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Substance

In common with the tradition of metaphysical thought that descends from Aristotle, Leibniz conceives of the most basic form of existence as *substance*. Within the created world, substance is the only being that exists per se: the only being whose existence depends on that of no other being except God. By contrast, the existence of all other things depends in an essential way on that of substance. Given the priority thus assigned to substance, it is obvious that any metaphysical theory must devote considerable attention to an account of its nature. Our concern in this chapter will be with the distinctive features of Leibniz's doctrine of substance, which he himself acknowledges as largely determining the content of his metaphysical system.[1]

The Characteristics of Substance

In Book II of his *Essay Concerning Human Understanding*, Locke writes of the scholastic notion of substance:

> [W]ere the Latin words *Inhaerentia* and *Substantia*, put into the plain English ones that answer them, and . . . called *Sticking on* and *Under-propping*, they would better discover to us the very great clearness there is in the doctrine of *Substance* and *Accidents*, and shew of what use they are in deciding of Questions in Philosophy. (II, xiii, 20)

Responding to this passage in the *New Essays*, Leibniz declares that he is "of another opinion," and that "the consideration of substance is one of the most important and most fruitful questions in philosophy" (II, xiii, 20; RB 150). "The idea of substance," he says, "is not so obscure as one thinks. We can know of it what is necessary and what is known in other things" (II, xii, 6; RB 145). Elsewhere he argues that philosophers such as Descartes, Spinoza, and Locke have paid insufficient attention to the definition of substance, and that this accounts for many of the errors that undermine their doctrines.[2] He has no doubt that with his own account he succeeds where they have failed. It is "so fruitful," he says, "that there follow from it primary truths even about God and minds and the nature of bodies – truths heretofore known in part though hardly demonstrated, and unknown in part, but of the greatest utility for the future in the other sciences" (GP IV 469/L 433).

Leibniz's intuitions about the nature of substance are drawn primarily from Aristotle and his scholastic followers. From them he inherits a set of basic assumptions about what substance is and the role it must play within a metaphysical account of reality.[3] Among the most important features he assigns to it are the following:

(a) Among created beings, only substance enjoys an independent or per se existence.
(b) Substance is an entelechy or intrinsic source of action.
(c) Substance persists, or remains numerically the same, through change.
(d) Substance is a true or per se unity.
(e) For any substance, there is a principle of individuation sufficient to distinguish it from every other actual or possible substance.

Leibniz regards (a)–(e) as necessary conditions for something's being a substance. By themselves, these conditions do not articulate a complete theory of substance. Instead, we should see them as criteria for the adequacy of any such theory: A satisfactory theory of substance must be such that it makes (a)–(e) come out true. We may acknowledge at the outset that during different parts of his career Leibniz takes different features of substance as starting points for his deliberations, and that consequently different members of the preceding list at times receive greater prominence than others. At all times, however, he believes that an adequate account of substance must uphold conditions (a)–(e). Later I show how this is true for the main theories advanced by Leibniz in the post-1680 period. In the rest of this section, I consider why he is committed to (a)–(e), as well as to two further conditions, and how he sees them as being related to one another.

(a) Independence

We saw in the preceding chapter that Leibniz ascribes to substance the traditional role of being an ultimate subject of predication: Substance is that of which other things are predicated but that is not itself predicated of anything else. It is this characteristic that supports substance's claim to possess an independent or per se existence. Insofar as predication indicates a relation of dependence between two beings, the identification of substance as what is predicated of no other being marks it as a thing that exists per se, depending for its existence on no other being except God. In this respect, substances are to be distinguished from modes and relations, as well as from those singular things which Leibniz describes as "beings through aggregation." As much as modes and relations, the existence of the latter is essentially dependent upon the prior existence of substances.[4]

(b) Activity

There is a close connection between substance's claim to be an ultimate subject of predication and its status as an entelechy or principle of action. For Leibniz, whatever is prior in order of existence must also be prior in order of understanding. Thus, if substance is an ultimate subject of predication, it must also be capable of serving as an ultimate explanatory principle, or that in terms of which the reason for everything else can be given.[5] Now, among the most important facts to be accounted for in the world is that of change: the fact that something first has some quality and then lacks that quality. To account for the fact of change is to posit a reason why change occurs. As commonly understood, this requires the designation of an action that has brought it about that what was the case is no longer the case. It follows that if substance is to play the role of an ultimate explanatory principle, it must also be regarded as the ultimate ground of the actions that account for change in the world, which is to say that substance must be a source or principle of action.[6] Leibniz acknowledges this feature of substance early in his career. In a set of notes from 1676, he contrasts his view of substance with the Cartesian account of the soul as a *res cogitans:*

> The author is right to say that thought is not the essence of the soul. For a thought is an action, and since one thought succeeds another it is necessary that what persists during this change is rather the essence of the soul, since it remains always the same. The essence of substance consists in the primitive force of acting, or in the law of the series of its changes. (A VI 3, 326)

(c) Persistence

Traditionally, substance has been regarded as that which endures or persists through change. This feature is central to Leibniz's conception of substance and is closely related to the previous two characteristics. Insofar as substance qualifies as an ultimate subject of predication, it must serve as the enduring subject of which transient modifications are predicated. Leibniz takes this property of substance to be guaranteed by its nature as a "primitive force of acting," which persists through change and "remains always the same" (A VI 3, 326). In defending the thesis that it is an essential characteristic of substance to persist through change, Leibniz goes beyond the standard Aristotelian position. In his view, substance is subject to neither generation nor corruption. The principle of action that is a substance can never itself come into existence or pass out of existence as a result of natural change, but only as a consequence of a divine act of creation or extinction.

(d) Unity

According to Leibniz, every substance must be a true or per se unity. He ascribes this requirement to the principle, which he says he owes to Aristotle, that the notions of *being* and *one* are convertible, or necessarily equivalent, from which it follows that whatever is an *ens per se* or substance must also be an *unum per se,* and conversely (GP II 97, 304, 446). In defense of this equivalence, we may see him reasoning as follows. Whatever is composite or *many* can only come to be through that which is truly *one.*[7] As the only per se created being, substance is that through which all other things come to be. Thus, whatever is substance must be an *unum per se.* Conversely, what is only an *unum per accidens,* an accidental unity determined by the relations among a plurality of things (e.g., an army, a herd, a mill), cannot be a substance but is only an *ens per accidens.*[8] We shall find later that some of the most important commitments of Leibniz's ontology hinge on this basic distinction between per se and accidental unity.

(e) Individuation

Leibniz is committed to the nominalist thesis that all actual or existing things are concrete particulars. This characteristic must thus also belong to substance: Every substance is a singular or individual thing, not an abstract form or universal.[9] Saying just this, however, does not explain what it is that makes a substance a distinct individual, in other words, *this* or *that* substance rather than any other (actual or possible) substance. To require that there be such an explanation is to demand a principle of individuation for substances. Without yet going into the details of his position, Leibniz holds that substances are individuated neither through their particular matter nor through a "haecceity" or primitive property of "thisness," but rather through the sum of their predicates.[10] Thus, as he sometimes remarks, individual substances are *infimae species* (lowest species), whose distinctness as individuals is determined by the completeness of their specification.

The conception of substance that emerges from this account is strongly indebted to the Peripatetic tradition: To be a substance is to be an individual principle of action, which persists through change, and through which all other change in the world can be explained. This conception does not, however, exhaust Leibniz's understanding of substantial being. To the list given above, we must add two further characteristics of substance that play important roles for him:

(f) Every substance is at all times "pregnant with its future."
(g) Every substance "expresses" the entire universe.

Characteristics (f) and (g) have a different provenance from (a)–(e). Whereas (a)–(e) can be traced to the traditional role of substance as an ontological and explanatory primitive, (f) and (g) derive from the distinctively Leibnizian doctrine that in every possible world "all is connected."[11] On the basis of this thesis, Leibniz draws the conclusion, first, that there must be a connection among the internal states of a substance, such that at any time it can be said to be "pregnant with its future":

> Order demands that there be a connection [*liaison*] among the different states [of the world], and it is for this reason that I am accustomed to say that the present is pregnant with the future: and this holds not only for things in general, but also in each particular substance through the relation of all its states, which are, as it were, enveloped within one another. (K IX 173)

For the same reason, he maintains that there must be a connection among the states of each substance and those of every other, with the result that any substance can be said to "express" the entire universe through its operations:

> But since all things have a connection with others, either mediately or immediately, the consequence is that it is the nature of every substance to express the whole universe by its power of acting and being acted on, that is, by the series of its own immanent operations. (GP VII 316–7/P 84)

Although they originate in a different source, Leibniz regards (f) and (g) as features that must be accounted for by any adequate theory of substance. As much as (a)–(e), they represent essential characteristics of substance, or characteristics that substance must possess in any possible world. In Leibniz's view, condition (f) is guaranteed by substance's nature as a principle of force or action: "When I speak of the force and action of creatures, I understand that each creature is presently pregnant with its future state, and that it naturally follows a certain course if nothing prevents it" (GP III 566).[12] His position is thus that a requirement imposed on substance by a general thesis of the universal connection of things is fulfilled by the identification of substance with a principle of action. The situation is somewhat more complicated in the case of characteristic (g). Since we have already sketched the main features of Leibniz's doctrine of expression in Chapter 2, I leave aside any further discussion of it at this time. At the end of the next section, we shall examine in more detail the grounds Leibniz offers for this doctrine.

Having laid out the basic components of Leibniz's view of substance, we may now turn to their development in two related theories – one that is prominent during the 1680s, the other which dominates his thinking from the 1690s onward.

The Complete Concept Theory

We have seen how Leibniz's articulation of the traditional notion of an ultimate subject of predication leads to his identification of individual substance as that being whose essence is expressed by a complete concept. As he concludes in §8 of the *Discourse on Metaphysics,* "It is the nature of an individual substance, or of a complete being, to have a notion so complete that it is sufficient to contain and to allow us to deduce from it all the predicates of the subject to which this notion is attributed" (Le 36/AG 41). Leibniz makes it clear that one of the primary functions of the complete-concept theory will be to illuminate the role of substance as a principle of action. As already noted, DM §8 begins with the problem of how to distinguish between the actions of God and those of creatures; and, as Leibniz interprets it, this problem turns on our understanding the sense in which an individual substance can be regarded as a subject of which actions are predicated. Within the *Discourse,* at least, Leibniz's treatment of substance is never completely divorced from its identity as an entelechy or principle of action.[13]

This point bears examination, for it has been a widely held view, going back to the interpretations of Couturat (1901, 1902) and Russell (1937), that during the 1680s Leibniz based his conception of substance on logical considerations alone.[14] We have already seen that in its most popular form this view is false: Leibniz's complete concept theory cannot be derived from his theory of truth alone. One needs in addition the commitments of his nominalism. Beyond this, however, it is apparent that even if we accept that the complete concept theory is largely inspired by Leibniz's logic, broadly construed, this theory by itself cannot explain all the properties he associates with substance during the *Discourse* period. Most notably, the complete concept theory cannot account for the fact that substance is for Leibniz, during this period and earlier, a principle of action. The conclusion to be drawn from this, I believe, is that while the complete concept theory serves as the point around which Leibniz organized his thinking about substance during the 1680s, it is a mistake to see him as in any sense "deriving" his understanding of substance from logical considerations alone. It is instead more accurate to see the complete concept theory as emerging against the background of a set of well-entrenched beliefs about what it is to be a substance, including the belief that to be a substance is to be an intrinsic source of action.[15]

