and the paper do not; this would remain the case even if my hand and the paper were glued together so that they were in permanent contact. I can, for example, feel pain in my hand and my foot, but I cannot feel pain in the paper on which I write. The presence of the soul seems to provide a wholly non-conventional basis for grouping certain physical parts together.

Yet the theory is also subject to objections and difficulties some of which were raised by Arnauld. Arnauld was never made aware of Leibniz's flirtation with an idealist ontology of spirits, but he was given the opportunity to criticize Leibniz's doctrine of corporeal substances, and as a good Cartesian he made some familiar objections to the doctrine. The postulation of souls is superfluous for the purpose of explaining animal behaviour which, according to Descartes's teaching, can be fully explained in mechanical terms (WF 115). Moreover, the doctrine of animal souls raises embarrassing difficulties concerning the status of such souls after the destruction of their bodies; as Descartes had said, it seems more probable that gnats and caterpillars are mere machines than that they are endowed with immaterial, and hence immortal, souls (CSMK 366).

More tellingly perhaps, Arnauld raised an internal difficulty for Leibniz's doctrine of corporeal substances. It is Leibniz's contention that the unity of a substance entails its indivisibility (see DM 9, WF 60); thus he is committed to the thesis that any organism is in some sense indivisible. Arnauld, however, challenges the thesis that organisms enjoy any kind of privileged status among bodies in this respect; he cites the case of a worm, both parts of which, when cut in two, continue to move as before (WF 121). Arnauld's serious philosophical point here is that the chopping up of the worm seems in principle no different from the chopping up of a table; in both cases we are simply left with parts of the original body. In reply Leibniz seeks to reconcile the facts about the case of the worm with his thesis that animals are genuine substances, and hence endowed with both unity and indivisibility. From the fact that both parts of the worm continue to move after its body has been chopped in half, it does not follow that there are either two souls or none. The soul may continue to animate one of the parts, and it is with this 'part' that the worm is strictly to be identified. Although of course it suffers a loss of matter, the worm survives the act of chopping intact; unlike the table it is not decomposed into two parts neither of which has the character of the original entity. There

is a sense, then, in which the worm is indivisible, and the table is not.

Leibniz thought he could answer Arnauld's objections to the doctrine of corporeal substance, but he may have been more troubled by a different aspect of the doctrine. We have seen that Leibniz is in search of an ontology which does justice to his conviction that created substances are all mirrors of God. The idealist theory of spirits satisfies this desideratum handsomely, but it is much less clear that the doctrine of corporeal substances does so. For on this doctrine there is a radical disanalogy between God and created substances. Although they are both supposed to satisfy the unity requirement for substances, created substances in being endowed with bodies are unlike God. Perhaps for this reason Leibniz could not be truly satisfied with an ontology of corporeal substances. In any case, whatever his deepest motivations, in his final metaphysics Leibniz returns to a form of idealism. This is the famous doctrine of monads.

SUMMARY

This chapter introduces the reader to some of the great constants of Leibniz's metaphysics: substances are genuinely unified, indivisible, and active. Concentrating on the writings of his middle period, such as the *Discourse on Metaphysics*, it shows how Leibniz offers positive arguments for these and other God-like properties of substances; it thus seeks to establish the thesis that, for Leibniz, all created substances are mirrors of God. The first two sections of the chapter examine Leibniz's criticisms of two leading metaphysical systems of the time for giving inadequate accounts of the nature of substance. Leibniz criticizes Descartes's doctrine of extended substance for violating the unity requirement for being a substance. According to Leibniz, Descartes fails to take seriously Aristotle's claim that a substance is an ultimate subject of predication; Cartesian bodies are mere aggregates, not true unities, and thus cannot be such ultimate subjects. In response to Arnauld's objection that he is

introducing a stipulative definition of 'substance' as that which has true unity, Leibniz protests that he is simply recognizing the traditional equivalence of unity and being. The other metaphysical system in the period which Leibniz criticizes for offering an inadequate account of substance is the doctrine of occasionalism associated with Malebranche. As an unorthodox version of Cartesianism this system inherits all the difficulties of Descartes's concept of extended substance, but it also involves specific difficulties of its own. Leibniz has three main objections to occasionalism: first, it involves a disturbance of the laws of nature which causes problems in physics; secondly, it introduces perpetual miracles, and third, and perhaps most importantly, by failing to recognize the essential activity of substances, it leads to the Spinozistic heresy that God is the only substance. In the next section we see how Leibniz advances positive arguments for his own metaphysical doctrines which imply the falsity of occasionalism. In the *Discourse on Metaphysics* Leibniz develops a line of reasoning which is sometimes called the 'logicist' strategy inasmuch as it seeks to derive metaphysical doctrines from logical considerations about the nature of truth. In particular, beginning with his distinctive concept-containment theory of truth, Leibniz argues for the Identity of Indiscernibles and for the doctrine of the pre-established harmony. Leibniz's attempt to derive his metaphysics in this way is discussed in the light of the criticism that it conflates the level of concepts in God with the level of substances in the world. Whatever the validity of such criticisms, the limitations of the logicist strategy are apparent in its inability to explain why God alone acts on created substances. However, reasons are given for believing that this doctrine is not simply an ad hoc exception to Leibniz's denial of causal interaction between substances. In the final section of the chapter it is argued that although, in his middle period, Leibniz is clear about the conditions for being a substance, he is still unclear about what items in the world satisfy these conditions; in particular, Leibniz is undecided about whether any physical objects qualify as substances. Leibniz

apparently oscillates between holding that organisms are genuine substances and holding that all substances are of the nature of spirits. Thus Leibniz has not yet arrived at his final metaphysical position, the theory of monads.

FURTHER READING

C.D. Broad (1975) *Leibniz: An Introduction*, Ch. 3. (Although somewhat dated, still valuable for its clear presentation of the issues.)

L. Couturat (1972) 'On Leibniz's Metaphysics,' Frankfurt (ed.), *Leibniz: A Collection of Critical Essays*. (A classic statement of the thesis that Leibniz derives his metaphysics from his logic.)

D. Garber (1985) 'Leibniz and the Foundations of Physics: The Middle Years,' Okruhlik and Brown (eds), *The Natural Philosophy of Leibniz*. (An important article emphasizing the development of Leibniz's views of the relations between physics and metaphysics.)

N. Jolley (1998) 'Causality and Creation in Leibniz'. (Argues that for Leibniz the causality of created substances is modelled on divine creation.)

L. Loeb (1981) *From Descartes to Hume*, Ch. 7. (Examines the problems in Leibniz's arguments for pre-established harmony.)

G.H.R. Parkinson (1965) *Logic and Reality in Leibniz's Metaphysics*. (A clear and judicious assessment of the relationship between Leibniz's logic and metaphysics.)

R.C. Sleigh (1990) *Leibniz and Arnauld: A Commentary on their Correspondence*, Chs. 5–7. (A penetrating analysis of the issues in the correspondence between Leibniz and Arnauld: highly recommended for the serious student.)

C. Wilson (1989) *Leibniz's Metaphysics: A Historical and Comparative Study*, Ch. 3. (Emphasizes the different strands in Leibniz's metaphysics during his middle period.)

R.S. Woolhouse (1988) 'Leibniz and Occasionalism,' Woolhouse (ed.), *Metaphysics and Philosophy of Science in the Seventeenth and Eighteenth Centuries*. (Helpfully examines the different arguments in Leibniz's critique of occasionalism.)