Where the complete concept theory is critical for Leibniz is in defining the nature of a being capable of serving as an ultimate subject of which actions are predicated. To be a complete concept, we have seen, is to contain everything that can be said of the same subject, that

is, all of its predicates, past, present, and future. By linking the idea of a complete concept to the identity of substance as a principle of change, Leibniz seeks to emphasize that for something to be a substance it is not enough simply for it to be some principle of action: It must be a principle sufficient to determine all and only those states which are predicable of that substance. The device of a complete concept is thus intended to convey the nature of a being that satisfies the condition of being *spontaneous* or causally self-sufficient, or which is dependent for the production of its states on no other being except God.[16]

This reading is borne out by DM §§ 13–14, in which Leibniz draws a distinction between the concept or notion of a substance, as it is defined in §8, and its nature or form, which is the immediate source of its actions.[17] The relevance of the definition of a complete concept, he suggests, is that it articulates the content of God's perfect understanding of an individual substance, which is in turn the basis for his creation of its form or nature. Thus, insofar as a complete concept contains everything that is truly predicable of a given subject, and insofar as God utilizes his understanding of this concept to create a particular substantial form (or principle of action), it follows that any substance must be the source of all its natural states or modifications.[18] This same line of reasoning is found summarized in the contemporary essay *A Specimen of Discoveries:* "[I]n the perfect notion of an individual substance," Leibniz writes, "considered in a pure state of possibility by God before every actual decree of existence, there is already whatever will happen to it if it exists" (GP VII 311/P 78). He concludes:

> [F]rom the notion of an individual substance it also follows in metaphysical rigor that all the operations of substances, both actions and passions, are spontaneous, and that with the exception of the dependence of creatures on God, no real influx from one to the other is intelligible. For whatever happens to each one of them would flow from its nature and its notion even if the rest were supposed to be absent. (GP VII 312/P 79)

It would be a mistake to read these passages as defending a derivation of the spontaneity of substance from the complete concept theory. Leibniz's point is, rather, that a complete concept is an appropriate way to conceive of God's knowledge of a being, which is, by its nature, a spontaneous source of change. We can conclude, I believe, that Leibniz's complete concept theory is designed to complement the traditional conception of substance as a principle of action, and that it does not aspire to replace that conception. The device of a complete concept is intended to articulate the idea that a substance's form is a principle sufficient to produce all the modifications (actions or passions) predicable of that substance.

On the basis of this theory, Leibniz aims to account for the other essential characteristics of substance. In the first place, he sees the idea of a complete concept as offering an explanation of the persistence, or numerical identity, of substance through change, including the special case of personal identity. In his remarks on Arnauld's letter criticizing DM §13, he claims there can be no other a priori reason for his identity as the same person at different times and under different circumstances

> except that my attributes of the preceding time and state as well as those of the following time and state are predicates of one and the same subject, they are present in the same subject. Now what does it mean to say that the predicate is in the subject except that the concept of the predicate is in some sense contained in the concept of the subject? And seeing that since the beginning of my existence it could truly be said of me that this or that would happen to me, one must admit that these predicates were laws contained in the subject or in the complete concept of me which makes what is called myself, which is the basis of the connection between all my different states and of which God had perfect knowledge from all eternity. (GP II 43/M 47)

Sleigh has remarked that we find Leibniz in this passage riding his "metaphysical high horse" (1990, 126). In fact, however, his point seems quite clear: It is reasonable to think of the predicates "x is F at t_1" and "x is G at t_2" as being true of the same person (who has persisted between t_1 and t_2), if and only if those predicates (or concepts of them) are contained within one and the same complete concept. Taking such a concept to be expressive of God's knowledge of the nature of a being that is the spontaneous source of all its own modifications, Leibniz in effect claims that any two properties are properties of the same subject at different times just in case they are products of the same nature or form.[19] The intuition behind his position is expressed succinctly in the pre-*Discourse* study *Notationes Generales:* "A thing can remain the same, even if it changes, if it follows from its own nature that the same thing must have different successive states; certainly I am said to be the same who existed before, since my substance involves all my states, past, present and future" (G 323). Leibniz's point is that a necessary condition for a thing's being said to persist through change is that it possess a nature from which it follows that that same thing exists in a succession of different states. In his view, this is not a property that can be assigned to a merely extended thing, for there is nothing in the nature of such a being which entails that the same thing first possesses one shape and then another. This is, however, precisely the character he assigns to a substantial form: By its nature it is the spontaneous source of a succession of different modifications.

We noted in Chapter 5, but did not pursue, Leibniz's belief that all and only those things which possess a complete concept also satisfy the condition of being an *unum per se*. We posed there the question of whether these are for him merely coextensive properties of substance, or whether they can be seen to imply one another. We can now affirm that having a complete concept is indeed a necessary condition for possessing the true unity definitive of a substantial being:

> Substantial unity requires a complete, indivisible and naturally indestructible entity, since its concept embraces everything that is to happen to it, which cannot be found in shape or in motion . . . but in a soul or substantial form after the example of what one calls *self*. (GP II 76/M 94)

In his discussions of substantial unity, Leibniz again employs the notion of a complete concept as a proxy for the complete or self-sufficient nature of a substance. To qualify as a true or per se unity, he argues, it is necessary that a being possess a nature or form that is the spontaneous source of all its modifications. Obviously, the conditions of substantial persistence, completeness, and per se unity are closely linked for Leibniz. A being qualifies as an *unum per se,* he believes, only if it is necessary that it persist as the same thing through any actual change, short of annihilation.[20] And this is only guaranteed if everything that is ever true of that being can be understood as the product of a single unchanging nature – the sort of nature expressed by a complete concept.[21]

Finally, perhaps the most controversial claim that Leibniz makes on behalf of a complete concept is that it serves as a principle of individuation for substances. From the fact that every substance possesses an "individual notion" in which God "sees at the same time the basis and reason for all the predicates which can be truly predicated of [it]," he argues, it follows that no "two substances can resemble each other completely and differ only in number" (Le 36–7/AG 41–2). The principle of individuation for substances is thus their possession of a complete concept: Insofar as two substances share all the same predicates, and hence a complete concept, they must be numerically identical.[22] In DM §9, Leibniz refers to this conclusion as a "paradox." On the face of it, this is an apt description, for it is by no means obvious how he means to proceed from the premise that for every individual substance there is a complete concept containing all and only those things predicable of it to the conclusion that there cannot exist two substances that are qualitatively indistinguishable (insofar as they possess the same complete concept) and that hence differ only in number. This "paradox" is prominent in Leibniz's early formulations of the complete concept theory. From the definition of a complete concept, he writes in the *Notationes Generales,*

it follows that singular things are in fact lowest species and there can never exist two singular things similar in all respects; and consequently the principle of individuation is always some specific difference, which St. Thomas said of intelligences, but which is also true of any individual at all. When I say that men differ in the lowest species, I do not mean by the word "species" (as is commonly understood) some group of things procreating with things similar to themselves, like the species of human beings, of dogs, of roses . . . , nor even a universal, or a term produced from a finite number of terms, but a term whose particular concept is different from that of all others. . . . It is enough that it cannot be said that there exist two singular things similar in all respects, e.g., two eggs, for it is necessary that something can be said of one which cannot be said of the other, otherwise they could be substituted for each other and there would be no reason then why they should not instead be said to be one and the same. (SF 476)

Although it is uncontroversial that a species term such as *human being* is insufficient to distinguish two individuals who share this characteristic, it is not clear how Leibniz sees it as following that a complete concept is sufficient to distinguish one individual substance from another. What we find in this passage is not so much an argument defending this claim as simply an assertion that this must be so because otherwise "there will be no reason . . . why they should not instead be said to be one and the same."[23]

Upon examination, it is evident that the proposition that there are no two substances differing only in number does not follow from the complete concept theory alone but depends on an independent commitment to the principle of the identity of indiscernibles (PII): the principle that for any two numerically nonidentical things, there must be some discernible difference between them. The relevance of a complete concept in this context is simply that by definition it includes everything that is predicable of a given substance. Thus, assuming PII, it follows that no two substances can possess the same complete concept, for such substances would indeed be qualitatively indistinguishable.

Having settled that Leibniz's doctrine of individuation rests squarely on the assumption of PII, the question remains as to why he finds this view persuasive. Why is he convinced that no two substances could possibly share all their qualitative features? In his long letter to Arnauld of 4/14 July 1686, Leibniz insists on a fundamental distinction between a complete concept sufficient to individuate a singular thing and a concept representing that thing only "in general terms [*sub ratione generalitatis*], i.e., in terms of essence, or of a specific or incomplete concept" (GP II 52/M 58). He goes on to explain that when we speak of "many Adams" who may be instantiated in different possible worlds, we consider Adam not as

a determinate individual, but as a certain person conceived of *sub ratione generalitatis* in circumstances which seem to us to determine Adam as an

individual, but which in truth do not determine him sufficiently, as when one understands by Adam the first man that God places in a garden of pleasure which he leaves because of sin, and from whose rib God draws forth a woman. But all that is not sufficiently determining, and in this way there would be many disjunctively possible Adams or many individuals whom all that would fit. That is true, whatever finite number of predicates incapable of determining all the rest one may take, but what determines a certain Adam must absolutely contain all his predicates, and it is this complete concept that determines generality in such a way that the individual is reached. (GP II 54/M 60-1)

In this passage, as in others, Leibniz leaves us with the impression that it is the degree of complexity alone of a complete concept that allows it to determine the individuality of a thing: Whereas any incomplete concept containing only a finite number of predicates is incapable of determining an individual, a complete concept can do so because it incorporates an infinity of predicates. This, however, cannot be right. An infinity of properties by itself is no more likely to determine a unique individual than a finite number of properties. A more plausible explanation is that what Leibniz means to emphasize here is not the mere complexity of a complete concept but its claim to exhaustiveness, that is, its claim to contain everything that is predicable of that substance. If so, then the ultimate basis for his belief that such a concept cannot be shared by two different individuals would seem to be theological. It is central to Leibniz's view of divine foreknowledge that God's understanding of any possible substance extends to everything that would ever be true of that substance were it to exist. Consistent with this, God's decision to create a given substance changes nothing as regards what would be true of it based on his prior knowledge of its nature:

[I]t is plain that this decree changes nothing in the constitution of things: it leaves them just as they were in the state of pure possibility, that is, changing nothing either in their essence or nature, or even in their accidents, which are represented perfectly already in the idea of this possible world. (*Theodicy* §52; GP VI 131/H 151)[24]

We may conclude that PII is effectively built into Leibniz's account of the origin of created substances. Previewing the complete concepts that combine to form possible worlds, God decides to create one substance rather than another solely on the basis of his knowledge of their complete concepts. Insofar as God chooses to instantiate one complete concept rather than another, a different individual is produced.[25]

A further point, however, is crucial here. It is apparent from his letter to Arnauld concerning the "many Adams" that Leibniz places important constraints on the sorts of concepts capable of determining individual substances. In addition to being exhaustive, such concepts

must also specify a substance as possessing certain types of properties that distinguish it as an individual or singular thing, as opposed to a species or universal. According to Leibniz, the relevant difference between the complete concept of an individual substance and the incomplete concept of a species is not simply that the former is infinitely complex and the latter only finitely so; in addition, the former must involve properties that determine the specific circumstances of a substance's existence. "The concepts of individual substances," he writes to Arnauld, "which are complete and suffice to distinguish their subjects completely, . . . consequently enclose contingent truths or truths of fact, and individual circumstances of time, place, etc." (GP II 49).[26]

It is a significant metaphysical question why Leibniz insists that contingent predicates associated with particular circumstances of time and place are required in order to individuate substances. Why, in order to be conceived as individuals, must substances be characterized in terms of predicates that identify them as related to one another in space and time, rather than in terms of exhaustive lists of logically simple properties? One answer would be that Leibniz is merely aiming to save the phenomena: As a matter of fact, singular things are characterized by contingent, spatiotemporal relations; therefore, any satisfactory metaphysical theory must honor this fact. This response, however, is hardly compelling in the case of a philosopher who at so many points is prepared to defend views that run contrary to common sense. Prima facie, it seems possible that individual substances might be characterized solely in terms of collections of logically simple properties, in which case there would be nothing to distinguish a sphere from an individual substance, except for the degree of complexity of its concept.

This question opens up an area of inquiry which must be deferred until the next chapter. To summarize a line of reasoning developed there, I believe that Leibniz's insistence that the complete concepts of substances contain predicates that make reference to individual circumstances of time and place can only be fully understood in terms of his strategy for preserving the contingency of the world via the notion of compossibility. In Leibniz's view, contingency can be saved only if the supposition of the existence of certain things precludes the existence of certain other things possible in themselves (this is to say that such things are not compossible). He ensures this by requiring that substances be endowed with properties that involve their spatiotemporal and causal relatedness to other things.

This reading of Leibniz's position leads us to a final issue that must be addressed at this point, since it bears on the relationship between the complete concept theory and the property of universal expres-

sion, which I earlier noted as one of the essential characteristics of substance for Leibniz. Predicates that ascribe to a substance a spatiotemporal position relative to that of other substances are prime examples of what Leibniz calls "extrinsic denominations." In general, extrinsic denominations designate an individual in a way that makes essential reference to the properties of one or more other individuals. Thus, "being at such-and-such a distance from body *b*" is an example of an extrinsic denomination, since it designates a property that an individual can acquire only through the relation of its body to *b*. This is to be contrasted with an intrinsic denomination, which designates an individual in terms of its own internal modifications.

It is a well-documented feature of Leibniz's position that the complete concept of an individual substance contains everything that is true of it, including all its extrinsic denominations.[27] Notoriously, however, Leibniz also asserts that there exist "no purely extrinsic denominations." There has been much disagreement as to how this claim is to be interpreted. As I read it, the "no purely extrinsic denominations" thesis sees us squarely back in the domain of Bisterfeld's doctrine of *immeatio*.[28] Although he is not completely clear on this point, Leibniz typically explains the fact that there are no purely extrinsic denominations in terms of the "real connection" or "universal sympathy" of all things.[29] As a consequence of this connection or sympathy, he argues, nothing can come to be true of anything anywhere in the universe without necessitating a change in the internal states of all other things, and hence a change in their intrinsic denominations. It is helpful to break this claim down into two parts. First, whenever anything occurs anywhere in the universe, something new becomes true of everything in the universe – at all events, says Leibniz, a new "denomination of comparison and relation" (C 521/P 90). If an earthquake occurs in India, for example, the predicate "sleeping at the same time that an earthquake occurs in India" may become true of me. Such is an example of an extrinsic denomination. Now we come to the important half of Leibniz's thesis. In his view, nothing can become true of me in this way without some real change occurring in me: "[A]s often as the denomination of the thing is changed, there must be some variation in the thing itself" (C 520/P 89). This is the force of the no purely extrinsic denominations thesis.[30]

If we are not to misunderstand Leibniz's position, we must be clear on two points. First, the doctrine of universal connection that serves as the basis for the no purely extrinsic denominations thesis does not assume any sort of mysterious communication among substances. The doctrine of connection is wholly explicable in terms of the fact that God conceives of each constituent of a possible world as intrinsically related to every other constituent of that world. Thus, it is

written into the complete concept, or individual essence, of every substance that for any change in any member of its world there is some correlative change in the substance in question. Second, implicit in Leibniz's position is a strong claim concerning the grounding of extrinsic denominations in denominations that designate states or modifications internal to that substance. In suggesting that the connection of substances in a world is, as it were, built into their individual concepts, Leibniz is not assuming simply that extrinsic denominations as well as intrinsic denominations are contained in their complete concepts.[31] Rather, he is claiming that it follows from the complete concept of a substance that for any change anywhere in the world, and hence for any extrinsic denomination imposed on a given substance, there is some correlative change or some new internal modification produced in that substance.

It is this strong claim which provides the basis for Leibniz's doctrine of universal expression. As we saw in Chapter 2, universal expression asserts a lawlike correlation between the states of any one substance and those of every other substance. During the 1680s, Leibniz relates this property to a substance's possession of a complete concept: a substance expresses everything in its world because it has been endowed with a concept which entails that its states are correlated in a lawlike way with those of every other substance. Thus, the ultimate reason for both the real connection and universal expression of substances is that God conceives of their states as correlated with those of the other substances in their world, and he creates these substances exactly as he conceives them, such that their states *are* correlated in the appropriate way:

> [I]t can be said that God arranges a real connection by virtue of that general concept of substances which implies perfect interrelated expression between all of them, though this connection is not immediate, being based only on what God has wrought in creating them. (GP II 95–6/M 119–20)

In its fullest development, however, the doctrine of universal expression involves more than a claim about the correlation among the states of different substances. Linking universal expression to a substance's capacity for perception, Leibniz maintains that each substance must also be seen as expressing the universe *within* its perceptual states. By this he seems to mean that the contents of these perceptual states – the perceived phenomena – are themselves to be understood as an expression of the universe:

> [S]ince all things have a connection with others, either mediately or immediately, the consequence is that it is the nature of every substance to express the whole universe by its power of acting and being acted on, that is, by the series of its own immanent operations. . . . Also evident is the nature of the perception which belongs to all forms, namely the expression of many things

in one, which differs widely from expression in a mirror or in a corporeal organ, which is not truly one. (GP VII 316–17/P 84-5)[32]

Although Leibniz distinguishes a substance's expression of the universe from the reflection of an object in a mirror, the distinction works entirely to the advantage of the former. Perception not only involves the expression of the universe in a perfect unity (which a mirror is not), but this expression is so complete that it renders each substance "confusedly omniscient."[33] In the end, it is hard not to conclude that Leibniz actually runs together two separate notions of expression: one, the idea of a correlation among the states of different substances; the other, the idea of a substance's expression (or representation) of a universe of phenomena within its perceptual states. These two notions are, however, closely related. As a first approximation, we can say that each substance expresses every other substance to the extent that there is a lawlike correlation among the contents of their perceptions, or their respective expressions of the universe.[34]

It remains for us to try to establish a more perspicuous relation between the doctrine of universal expression and the no purely extrinsic denominations thesis. During the *Discourse* period, Leibniz has relatively little to say about how extrinsic denominations such as spatiotemporal position are grounded in intrinsic denominations. As he develops his position in subsequent years, this matter receives further attention. Particularly helpful is a short essay that Parkinson has dated ca. 1696.[35] It begins with a general statement of the no purely extrinsic denominations thesis:

A consideration which is of the greatest importance in all philosophy, and in theology itself, is this: that there are no purely extrinsic denominations, because of the interconnection of things, and that it is not possible for two things to differ from one another in respect of place and time alone, but that it is always necessary that there shall be some other internal difference. (C 8/P 133)

According to Leibniz, spatial and temporal position (place and time) are "mere results, which do not constitute any intrinsic denomination *per se*," but instead "demand a foundation derived from the category of quality, that is, from an intrinsic accidental denomination" (C 9/P 134). Now what, we may ask, are these "intrinsic accidental denominations" that ground a substance's place or position? In Leibniz's view, they are states of the substance that have the property of expressing the position of that substance vis-à-vis the positions of other substances:

To be in a place seems, abstractly at any rate, to imply nothing but position. But in actuality, that which has a place must express place in itself; so that

distance and the degree of distance involve also a degree of expressing in the thing itself a remote thing, either of affecting it or of receiving an affection from it. So, in fact, position [*situs*] really involves a degree of expression. (C 9/P 133)

The position sketched in this text raises a number of questions that will have to be left until the next chapter. What it does for us now is to establish a link between three central Leibnizian tenets: the doctrine of universal connection, the no purely extrinsic denominations thesis, and the doctrine of universal expression (or perception). A corollary of the thesis that "all is connected" in the world is that there are no purely extrinsic denominations: no designations of the relatedness of things that are not grounded in states or accidents internal to those things. As we have seen, this entails that for any change in the extrinsic denominations of an individual there must be some associated change in its intrinsic denominations. Leibniz suggests that in the case of those extrinsic denominations which designate the spatiotemporal relatedness of individuals, the accidents grounding these denominations are states of a substance that express its spatiotemporal position vis-à-vis the rest of the world. Consequently, any change in what is conceived as the spatiotemporal location of a substance must be accompanied by a change in that substance's *expression* of its location.[36] We thus appear to have a well-defined link between the no purely extrinsic denominations thesis and the doctrine of universal expression. We may conclude, at least tentatively, that the truth of the former thesis depends in an essential way on the capacity of substances to express within their perceptual states the universe as a whole, and their unique situation within it.

The Dynamical Theory

In March 1694 there appeared in the Leipzig journal *Acta Eruditorum* a short article by Leibniz entitled *On the Correction of First Philosophy, and on the Notion of Substance* (GP IV 468–70/L 432–3). In it he repeats his frequent criticism of Descartes as having failed to understand "the nature of substance in general," a failing he believes accounts for many of the deepest problems in Descartes's philosophy.[37] He then goes on to offer a "foretaste" of his own view of substance, which he claims is capable of resolving these problems:

I will say for the present that the concept of *forces* or *powers*, which the Germans call *Kraft* and the French *la force*, and for whose explanation I have set up a distinct science of *dynamics*, brings the strongest light to bear on our understanding of the true concept of *substance*. Active force differs from the mere power familiar to the Schools, for the active power or faculty of the Scholastics is nothing but a close [*propinqua*] possibility of acting, which needs

an external excitation or stimulus, as it were, to be transferred into action. Active force, by contrast, contains a certain act or entelechy and is thus midway between the faculty of acting and the act itself and involves conatus. It is thus carried into action by itself and needs no help but only the removal of an impediment. . . . I say that this power of acting inheres in all substance and that some action always arises from it. (GP IV 469–70/L 433)

The theory of substance that appears most prominently in Leibniz's post-1690 writings stresses the nature of substance as an entelechy or spontaneous principle of action – not simply a capacity or faculty to act, but that which does act provided that nothing impedes it. In the preface to the *New Essays,* Leibniz asserts that "in the natural course of things no substance can lack activity" (RB 53), for "activity is the essence of substance in general" (RB 65). To De Volder in 1699, he claims that the activity of substance is metaphysically necessary and would be a feature of any *systema rerum,* even one which was not created *ex lege ordinis supremi* (GP II 169).[38] On the surface, the view of substance presented in these later writings is quite different from that of the *Discourse* and the correspondence with Arnauld. There remains little evidence of the complete concept theory, or of Leibniz's preoccupation with problems of predication and individuation. His attention is now focused almost exclusively on the nature of substance as a principle of force or action. Our question is whether all of this adds up to a decisive development in Leibniz's account of substance or merely a shift in emphasis.

There is no doubt that from around the time of his Italian journey a change can be discerned in the things Leibniz says about substance.[39] Furthermore, we can be fairly confident as to the source of this change, namely, his increasing preoccupation with the formulation of the science of dynamics, a theory devoted to explaining the forces and actions of material things.[40] From the start, Leibniz sees an important connection between this science and his general understanding of substance. Pronouncements to this effect appear in many writings, including the passage already quoted from *On the Correction of First Philosophy.* We have seen, however, that from his earliest writings Leibniz associates the notion of substance with an entelechy or principle of action. Thus, it is hardly surprising that as he begins to investigate the character of the forces exerted by bodies, and along with this the substance *of* material things, he is naturally inclined to relate these issues to that of the nature of substance in general. The persistence of the idea of substance as a principle of action from Leibniz's early writings to his later works suggests that the dynamical theory does not represent a radical overhauling of his view, but merely a refinement of it via a more sophisticated account of the nature of corporeal forces.

The disappearance of the complete concept theory from Leibniz's post-1690 writings is, to be sure, a significant event. I suggest later that Leibniz may have had good reasons for letting this theory go. We need not assume, however, that the demise of the complete concept theory implies any fundamental change in his understanding of substance. Although Leibniz may ultimately have come to think that the complete concept theory was better left aside, the reason for this was not that he saw it as having been refuted by the dynamical theory. Proof of this can be found in the circumstances surrounding the publication of *On the Correction of First Philosophy.*[41] Leibniz was spurred to compose this essay by news he had received from his Leipzig nephew Friedrich Simon Löffler of Christian Thomasius's public discussion of the question *quid sit substantia.* Immediately, Leibniz set to work on a response to Thomasius, which he forwarded in December 1693 to Otto Mencke, editor of the *Acta Eruditorum.* In submitting his reply to Mencke, Leibniz was evidently unaware of the animosity between Mencke's circle and that of Thomasius. If the question had been proposed by a Huygens or a Newton, Mencke answered him, there would be no problem about publishing Leibniz's reply. He was not, however, prepared to make his journal a forum for the views of Thomasius. As an alternative, he proposed that Leibniz leave Thomasius aside and approach the question of substance from the point of view of his critique of Cartesian physics, the first statement of which had appeared in the *Acta* several years earlier. Leibniz agreed to this and the result was *On the Correction of First Philosophy.* Later in the same year, there appeared Thomasius's own *Dialogus de definitione substantiae,* which concluded with a comment on Leibniz's article. The famed Herr Leibniz's discussion in the Leipzig *Acta* is indeed very interesting, remarks one of the dialogue's participants, but he has yet to offer a definition of substance. What we now know from Leibniz's unpublished papers is that he made a careful study of Thomasius's *Dialogus* and supplied in his notes the definition demanded by Thomasius. There we find an account of substance identical with what appears in his writings from the 1680s:

> A substance is a complete being [*Ens completum*] of perfect unity. A substance therefore does not have parts, otherwise it would not have a perfect unity; it would not be a substance, but substances. A complete being is that which has a complete concept, namely that from which everything can be deduced which can be said of the same subject. . . . A *substance* is a simple, complete being.[42]

The lesson of this story is that the apparent discrepancy between the contents of *On the Correction of First Philosophy* and Leibniz's earlier account of substance can at least in part be attributed to intellectual politics, as opposed to any real shift in his view. When asked in 1694 to supply a definition of substance, he resorts to a statement resembling

the definitions found in his 1680s writings. A substance is an *ens simplum completum:* a complete being that is also "simple" or an *unum per se.*

This is not the last time we encounter the notion of completeness in Leibniz's writings, but it may be the last time we find it used in precisely this sense. In a draft of a 1701 letter to the Dutch physicist Burcher de Volder, with whom he was then engaged in an intense debate concerning the nature of substance, Leibniz inscribed the following marginal note: "A substance is an *atomon autopleroun,* an atom complete in itself or completing itself [*per se completum seu se ipsum complens*]. From this it follows that it is a vital atom or an atom having an entelechy. That which is an atom is identical to that which is truly one" (GP II 224).[43] Although this definition employs the vocabulary of completeness, a subtle shift has by this time occurred in Leibniz's understanding of the term. The completeness of a substance is now directly linked to its character as a "vital atom," rather than to the logical condition of being an ultimate subject of predication. A substance is not merely complete in itself: It is actively *completing* itself.

At the same time that this conceptual shift is under way, there appears an idea, not completely new to Leibniz's thought, which effectively supplants the device of a complete concept and arguably overcomes an important limitation in it. This is the idea of a substance's individual "law of the series." Leibniz's insistence on the need for some such principle to determine the individual nature of a substance testifies to the underlying continuity of his concerns. Although the concept of force or power "greatly illluminates our understanding of the true concept of substance" (GP IV 469/L 433), by itself it explains only the nature of substance in general. It does not tell what it is to be this or that substance, or why a given series of actions is predicable of one substance rather than another. These are issues that remain central in Leibniz's later writings. To De Volder, he suggests that "we should seek no other notion of power or force than that it is an attribute from which follows change, whose subject is substance itself" (GP II 170). But to say no more than that substance is "the subject of change," he argues, is to give only a "nominal" account of its nature (GP II 182/L 520). It may allow us to pick out all and only those beings which are substances, but it does not convey what it is to be an *individual* substance. For this purpose, it is necessary to appeal to the principle that defines the series of its particular states and thereby makes it *that* substance rather than any other. A substance, therefore, is not simply a being that is active or subject to change: It is a "primitive entelechy. . . . whose nature consists in a certain perpetual law of the series of the changes through which it runs unhindered" (GP II 171/L 517).[44]

The notion of a substance's law of the series plays much the same theoretical role as is played by a complete concept in Leibniz's 1680s theory. In it, he locates the basis for a substance's persistence or identity through change:

> The succeeding substance will be considered the same as the preceding as long as the same law of the series or of simple continuous transition persists, which makes us believe in the same subject of change. . . . The fact that a certain law persists which involves all of the future states of that which we conceive to be the same – this is the very fact, I say, which constitutes the enduring substance. (GP II 264/L 535)[45]

That a substance persists as a law or principle of action is further seen by Leibniz as the basis for its claim to be a true unity. Without entelechies, he writes to De Volder, there would be "no principle of true unity. . . . I regard substance itself, being endowed with primitive active and passive power, as an indivisible or perfect monad – like the ego, or something similar to it" (GP II 250–1/L 529–30). Finally, insofar as a substance involves a primitive active force that generates a unique series of changes, Leibniz regards the law of this series as supplying a principle of individuation for substances:

> [I]n my opinion it is the nature of created substance to change continually following a certain order which leads it spontaneously . . . through all the states which it encounters, in such a way that he who sees all things sees all its past and future states in its present. And this law of order . . . constitutes the individuality of each particular substance. (GP IV 518/L 493)[46]

While accounting for the same basic characteristics of substance (persistence, unity, individuality) as the complete concept theory, the notion of a substance's "law of the series" offers in addition one crucial advantage over Leibniz's 1680s position. It is a significant weakness of the complete concept theory that it attempts to model the nature of substance, an inherently active being, in a manner that is essentially static. A complete concept is defined as "containing" all that can be predicated of the same subject; yet it offers no suggestion of the order and causal dependence of the successive states of a substance. We know that from at least the 1670s such an order was an important part of Leibniz's understanding of what it is to be a substance. For this reason, some commentators have assumed he must have meant us to understand complete concepts as having an internal structure that represents the temporal succession of the corresponding substantial states. This, however, is surely asking too much. Leibniz was the first to recognize that concepts have a combinatorial structure: They are defined as simple products of their components without regard for the order among those components.[47] The proper inference to draw from this, I believe, is that during his stay in Paris,

Leibniz was already aware at some level that a static concept was the wrong device for expressing the nature of an active substance. Much more appropriate was the idea of a series or progression, whose properties he was at that time engaged in investigating in the area of mathematics.[48] Given this, it is perhaps surprising that on his return to Germany in 1676, Leibniz did not immediately turn to the notion of a law of the series in his attempts to articulate the individual essence of a substance. That he did not can best be explained by his preoccupation during the 1680s with the classification and definition of the primary categories of being. While he was working under the latter paradigm, the complete concept theory is exactly what one would have expected from Leibniz. We can surmise, however, that as the focus of his interests began to shift around the time of his Italian journey from the traditional logical and metaphysical concerns of the 1680s to the project of dynamics, an opportunity arose for Leibniz to rethink his conception of substance. All of the essential features of substance remained in place. What emerged, however, was his explicit recognition that if the nature of substance in general is to be an entelechy or primitive active force, the most appropriate device for representing the individual nature of a substance is not a complete concept but, rather, the law of the series of its operations.

This development in Leibniz's thought is witnessed most clearly in his correspondence with Burcher De Volder. "Since every action contains change," Leibniz writes,

> we must have in it precisely what you would seem to deny it, namely, a tendency toward internal change and a temporal succession following from the nature of the thing. You of course deny that "from the nature of the thing there follows that which belongs to it merely temporarily." You prove this by the example of a triangle, but you do not distinguish between universal and singular natures. From universal natures there follow eternal consequences; from singular ones also temporal ones, unless you think that temporal things have no cause. . . . All individual things are successions or are subject to successions. . . . For me nothing is permanent in things except the law itself which involves a continuous succession and corresponds, in individual things, to that law which determines the whole world. (GP II 263/L 534)

In Leibniz's view, there is a fundamental difference between universal natures and singular ones. Whereas the former are adequately conceived according to the combinatorial model, whereby a property is said to follow from a nature just in case its presence can be revealed through a finite analysis of that nature, the latter are not. Individual things are, without exception, "successions or are subject to successions." Hence, the proper model for representing their nature is not a static concept but the law that determines a series or progression. In conceiving of this law, Leibniz's first point of reference is the mathe-

matical function that determines a series of numbers. Although the series of states of a substance is unlike a mathematical series in involving a temporal succession, it "has in common with other series the property that the law of the series shows where it must arrive in continuing its progress or, in other words, the order in which its terms will proceed when its beginning and the law of its progression are given, whether that order is a priority of essence only or also one of time" (GP II 263/L 534). The idea that creation is unfolding according to a course determined by a law or function is an integral part of Leibniz's metaphysics. In several texts, he postulates the existence of a single general law that encompasses God's complete plan for creation and thus determines the evolution of the world as a whole.[49] Subordinate to this supreme law are the numerous individual laws which govern the development of the states of particular substances. To be a substance, then, is to possess a natural force or tendency which envelops an entire history. It is in this sense, Leibniz claims, that the present state of any substance is "pregnant with its future": "When I speak of the force and action of created beings, I mean that each created being is pregnant with its future state, and that it follows naturally a certain course, so long as nothing prevents it" (D VI 214).[50]

Corporeal Substance in the Period of the *Discourse on Metaphysics*

To this point we have been concerned exclusively with Leibniz's explanation of the nature or essence of substance, or what he describes as "substance *in abstracto*" (A I 7, 248–9).[51] We have seen that through the 1680s and 1690s he remains committed to two principal theses: First, substance in general is by nature a "primitive force" or principle of action; second, in any particular substance, this force is individuated through its limitation to a specific series of operations, a series that suffices to determine the identity of that substance and to distinguish it from every other substance. During the 1680s Leibniz formulates his account of a substance's individual nature in terms of its possession of a complete concept, one that includes representations of all the actions and passions predicable of that substance. Under the influence of his work in dynamics, this device gives way in the 1690s to the notion of a substance's "law of the series." In either case, the basic idea is the same.

In this section we turn to an important issue that arises in connection with Leibniz's account of substance *in concreto,* that is, his account of the particular things that fall under the concept of substance. Our question is this: Did Leibniz during the 1680s acknowledge the existence of genuine corporeal substances, bodies that instantiate the na-

ture of substance? Or was he at this time already committed to a position essentially akin to his later doctrine of monads: a view according to which all substances are soullike principles of action and passion, which in some way give rise to the appearances of extended material things?[52] We shall look in detail at the issues surrounding corporeal substance in Chapter 10. At this point I aim simply to remove some of the urgency from the topic by showing that there is a plausible way to understand Leibniz's position in the 1680s, which finds him already embracing the view that what is real or substantial in body is limited to soullike forms.

At the time of the composition of the *Discourse on Metaphysics,* Leibniz's attitude toward the idea of corporeal substance was determined by two main factors. First, he had by this time secured his own positive conception of substance as a per se unity, whose nature as an entelechy or spontaneous source of action is expressed in a complete concept. Second, he had decided in no uncertain terms that the Cartesian conception of matter as *res extensa* did not satisfy the necessary conditions for something's being a substance. A thing whose essence is extension cannot be a true unity. Moreover, because it lacks an intrinsic source of action, there is nothing in its nature to provide for the spontaneity of substance, or the property of being "pregnant with its future." In 1686, Leibniz's primary metaphysical commitments clearly pointed in the direction of denying that bodies as conceived by Descartes are anything real at all.[53] Yet if for no other reason than that he was bound to answer to orthodoxy, this conclusion did not fully satisfy him. Religious doctrine and common sense both dictated that human beings are embodied substances. Consequently, for his position to become acceptable, Leibniz had to find a way of at least seeming to accommodate the substantiality of the complete human being: soul and body.[54]

It may not have been clear to Leibniz himself in 1686 whether his philosophy contained the elements necessary for a theory that would validate the claim of human beings to be corporeal substances. Nevertheless, he persisted in this quest in one form or another until the very end of his life. In attempting to develop a theory of corporeal substance, Leibniz took for his model the Aristotelian account of substance as a form–matter composite. In the early 1680s, several years before the composition of the *Discourse,* he had already reached the conclusion that an extended body could acquire the status of a per se unity only if it were in some way united with an immaterial substantial form:

> Unless a body is animated, or contains in itself some one substance, corresponding to a soul, which is called a substantial form or primary entelechy, it is no more one substance than a heap of stones; and if, on the contrary, there

is no part of it which can be taken for an *unum per se* . . . it follows that every body will be only a real phenomenon, like a rainbow. (LH IV 7C B1. 105–6 [V 1299])[55]

Leibniz regards a substantial form as supplying two essential characteristics that are missing from the notion of *res extensa*. First, a substantial form is intended to provide its body with a principle of unity. Even if a body is always changing in its composition as a result of the division and decay of its parts, its association with an unchanging form provides a basis for its persistence as a unitary thing. Second, a substantial form is intended to render its associated body part of a complete being, since the form is identified with a principle of action sufficient for the production of all its own states.

From the start, however, it is unclear how we are to understand such form–matter composites. Leibniz consistently maintains that in themselves extension and its modes (shape, size, motion) are merely "imaginary" or phenomenal properties.[56] Thus, corporeal substance cannot be understood as a union of active form and passive extended matter. But how, then, are we to conceive of the matter that is united with a form to produce a corporeal substance? The *Discourse on Metaphysics* provides us with little help in resolving this question. When Leibniz introduces the issue of the nature of body in §12, he has only this to say:

I believe that anyone who will but meditate about the nature of substance, as I have explained it above, will find that the nature of body does not consist merely in extension, that is, in size, shape and motion, but that we must necessarily recognize in body something related to souls, something we commonly call substantial form, even though it makes no change in the phenomena, any more than do the souls of animals, if they have any. It is even possible to demonstrate that the notions of size, shape and motion are not as distinct as we imagine and that they contain something imaginary and relative to our perceptions. (Le 41–2/AG 44)

Reading just this, it would be easy to conclude that Leibniz believes there is nothing real or substantial in bodies over and above substantial forms and what follows from them, where this evidently does not include extension and its modes. Here at least we are given no hint of a material principle that might combine with a substantial form to produce a corporeal substance. In later sections of the *Discourse,* Leibniz does introduce a type of material principle, but it is *within* every soul or soullike form, namely, its capacity to be acted on, or to become less perfect in its mode of expression (DM §§15, 29).[57]

When Leibniz addresses this point in the Arnauld correspondence, he makes it clear that if there are corporeal substances, the matter that joins with a form to produce such a substance is not the material principle that is integral to any soullike form. Rather, it is what he

calls "secondary matter," an aggregation of smaller corporeal substances:

> [I]f one considers as the matter of corporeal substance not mass without forms, but a secondary matter [*une matière seconde*] which is the multitude of substances of which the mass is that of the whole body, it may be said that these substances are parts of this matter, just as those which enter into our body form part of it, for as our body is the matter, and the soul is the form of our substance, it is the same with other corporeal substances. (GP II 119/M 153)[58]

While this account provides an answer to our original question, it also forces us to pose that question one step further back. In order to explain a body's component corporeal substances, we must again say that they are each the product of a soullike form and a multitude of smaller corporeal substances, and so on ad infinitum. What is significant about this regress is that we never reach a more basic material principle complementary to substantial form. Instead, Leibniz seems committed to explaining the reality of corporeal substance in terms of substantial forms alone: entities that include an active and passive principle but that are not themselves material beings. If this is so, his view of corporeal substance in the 1680s seems close to the position he defends in the period of the *Monadology*.[59] Given his thesis of the infinite envelopment of corporeal substances, we will have to say that the reality of an animated creature like a human being is not limited to the form that supplies the basis for its unity but involves in some way the forms of all the lesser corporeal substances contributing to the constitution of its body. Nevertheless, we may conclude that when Leibniz speaks of "corporeal substances," he is ultimately referring only to soullike substantial forms.[60]

This interpretation – call it the reductionist theory[61] – is suggested by a number of writings from the *Discourse* period in which Leibniz identifies the reality of corporeal substance with a combination of active and passive powers:

> Concerning bodies I can demonstrate that not merely light, heat, color, and similar qualities are apparent, but also motion, figure, and extension. And if anything is real, it is solely the force of acting and of being acted on, and hence the substance of a body consists in this (as if in matter and form). (GP VII 322/L 365)[62]

When Leibniz claims that what is real or substantial in body is only a power of acting and of being acted on, it is again tempting to read him as affirming the reductionist theory. In the *Discourse* (§§15, 29), he explicitly ascribes such powers to souls and soullike forms. So why shouldn't we see him as holding that in the final analysis the reality of corporeal substance can be accounted for in terms of substantial forms alone?

The strongest challenge to this proposal has been mounted by Daniel Garber, who has argued against the reductionist theory on the grounds that the notion of passive power, or "primary matter," means something different for Leibniz in the 1680s and 1690s than it does in the period of the *Monadology*. Whereas it is generally agreed that in his later writings Leibniz regards primary matter as an aspect of a soullike substance – its capacity for confused perception – Garber contends that in the earlier period primary matter represents an independent passive principle that combines with an active form or entelechy to produce a complete corporeal substance.[63] The difference between Garber's account and the reductionist theory hinges on the relationship of the material principle to the entelechy or substantial form. According to the reductionist theory, passive power is merely an aspect of a soullike form, which is associated with its degree of limitation or imperfection. According to Garber, corporeal substance involves a passive power, which is distinct from, and complementary to, its active form or entelechy. Consequently, Leibniz cannot be read as proposing a reduction of corporeal substance to soullike substances alone.

Although Leibniz may in some places suggest a position similar to the one Garber describes, he clearly opts for the reductionist theory in at least one text from the 1680s. In an essay from which we have already quoted, he explicitly identifies the passive power or "metaphysical matter" of corporeal substance with its capacity for confused perceptions:

> [I]f anything is real, it is solely the force of acting and of being acted on, and hence the substance of a body consists in this (as if in matter and form). . . . Substances have metaphysical matter or passive power insofar as they express something confusedly; active power, insofar as they express it distinctly. (GP VII 322/L 365)[64]

Although this text is an unusual one, it demonstrates that Leibniz had at least conceived of the reductionist theory by the period of the *Discourse*. Whether he was aware of its full import, whether he was prepared to accept all of its consequences, we cannot say. What we can assume, however, is that the theory is lurking somewhere in the background of all of his statements about corporeal substance during the 1680s.[65]

The considerations of this section have not settled the issue of Leibniz's commitment to corporeal substance during his middle period. We have not treated in depth his important discussions of the topic in the Arnauld and Fardella correspondences, nor the role of corporeal substance in his writings on dynamics.[66] What we have found, however, recommends the reductionist theory as a strong candidate for Leibniz's position. When he speaks of corporeal substance, I believe, we are best off understanding him as referring simply to

what is real or substantial in bodies: the active and passive powers of soullike forms.

The Theory of Monads

Leibniz's theory of monads is in all essential respects consistent with his dynamical theory of substance. For several reasons, however, it warrants a separate treatment here. First, the doctrine of monads is the culmination of Leibniz's thinking about substance. Once he has settled on his definition of a monad, his views about substance remain fixed until his death.[67] Second, as it is developed in late works such as the *Monadology* and the *Principles of Nature and of Grace,* the doctrine of monads amounts to a more precise and systematic presentation of Leibniz's conception of substance than he had previously achieved. In no earlier writings does he exhibit so clearly the relationship between the different components of his theory. Finally, the doctrine of monads provides the basis for a powerful reductionist metaphysics, which Leibniz asserts with increasing confidence during the early 1700s. Having arrived at a stable conception of substance as a monad, he comes to defend forcefully the view that reality consists solely of monads and that all other beings are merely "results" of them.[68]

Leibniz's fullest exposition of the properties of monads is contained in the essay entitled *Monadology.*[69] In §1 of that work he defines a monad as "nothing but a simple substance that enters into composites – simple, that is, without parts." Simplicity is demanded of monads because without simples there would be no composites; composites, by their very nature, are nothing but "collections" or "aggregates" of simples (§2).[70] However, in order to qualify as genuine simples, monads must be without parts, and hence without extension, shape or divisibility (§3).[71] From this initial definition, Leibniz draws two important consequences. First, a monad is subject to neither generation nor corruption. Insofar as it lacks parts, "there is no conceivable way in which a simple substance can perish naturally" (§4), and no way in which it "can begin naturally, since it cannot be formed by composition" (§5). Instead, a monad can only begin by creation and end by annihilation (§6). Second, there is no conceivable way in which one monad can be affected by another:

> There is . . . no way of explaining how a monad can be altered or changed internally by some other creature, since one cannot transpose anything in it, nor can one conceive of any internal motion that can be excited, directed, augmented, or diminished within it, as can be done in composites, where there can be change among the parts. (§7)[72]

Although monads are by definition "simple," in the sense of lacking parts, Leibniz insists that such simplicity is consistent with their having internal complexity, in the form of a plurality of modifications.[73]

Indeed, he maintains that it is necessary that monads be distinguished in this way. As the "true atoms" of nature (§3), monads must provide a ground for the qualitative differences recognized in composite things. They must therefore possess at least some qualities, for if there were no differences among monads "one state of things would be indistinguishable from another" (§8). Leibniz, however, draws an even stronger conclusion than this. It follows from the principle of the identity of indiscernibles that there must not simply be some differences among monads, but that "each monad must be different from every other. For there are no two things in nature that are perfectly alike, two beings in which it is not possible to discover an internal difference, that is, one founded on an intrinsic denomination" (§9). It is thus ruled out that two monads could in principle share all their modifications.

In §10 of the *Monadology,* Leibniz offers it as an axiom that "every created being, and consequently the created monad as well, is subject to change," and "that this change is continual in each thing." On the basis of the points already established, he infers that a "monad's natural changes come from an *internal principle,* since no external cause can influence it internally" (§11); and that "besides the principle of change, there must be *diversity in that which changes,* which produces, so to speak, the specification and variety of simple substances" (§12). These conclusions set the stage for his description of the modifications of monads. Taking the second point first, he argues that "there must be a plurality of affections and relations in the simple substance, although it has no parts" (§13). These he identifies with a monad's perceptions: "The passing state which involves and represents a multitude in the unity or in the simple substance is nothing other than what one calls *perception*" (§14). Subsequently, he designates a monad's appetition as the "action of the internal principle which brings about the change or passage from one affect to another" (§15). Together, these two types of modifications – perceptions and appetitions – exhaust the intrinsic properties of monads: "[T]his is all one can find in simple substance – that is, perceptions and their changes. It is also in this alone that all the *internal actions* of simple substances can consist" (§17).

This completes Leibniz's preliminary account of monads. Any simple substance or monad, he claims, is a principle of action. Its state at any moment is defined in terms of "a plurality of affections and relations," which correspond to its perceptions; and these affections and relations are subject to continual change, as a consequence of its appetitions – the tendencies of its states to proceed toward new states. Although this theory is on the face of it clear enough, a number of complexities emerge when we examine it more closely.

We may begin with a monad's perceptions. Conceived in themselves, perceptions are nothing more than the plurality of modifications that constitute the state of a simple substance at a given moment. In addition to their nature as modifications of substance, however, perceptions possess a certain content. According to Leibniz, "perception is nothing other than the representation of external variation in internal variation" (GP VII 329–30).[74] Thus, the modifications he identifies with a monad's perceptions must involve some reference to external things. It is here that we find the significance of his claim that there exists a plurality of affections *and* relations within any monad. We may helpfully recall in this context our earlier discussion of how Leibniz regards the extrinsic denominations of a substance as grounded in perceptual states that express its connection to the rest of the universe. As we shall see in the next chapter, when Leibniz says that there is a plurality of relations within any monad, what he seems to mean by this is that there are within any monad states that represent the relatedness of that monad to the rest of its world.[75]

In his descriptions of the properties of monads, Leibniz generally distinguishes, as we have seen, two different kinds of modifications: perceptions and appetitions.[76] At times, however, he appears to suggest that monads in fact possess only one type of modification, perceptions, which themselves include an inherent tendency toward new perceptions. In his reply to the second edition of Bayle's *Dictionary*, he writes:

> The soul . . . although entirely indivisible, involves a composite tendency, that is a multitude of present thoughts, each of which tends to a particular change according to what it involves and what is found in it at the time by virtue of its essential relationship to all the other things in the world. (GP IV 562/L 579)

Whether we regard appetitions as modifications in their own right, or merely as properties of perceptions, Leibniz makes it clear that two different kinds of intrinsic denominations are required in order to specify fully the state of a monad: denominations that designate "a power of transition and that to which the transition is made" (C 9/P 134). Thus, we can at least distinguish conceptually the perceptions of a monad, which are individuated in terms of their content or what they represent, and the tendency of those perceptions to give way to new perceptions. In Leibniz's view, this latter appetition or "endeavor" is an intrinsic feature of any monadic state. He conceives of it as analogous to the conatus of a moving body. Whereas motion is expressed in a body's path through space during a finite interval of time, conatus is expressed in its momentary tendency to move in a certain direction. Monadic appetition is thus to be thought of not as the actual change that occurs in a monad, but as the tendency of a given

perception to give way to new perceptions. As in the case of perceptions themselves, the state of any monad at a given time is characterized by an infinity of such appetitions. The result of their action is the continual progression of the monad to new perceptions.[77]

Although every monad is by nature a principle of change insofar as its states naturally tend toward new states, in the strictest sense change itself is not an intrinsic denomination of monads. It is instead merely an aggregate or "result" of two contradictory states of a monad. So understood, monadic changes can be divided into two types. A monad's *actions* are those changes by which it passes from a less perfect state to a more (or equally) perfect state; its *passions* are those changes by which it passes from a more perfect state to a less perfect state.[78] In each case, the degree of perfection of a monad's state is defined in terms of the degree of distinctness of its perceptions, or its proportion of distinct to confused perceptions. Thus, a monad can be said to be active insofar as its perceptions are becoming more distinct, and to be passive insofar as they are becoming less distinct (or more confused):

> [I]f we take "action" to be an endeavor toward perfection, and "passion" to be the opposite, then genuine substances are active only when their perceptions . . . are becoming better developed and more distinct, just as they are passive only when their perceptions are becoming more confused. (NE II, xxi, 72; RB 210)[79]

In Leibniz's view, every created monad is subject to both actions and passions. As such, it must be regarded as possessing both a "primitive active power," its entelechy or principle of force, and a "primitive passive power," its "primary matter."[80] In a sense, therefore, a monad can be regarded as hylomorphic substance, or as a composite of form and matter. It is important, however, that we not be misled by this description. Under no circumstances should we think of monads as material substances: "One can call all simple substances or created monads 'entelechies,' for they have in themselves a certain perfection; they have a sufficiency that makes them the sources of their internal actions, and, so to speak, incorporeal automata" (§18). The identification of monads with entelechies, the principles of action Leibniz elsewhere designates as "forms," makes it clear that monads themselves are not corporeal substances.[81] They are instead soullike beings, which unite with an organic body to form an organism or living creature.[82]

If this is so, however, the question of the source of the passivity of monads, or their "primary matter," becomes especially pressing. Leibniz characteristically associates this aspect of a monad's nature with its resistance to change and with its confused perceptions: "[A]s monads

are subject to passions (excepting the primitive one [God]), they are not pure forces; they are the foundation not only of actions, but also of resistances or passivities [*passibilités*], and their passions are in confused perceptions" (GP III 636). But how, we must ask, are the confused perceptions of a monad specifically linked with its resistance to change and with its tendency to pass from more perfect to less perfect states? The resolution of this problem requires that we distinguish two different senses in which a monad can be said to "act." As an entelechy or spontaneous source of change, a monad acts continuously to produce whatever changes occur in its own states:

> [A]nything which occurs in what is strictly speaking a substance must be a case of "action" in the metaphysically rigorous sense of something which occurs in the substance spontaneously, arising out of its own depths; for no created substance can have an influence upon any other, so that everything comes to a substance from itself (though ultimately from God). (NE II, xxi, 72; RB 210)

According to Leibniz, any changes that occur in the states of a monad are entirely the product of its own appetitions, or the momentary tendencies of its states to pass to new states; and every such appetition can be regarded as a modification of the intrinsic force or primitive active power of that monad. Although any change within the state of a given monad thus results from the same source – the exercise of monadic appetition – we can distinguish between those changes which terminate in states of increased perfection (a monad's actions) and those which terminate in states of decreased perfection (its passions). Whether the total appetition of a monad at a given moment results in an action or a passion will be determined by its corresponding resistance to change at that moment, that is, by its primary matter or confused perceptions.

We can best understand how this resistance arises by returning to Leibniz's basic model of action (both human and divine) as the joint product of wisdom and volition.[83] For Leibniz, will or appetite is naturally good: It tends toward any end in proportion to its apparent degree of goodness. What impedes the attainment of the good is thus not the character of an agent's will but its associated degree of wisdom: its capacity to assess the relative goodness of competing ends. With this, we are able to clarify the respective roles played by primitive active force and primary matter in the operations of a monad. A monad is conceived by Leibniz as a combination of volitional and cognitive elements – of a faculty of appetite and a faculty of perception. By nature a monad is a spontaneous principle of action that tends toward change unless it is in some way impeded, and it tends toward change in accordance with the law of final causes; that is, it aims to attain the greatest possible good. To the extent that a monad is

impeded in its striving for states of greater perfection, it itself must be the source of the impediment. Leibniz rejects the influence of any other finite being on a monad, and he is committed to denying that God is in any way responsible for what is passive or limited in created beings. The only explanation for the resistance to the progressive strivings of a monad, then, is that monad's limited apprehension of the good toward which its appetitions are directed. This limited apprehension is a result of its confused perceptions, which are identified by Leibniz with the primary matter or passive power of the monad.

The discussion in this section has been limited to an account of the properties of individual monads. The results established here will be extended in the next chapter when we look in detail at the relations that unite monads within a world. Before turning to that topic, a few final words must be said about the divisions Leibniz recognizes within the class of monads. To the extent that they exemplify the properties of unity, activity, and perception, monads are essentially soullike. In §19 of the *Monadology,* Leibniz suggests that in a sense it might be proper even to identify monads with souls: "If we wish to call *soul* everything that has *perceptions* and *appetitions* in the general sense I have just explained, then all simple substances or created monads can be called souls." He retreats from this conclusion, however, in the interest of distinguishing between three different grades of monads based on the relative perfection of their faculty of perception. As we have seen, Leibniz assumes that all monads at every moment are endowed with an infinity of *petites perceptions.*[84] He nevertheless regards monads as varying greatly in the degree to which their perceptions are distinct, or admit of discernible differences. At the lowest level in the hierarchy of monads are those simple substances which possess the basic properties of perception and appetition, but whose perceptions themselves have no appreciable degree of distinctness. For such "bare" [*nudae*] monads, there is no sensory awareness and no self-conscious reflection on the contents of their mind. Their mental life is identified with the quality of our own "when we faint or when we are overwhelmed by a deep, dreamless sleep" (§20). At the stage above this one, Leibniz locates "souls": substances whose perceptions are more distinct, sufficient for the purposes of sensation, and accompanied by memory (§19). He assigns souls of this sort to animals, and judges that they are thereby endowed with the ability to reason "like an Empiric," that is, according to the lessons of experience and habit (§§26–8). The highest level of monads, finally, is composed of "spirits" or "rational minds," which are distinguished from the souls of animals by their knowledge of necessary truths, acquired through reflection on the nature of their own minds (§30).

We examined at length in Chapter 4 how Leibniz seeks to ground the possibility of metaphysics as a science on the capacity of rational minds to find within themselves intelligible concepts of being, substance, cause, and so on. We have now come full circle in our development of the theory of substance that is intended to explain this capacity. Unfortunately, we are here apt to experience some disappointment. It is a fundamental tenet of Leibniz's metaphysics that whatever differences exist among monads, it must be possible to conceive of the powers of higher monads as emerging through a gradual incrementation of those of lower monads, and indeed of the lowest bare monads.[85] Where this seems least plausible is in the case of the distinctive capacity for self-reflection and rational thought that Leibniz assigns to human minds. The capacity for rationality is intended to establish minds as a separate class of created being altogether: creatures who alone are able to understand the principles of divine justice and who alone merit citizenship in the City of God. The problem is that this appears to imply an infinite gap between rational and nonrational creatures, one that is unbridgeable by any continuous ordering of degrees of perfection. Leibniz never provides a satisfactory account of how this problem might be resolved.[86]

Notes

1. See GP II 68/M 84; GP II 74–5/M 92. The details of this system, which represents the best of all possible worlds as an aggregate of harmoniously related substances, are the subject of Part III. At present, we are concerned only with the essential properties of substance itself, or those properties which substances would possess in any possible world.
2. To Foucher, 1686: "When we dispute whether something is a substance or a mode of being [*facon d'estre*], it is necessary to define what it is to be a substance. I find this definition nowhere, and I have been obliged to work on it myself" (GP II 384). To Bourguet, 22 March 1714: "[W]e do not commonly apply ourselves to giving definitions of terms, and we speak in a confused way of substance, whose knowledge is nevertheless the key to the inner philosophy [*la Philosophie interieure*]. This is the difficulty in which we find ourselves, which has so confounded Spinoza and M. Locke" (GP III 567).
3. This is not to say that Leibniz's views are orthodox Aristotelian ones but only that they are largely framed in response to a set of concerns made prominent by Aristotle and the scholastics. For a detailed defense of this claim, see Mercer, in press. Hacking (1972) argues that the concept of substance can be seen as providing the answer to a variety of metaphysical problems: What remains numerically the same through change? What are the ultimate simples from which complexes are formed? etc. The list that follows summarizes what are for Leibniz the most significant of these problems. My approach parallels that of S. Brown (1984, 99–101), who sees Leibniz as committed to a similar set of assumptions.
4. Thus, Leibniz writes to Arnauld: "It seems too that what constitutes the essence of a being through aggregation is only a state of being [*manière*

d'estre] of its constituent beings; for example, what constitutes the essence of an army is only a state of being of the constituent men. This state of being therefore presupposes a substance whose essence is not a state of being of another substance" (GP II 96–7/M 121).

5. For a careful tracing of this idea through Leibniz's writings of the 1660s and 1670s, see Mercer, in press.
6. This is not the only route by which Leibniz reaches the conclusion that substance is a principle of action. In the 1668 essay *On Transubstantiation,* he claims this as a necessary condition for substance to qualify as "being which subsists in itself": "1. *Substance* is being which subsists in itself [*ens per se subsistens*]. 2. *Being which subsists in itself* is that which has a principle of action within itself. Taken as an individual, being which subsists in itself, or substance (either one), is a *suppositum.* In fact, the Scholastics customarily define a *suppositum* as a substantial individual. Now actions pertain to *supposita* [*actiones sunt suppositorum*]. Thus a *suppositum* has within itself a principle of action, or it acts. Therefore, a being which subsists in itself has a principle of action within itself. Q.E.D." (A VI 1, 508/L 115). In later writings Leibniz often claims that the price of denying the activity of substance is Spinozism. See *Theodicy* §393.
7. To Arnauld, he writes: "I deduce that many things do not exist where there is not one that is genuinely one being, and that every multitude presupposes unity" (GP II 118/M 151). We return to this claim in Chapter 8.
8. See his letter to Arnauld of 30 April 1687 (GP II 96–102/M 120–8).
9. See *Theodicy* §390: "I hold that when God produces something he produces it as an individual, and not as a universal of logic" (GP VI 346/H 358).
10. In DM §8, Leibniz identifies the "individual notion" of a substance with its "haecceity," but he is not using this term in its original Scotist sense.
11. As we saw in Chapter 2, condition (g) can be traced to Leibniz's appropriation of Bisterfeld's doctrine of *immeatio* or universal "communion." Leibniz recognizes Hippocrates as the source for the related idea that "all things sympathize" (GP VI 627/AG 228; C 14–15/P 176). This thesis, applied in the Hippocratic work *On Nourishment* to the human body, was developed by Stoics like Chrysippus into a general cosmological principle (see Lapidge 1978). Leibniz acknowledges this Stoic influence in his 1698 reply to Bayle (GP IV 523/L 496).
12. Cf. his letter to the Electress Sophie of March 1706: "And since the mutation of things is not an annihilation, but a new modification of substances which receive different states, we may judge that the nature of created substance rightly consists in this connection, which brings it about that these different states belong to one subject; and that this subject is disposed by its nature to pass from one state to another. And this is what I call active force, which is essential to substance, together with what is passive in it and produces the limitations of this force" (K IX 173).
13. Cf. DM §§15, 16, 29, 32.
14. For a recent restatement of this view, see Catherine Wilson 1989. In fairness to Wilson, one may read her as claiming simply that during the *Discourse* period Leibniz is inclined to formulate his understanding of substance in logical terms, a view with which I am in agreement. In some passages, however, she seems to go beyond this, suggesting that Leibniz has two incompatible conceptions of substance: one according to which substance is not active or dynamic, the other according to which it is. She writes, for example, that "Couturat was right to stress that force plays no

definite metaphysical role in the *Discourse*" (160). In my view, this sets up a false dichotomy between Leibniz's logical and dynamical conceptions of substance. His treatment of substance within a broadly logical framework does not imply that substance is not also a principle of force or action.

15. For an interpretation along these lines that differs somewhat from my own, see Mercer and Sleigh 1995.
16. See DM §32 (Le 85/AG 64). Sleigh argues that the primary commitment of Leibniz's theory of substance during this period is to the principle of spontaneity: the principle that "every noninitial state of a substance has as its real cause some preceding state of that substance" (1990, 130). On the basis of this principle, he claims, Leibniz is able to define a notion of substantial persistence. This, in turn, provides a ground for the claim that substance is an *unum per se* and that all of its states are "intrinsic" to it – what Sleigh takes to be the cash value of the complete concept theory. With all of this I am in general agreement, although I think Sleigh goes too far in his effort to downplay the importance for Leibniz of what are, broadly speaking, logical considerations. I am thinking here in particular of his suggestion that in terms of "order of derivation," we should see Leibniz's concept containment theory as following from his commitment to the principle of spontaneity (132; cf. 90–1). Much better, in my view, would be to give up the idea of an order of derivation – whether from the logical to the metaphysical, or vice versa – and to see Leibniz as committed early on both to the principle of spontaneity and to the principle that the nature of any substance must be sufficient to account for whatever is predicable of it – what will later become its property of completeness. On the role played by these principles in Leibniz's earliest writings, see Mercer, in press.
17. Cf. *A Specimen of Discoveries*: "This principle of actions, or primitive active force, from which a series of various states follows, is the form of the substance" (GP VII 317/P 84).
18. A distinction must be drawn between the natural and miraculous states of substance. In DM §16, Leibniz writes: "We could call that which includes everything we express our essence or idea; since this expresses our union with God himself, it has no limits and nothing surpasses it. But that which is limited in us could be called our nature or our power; and in that sense, that which surpasses the natures of all created substances is supernatural" (Le 53–4/AG 49).
19. Catherine Wilson again draws a false contrast here between Leibniz's position in the period of the *Discourse* and in his later writings: "Where in the *Discourse* he had suggested that the 'containment' of predicates in subjects was the ground of their persistence as substances, he advances far beyond this position in his defense of nature and natures" (1989, 170–1).
20. For this reason, Leibniz insists that substance is naturally subject to neither generation nor corruption. See DM §9, and *A Specimen of Discoveries* (GP VII 314/P 81).
21. This sets up Leibniz's claim, discussed later in this chapter, that a material thing can only qualify as an *unum per se* if it is endowed with a substantial form.
22. Cf. NE II, xxvii, 3 (RB 230).
23. The same confusion is found in a piece from October 1681: "There are as many singular substances as there are different combinations of all compatible attributes. And from this, it is obvious that there follows a

principle of individuation, about which the useless disputations of so many scholastics are held. Titius is strong, learned, beautiful, fifty years old, sentient, rational, etc. The concept from which all those things follow that can be said of him is the concept of his singular substance" (LH IV 7C Bl. 107–8 [V 411–12]).

24. Cf. *Theodicy* §231; Mates 1986, 75.
25. But why, we might still ask, should we see God as limited to creating just one instance of any complete concept? Leibniz's answer would appeal to the necessary rationality of God's action. God knows which substance he is creating solely through his knowledge of its complete concept. To suggest that God might create more than one instance of a complete concept would be to suggest that he might act in a manner less than fully determined by his knowledge, there being no rational basis to distinguish the products of his action in the different cases.
26. Cf. GP II 38–9/M 41–2.
27. "[T]he concept of the individual substance contains all its events and all its denominations, even those that one commonly calls extrinsic (that is to say, that belong to it only by virtue of the general connection of things and of the fact that it is an expression of the entire universe after its own manner)" (GP II 56/M 63).
28. See Chapter 2.
29. Cf. C 8/P 133, and NE II, xxv, 5: "[I]n metaphysical strictness there is no wholly [*pure*] extrinsic denomination, because of the real connections among things" (RB 227). For references to the "universal sympathy" of things, see GP VII 311/P 78; LH IV 7C Bl. 107–8 [V 413].
30. In at least one passage, Leibniz appears to deny that there are any extrinsic denominations: "[R]igorously speaking, there are no extrinsic denominations in things, since nothing happens anywhere in the world which does not in fact impinge on every other existing thing in the world" (LH IV 7C, Bl. 107–8 [V 413]). It is also plausible, however, to read him here as advancing the thesis just articulated. Another passage that has given rise to confusion, on account of a misreading by Loemker, is also consistent with this interpretation: "That all existing things have an intercourse [*commercium*] with each other is demonstrated both from the fact that otherwise no one could say whether anything is taking place in them now or not, so that there would be no truth or falsity for such a proposition, which is absurd; and because there are many extrinsic denominations, and no one becomes a widower in India by the death of his wife in Europe unless a real change occurs in him. For every predicate is in fact contained in the nature of the subject" (GP VII 321–2/L 365). Loemker substitutes "no extrinsic denominations" for "many extrinsic denominations" (reading *nullae* for *multae*). This is at odds with the newly edited text of the *Vorausedition* (V 480). See also C 521/P 90; GP VII 311/P 78.
31. This view is defended by G. Brown 1987, 192.
32. Cf. DM §§14–15; GP II 112/M 144; GP II 121/M 155.
33. In a 1676 fragment, Leibniz writes: "It seems to me that every mind is confusedly omniscient. And any mind perceives simultaneously whatever happens in the entire world" (C 10). Cf. Mon §60.
34. Here I follow Sleigh (1990, 175–6), who distinguishes two versions of the doctrine of universal expression: a weaker version, which entails only a correlation, or "a constant and fixed relationship," among the states of different substances; and a stronger version, which entails universal per-

ception, or the expression of the universe within the internal states of every substance, and also involves a claim about the grounding of extrinsic denominations in intrinsic denominations. In what follows, I assume that Leibniz's position is best represented by the stronger version of the doctrine.

35. Parkinson gives it the title *On the Principle of Indiscernibles* (C 8–10/P 133–5).
36. To De Volder, Leibniz writes: "Things which differ in place [*loco*] must express their place, that is, their surroundings [*ambientia*], and thus differ not only in place or an extrinsic denomination" (GP II 250/L 529). Cf. GP II 240/L 526–7.
37. Foremost is the problem of the "mutual action of substances upon each other," a special case of which is the puzzle of soul–body interaction. Leibniz ends his essay by saying that he will leave this problem for the future. He returns to it a year later in his *New System of the Nature and Communication of Substances.*
38. Cf. FN 324; GP III 58, 464–5; GP IV 472, 553–4.
39. Leibniz left Hanover at the beginning of November 1687, traveling through southern Germany and Austria, and arrived in Venice in March 1689. He returned to Hanover in June 1690. For details of his journey, see Müller and Krönert 1969; Robinet 1988.
40. This science is explored in Chapter 9.
41. The story is told by Utermöhlen 1979.
42. LH IV 3, 1d Bl. 2. Quoted in Utermöhlen 1979, 88–9.
43. Cf. GP II 251/L 531; GP II 277.
44. See also Leibniz's last (1690) letter to Arnauld: "[E]ach of these substances contains in its nature the law by which the series of its operations continues, and all that has happened and will happen to it" (GP II 136/M 170). In his 1698 essay *De ipsa natura,* Leibniz claims that God has imposed an "inherent law" (*legem insitam*) on substances "from which both actions and passions follow" (GP IV 506–7/AG 158). Cf. GP II 258/L 533; GP III 58, 464–5, 657; GP IV 512/AG 162–3; GP IV 553–4.
45. Cf. GP II 262/L 533: "[T]hat which persists, insofar as it involves all cases, contains primitive force, so that primitive force is the law of the series."
46. Cf. *Theodicy* §291.
47. More accurately, the only order recognized by the *ars combinatoria* is an order of *situs* or arrangement, as opposed to an order of priority and posteriority.
48. Already at this time, Leibniz proposed the idea of a substantial "law of the series." See A VI 3, 326: "The essence of substance consists in the primitive force of acting, or in the law of the series of its changes."
49. See in particular his 1701 letter to Varignon (BC II 557/W 185), and the draft of his 1702 reply to Bayle: "Finally, when it is said that each monad, soul, or mind has received a particular law, it is necessary to add that it is only a variation of the general law which rules the universe" (GP IV 553–4).
50. Cf. Mon §22, where Leibniz links the condition of being "pregnant with the future" to the fact that "every present state of a substance is a natural consequence of its preceding state" (GP VI 610/AG 216).
51. For a discussion of this expression, see Sleigh 1990, 97–8.
52. Recent scholarly opinion on this question has been divided. A number of authors have maintained that until the end of the seventeenth century, Leibniz defended the existence of corporeal substances, as well as imma-

terial, soullike substances. See Broad 1975; Garber 1985; C. Wilson 1989. Doubts about this reading have been raised by Sleigh 1990, whose treatment of the topic I have found helpful.

53. Thus, he writes to Simon Foucher in 1686: "If bodies were only simple machines and there was only extension or matter in bodies, it is demonstrable that all bodies would be only phenomena" (GP I 391). Cf. GP II 119/M 152–3. For a full discussion of the claim that merely extended things cannot be substances, see Sleigh 1990, chap. 6.
54. In a 1686 letter to Arnauld, Leibniz refers to the declaration of the Fifth Lateran Council (1512–17) that "the soul is truly the substantial form of our body" (GP II 75/M 78).
55. Watermark dating of this piece places it between 1680 and 1685. Statements like it appear in many texts from the period: "But in fact no being composed from many parts is truly one, and every substance is indivisible and those things which have parts are not beings, but only phenomena. For this reason, ancient philosophers rightly attribute substantial forms, like minds, souls or primary entelechies to those things which they have said make an *unum per se,* and they deny that matter in itself is some one being" (1685; LH IV 7B, 4 Bl. 13–14 [SF 481]). "In an *ens per se* there is required some real union [*unio*] consisting not in the location and movement of parts, as in a chain, house or ship, but in some individual principle and subject of operations which is called by us the soul and in every body a substantial form, provided that it is an *unum per se*" (1683–6; LH IV 7, C Bl. 111–4 [V 416]). "I will show some time that every body in which there is no soul or substantial form is only an appearance, like a dream, and has no certain or determinate nature; and all the attributes of bodies of this type are only phenomena which lack a subject. From this it follows either that bodies are not real beings or that every body is somehow animated" (1683–6; LH IV 7C Bl. 103–4 [SF 478]). See also *A Specimen of Discoveries* (GP VII 314/P 81).
56. On the unreality of these properties, see GP II 119/M 152; GP VII 314/P 81; GP I 391–2; and the discussion of the final section of Chapter 4.
57. See also DM §18: "[T]he general principles of corporeal nature and of mechanics itself are more metaphysical than geometrical, and belong to some indivisible forms or natures as the causes of appearances, rather than to corporeal mass or extension" (Le 58/AG 51–2). In DM §34, Leibniz does assume that when united with a soul, the human body constitutes an *unum per se.* However, it is difficult to know how much weight to give this passage. An earlier draft of §34 had begun: "I do not attempt to determine if bodies are substances in metaphysical rigor or if they are only true phenomena like the rainbow and, consequently, if there are true substances, souls, or substantial forms which are not intelligent" (Le 87/AG 65). The safest thing to say is that Leibniz's views concerning the reality of body and corporeal substance do not seem to be fully settled in the *Discourse.* On this point, see the discussions of C. Wilson 1989, chap. 3, and Sleigh 1990, chap. 5.
58. As Garber notes (1985, n. 54), much of this passage is missing from the version of the letter received by Arnauld. Nevertheless, a passage that was sent makes much the same point: "[A]ssuming there is a soul or entelechy in animals or other corporeal substances, one must argue from it on this point as we all argue from man who is an entity endowed with a genuine unity conferred on him by his soul, notwithstanding the fact that the mass

of his body is divided into organs, vessels, humors, spirits, and that the parts are undoubtedly full of an infinite number of corporeal substances endowed with their own entelechies" (GP II 120/M 154).

59. How close, of course, depends on what one takes Leibniz's later position to be. On the reading offered in Part III, the relationship turns out to be very close. For a concise statement of Leibniz's view, see *Metaphysical Consequences of the Principle of Reason* §7: "But an organic body, like every other body, is merely an aggregate of animals or other things which are living and therefore organic, or finally of small objects or masses; but these also are finally resolved into living things, from which it is evident that all bodies are finally resolved into living things, and that what, in the analysis of substances, exist ultimately are simple substances – namely, souls, or, if you prefer a more general term, *monads,* which are without parts" (C 13–14/P 175).
60. One qualification must be added. The conclusion that there is nothing real or substantial in animated creatures except soullike forms might still be consistent with the claim that these creatures are corporeal substances *if* it could be established that the soul itself or some other principle of union were capable of conferring a per se unity on the plurality of substances that make up the creature's body. We examine this possibility in Chapter 10.
61. Cf. Sleigh (1990, 100), who labels it the "monadological theory."
62. Cf. the following texts: "[T]he reality of a corporeal substance consists in a certain individual nature; that is, not in mass [*mole*], but in a power of acting and being acted on. . . . Motive force, or the power of acting, is something real and can be discerned in bodies. And so the essence of a body is not to be located in extension and its modifications. . . . All substance is contained in the power of acting and being acted on" (GP VII 314–15/P 81–2); "Extension does not belong to the substance of a body, nor motion, but only *matter,* or a principle of passion or limited nature, and *form,* or a principle of action or unlimited nature. . . . If mass [*moles*] belongs to the essence of human substance, it could not be explained how a man may remain the same" (LH IV 1, 14c Bl. 11 [V 294]).
63. This is not to say that either principle is capable of existing by itself. Strictly speaking, entelechy and primary matter are both abstractions from the complete corporeal substance. See Garber 1985, 46–55.
64. Garber (1985, 47) recognizes this passage as supportive of the reductionist theory but believes it comes from a period later than the *Discourse.* Watermark dating places it between 1683 and 1686 (V 476).
65. See Sleigh 1990, 115; and Garber's response to this claim (1992, 164–5). Another objection that can be raised against the reductionist theory is that it is incompatible with the connection Leibniz establishes between the active and passive powers of substance and the physical properties of bodies. To the extent that these powers are envisioned as grounding properties of material things, it might be argued, they could hardly be the powers of a soullike form but must instead be the powers of a corporeal substance. As it stands, this objection is hardly decisive. The fact that bodies and forms appear to be quite different sorts of things is insufficient reason to think that Leibniz would balk at grounding the former in the latter. We shall see in Chapter 9 that this is exactly what he does in his later philosophy when he cites the active and passive powers of monads as foundations for the force and resistance of bodies. Such a view is not

explicit in his writings of the 1680s, but there is sufficient overlap between the things he says in the two periods to make it plausible that the same analysis is at work. Suggestive here is his comment in the *Specimen of Discoveries* that the reality of bodies is "to be located in the power of acting and resisting alone, which we perceive with the intellect and not with the imagination" (GP VII 315/P 82). This is reminiscent of his later view that we can comprehend intellectually that material things are really unextended monads, although we cannot imagine in sensory terms how this could be so.

66. Concerning Leibniz's exchange with Fardella, it is worth considering the following passage, dated March 1690: "And so, since every body is a mass or aggregate of bodies, no body is a substance; and consequently, substance must be sought outside corporeal nature. But substance is something which is truly one, indivisible, and thus neither generable nor corruptible, [and] which is the subject of actions and passions; in short, it is that very thing which I understand when I say 'I' (me), which subsists, albeit with my body having undergone changes [*sublato*] through its parts – as my body is certainly in perpetual flux – and with me surviving. No part of my body can be specified as necessary for my subsistence; nevertheless, I am never without some united part of matter. I have need of an organic body, although there is nothing in it which is necessary for my subsistence" (FN 324/V 2157–8).
67. There has been much debate concerning when the term "monad" makes its first appearance in Leibniz's writings, the sources from which he derives it, and its original designation. It has often been claimed that Leibniz first uses the term to refer to his own conception of substance in a letter to Fardella of 3/13 September 1696 (FN 326). Consistent with this, Merchant (1979) maintains that he appropriated the term from F. M. van Helmont during the latter's visit to Hanover in March 1696, and that the immediate sources for Leibniz's usage are van Helmont's *A Cabbalistical Dialogue* (1682) and Anne Conway's *The Principles of the Most Ancient and Modern Philosophy* (1690). Parkinson (P 255) has noted, however, that there is at least one earlier text, an unfinished letter to the Marquis de l'Hôpital dated 22 July 1695, in which Leibniz uses the term *monas* to designate whatever is a "real unity" (GM II 295). Finally, Garber (1985, 69) points out that in a September 1698 letter to Johann Bernoulli, Leibniz appears to use the term to refer to corporeal substances rather than the soullike substances of the *Monadology*: "What I call a complete monad or individual substance [*substantiam singularem*] is not so much the soul [*anima*], as it is the animal itself, or something analogous to it, endowed with a soul or form and an organic body" (GM III 542/AG 168; cf. GM III 552/L 512).
68. This position is explored in Chapters 8–10.
69. The title is not Leibniz's own but that of an early editor. Unless otherwise indicated, the parenthetical references that follow are to sections of this essay (GP VI 607–23). I follow the translation of Ariew and Garber (AG 213–25).
70. Cf. PNG §1: "A *simple substance* is that which has no parts. . . . *Monas* is a Greek word signifying unity, or what is one. Composites or bodies are multitudes; and simple substances – lives, souls, and minds – are unities. There must be simple substances everywhere, because, without simples, there would be no composites" (GP VI 598/AG 207).

71. "When I say that every substance is simple, I understand by this that it lacks parts" (GP II 239/L 526).
72. The claim that monads cannot affect one another involves more than their supposed simplicity or lack of parts. Also relevant is Leibniz's dismissal of the possibility of the migration of accidents from one substance to another, a point summarized in his assertion that "monads have no windows through which something can enter or leave" (§7).
73. Cf. GP VI 598/AG 207; GP VI 628/AG 228.
74. Cf. his letter to Rudolf Wagner of 4 June 1710: "Broadly understood, the soul is the same as that which is alive or a vital principle, namely, a principle of internal action existing in a simple thing or monad, to which external action corresponds. And this correspondence of internal and external, or the representation of the external in the internal, of the composite in the simple, of a multitude in a unity, in fact constitutes perception" (GP VII 528).
75. Cf. Mon §§56, 59; PNG §2; and GP III 574–5, quoted in note 76. Mugnai (1990b, 78) refers to these states as "intramonadic relations." They are not to be confused with what others have called "relational properties," i.e. properties such as fatherhood which are predicable of an individual only insofar as there exists some other individual to which it stands in relation (see Ishiguro 1992, 132). "Intramonadic relations" are monadic accidents that have a relational content. They do not entail the existence of irreducible relational facts about monads.
76. See his letter to Bourguet of December 1714: "In the way in which I define perception and appetite, it is necessary that all monads be endowed with them. For *perception* is for me the representation of the multitude in the simple, and *appetite* is the tendency from one perception to another; but these two things are in all monads, for otherwise a monad would have no relation to the rest of the world" (GP III 574–5). Cf. PNG §2; GP II 481; E 746; C 14/P 175.
77. Cf. GP VII 330; GP IV 562/L 579.
78. Cf. C 9/P 134; G 323.
79. "The soul tends to change by the appetite, which leads it to distinct or confused perceptions, according to which it is more or less perfect" (GP III 347). Cf. PNG §13.
80. "God alone is a substance truly separated from matter, since he is pure act, endowed with no power of being acted on, which, wherever it is, constitutes matter" (GP VII 530). Cf. GP III 457.
81. "By 'monads' I understand simple substances, and therefore incorporeal ones which have nothing pertaining to extension" (D II 2, 161). Cf. D II 2, 158; Mon §19.
82. We return to this point in Part III.
83. See Chapter 1.
84. See Chapter 4.
85. See NE III, vi, 12 (RB 307); IV, xvi, 12 (RB 473–4). This is a consequence of the claim that all variety arises through a varying of degrees of perfection (GP II 340, 343), and Leibniz's commitment to a continuous ordering of degrees of perfection. (See Chapter 2.)
86. Leibniz struggles throughout his career with the question of the metaphysical distance between rational and nonrational creatures. For treatments of various aspects of the problem, see Fouke 1991; Kulstad 1991; Blumenfeld 1995. The gap between rational and nonrational creatures is

stressed in DM §35: "Since God is the greatest and wisest of all minds, it is easy to judge that the beings with whom he can, so to speak, enter into conversation, and even into a society – by communicating to them his views and will in a particular manner and in such a way that they can know and love their benefactor – must be infinitely nearer to him than all other things" (Le 90/AG 66). Cf. *New System* (GP IV 479/AG 140).