Matter from Monads: a study of the interrelations between monads and bodies in the philosophy of Gottfried Wilhelm Leibniz.

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1985
I declare that this thesis has been composed by me, and is the result of my own work.
ABSTRACT

The present work attempts to explain the relation between immaterial monads and material bodies in the philosophy of Leibniz. To this end, an investigation is made into the nature of the monad. It is argued that the most profitable definition of the monad is as a combination of primitive active and passive force, or as a combination of substantial form and primary matter. Detailed examination is made of the notions of primary matter (primitive passive force) and of substantial form (primitive active force). This reveals the connections between primitive passive force and derivative passive force, bodies' resistances and monads' confused perceptions and the connections between primitive active force and derivative active force, bodies' motions and monads' distinct perceptions. The relation between primitive active force and freedom (as rational appetite) is also investigated (chapter 9). As regards the body, it is argued that it can be regarded either as a phenomenon or as an aggregate.

The final part concerns Leibniz's concept of expression and the closely related concept of (comparative and concurrent) relations. In chapters 12-14, attempts are made to work out the details of the expressive relations said to hold between the soul (or dominant monad) and its own body, between the soul and other bodies, between bodies themselves (revealing Leibniz's tendency towards mechanism and explanations in terms of physical causation), and between monads. Chapters 15-16 are devoted to an investigation of final and efficient causes and the relations between them.

In the course of these studies, seven explanations of the relation between monads and bodies emerge. It is found that the relation between a dominant monad and its own body can be explained in terms of the relation between 1. primitive active and passive forces, 2. distinct and confused perceptions (thought versus sensation), 3. dominant and subordinate monads' perceptions, 4. the dominant monad's perceptions and the body's motions, 5. free and determined monads, and 6. final and efficient causes. The relation between the subordinate monads and the body they compose (or are the foundation of) is explained in terms of the relation between primitive and derivative forces, although this is contrary to the use which Leibniz himself made of the relation between primitive and derivative forces.

To conclude, comment is made on the compatibility and interdependence of these explanations, and their dependence on one or other of the two methods of regarding the body.
## CONTENTS

<table>
<thead>
<tr>
<th>Introduction</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbreviations</td>
<td>iv</td>
</tr>
</tbody>
</table>

### Part One: Passivity

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Substance</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Primary Matter</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>Derivative Forces</td>
<td>33</td>
</tr>
<tr>
<td>4</td>
<td>Primary and Secondary Matter</td>
<td>52</td>
</tr>
<tr>
<td>5</td>
<td>Confused Perceptions</td>
<td>76</td>
</tr>
</tbody>
</table>

### Part Two: Activity

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Substantial Forms (1)</td>
<td>104</td>
</tr>
<tr>
<td>7</td>
<td>Substantial Forms (2)</td>
<td>130</td>
</tr>
<tr>
<td>8</td>
<td>Substantial Forms (3)</td>
<td>144</td>
</tr>
<tr>
<td>9</td>
<td>Appetitions and Freedom</td>
<td>165</td>
</tr>
<tr>
<td>10</td>
<td>Distinct Perceptions</td>
<td>199</td>
</tr>
</tbody>
</table>

### Part Three: Expression and Relations

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Expression and Relations</td>
<td>215</td>
</tr>
<tr>
<td>12</td>
<td>Relations between Body and Soul</td>
<td>233</td>
</tr>
<tr>
<td>13</td>
<td>Soul’s Relation to External Bodies</td>
<td>262</td>
</tr>
<tr>
<td>14</td>
<td>Relations between Monads</td>
<td>288</td>
</tr>
<tr>
<td>15</td>
<td>Final and Efficient Causes</td>
<td>316</td>
</tr>
<tr>
<td>16</td>
<td>Relations between Final and Efficient Causes</td>
<td>340</td>
</tr>
<tr>
<td>17</td>
<td>Concluding Remarks</td>
<td>365</td>
</tr>
</tbody>
</table>

### Notes

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>373</td>
</tr>
</tbody>
</table>

### Bibliography

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>406</td>
</tr>
</tbody>
</table>
Introduction

The question asked in this thesis is whether or not Leibniz's conception of material objects as aggregates of immaterial beings is intelligible or possible. In the process of answering this question, many other questions have to be answered. These can be divided into two kinds. The first kind of question is that in which we try to find Leibniz's definitions of various concepts, such as, what are monads?, what is expression?, what is derivative force?, substantial form?, primitive force?, primary matter?, appetite?, apperception?. The second kind of question is that in which we try to find the relations which hold between these basic concepts. These questions are particular instances of the main question, namely, what is the relation between matter and mind? Hence, we ask, what is the relation between primitive force and derivative force?, between perceptions and appetitions and primitive force? and between perceptions and appetitions and derivative force?. This explains our basic methodology.

There are many fundamental questions which are not asked. For example, we do not question whether or not rationalism is the means towards truth. Similarly, we assume that there is a plurality of beings in the world. We also assume that these beings are independent of each other in the sense implied by Leibniz's concept of 'windowlessness'. In addition, we have omitted discussion of theological issues. To have answered questions in these areas would have required another thesis.
Instead, what we have done is to start with the basic assumption that there is a plurality of mind-like substances, and have then tried to determine rationally whether the world which we experience could be composed of, or founded in, these immaterial beings.

It needs to be said that this dissertation is not primarily a historical one. Occasionally, we do trace the historical development of Leibniz’s thought, but this is secondary to the exposition of the ideas expressed by Leibniz throughout his life, and to the examination of these ideas themselves and of their relation to other ideas found in Leibniz’s works, regardless of the period in his life at which he held them.

References to texts have been given according to the editor or translator of the particular work. When the person’s name has not been abbreviated, the source can be located in the bibliography. For those which have been abbreviated, full bibliographic details are given in the section entitled Abbreviations.

Before we begin, I wish to thank my supervisor, Mr. John Llewelyn, who has patiently read many untidy drafts of the present work. Without his penetrating criticisms and helpful suggestions of further avenues to be explored, this thesis would never have been written. Grateful thanks also are extended to Linda Alexander for her help in putting my handwriting into readable form. Last, but not least, thanks to
my parents, who have quietly supported me, both morally and financially, for the past three years.
ABBREVIATIONS

Alex. The Leibniz-Clarke Correspondence, transl. by H.G. Alexander (Manchester, 1956).


GM. Leibnizens Mathematische Schriften, ed. by C.J. Gerhardt, 7 vols. (Berlin and Halle, 1849-1855).


P.A. Gottfried Wilhelm Leibniz: Samtliche Schriften und Briefe, ed. by Preussischen Akademie der Wissenschaften, 6 vols. (Darmstadt, Leipzig, Berlin, 1923-).


CHAPTER ONE

SUBSTANCE

Much of Leibniz's correspondence was concerned with the nature of substance. This is particularly true of the correspondences with des Bosses and de Volder. On August 19, 1715, Leibniz sent des Bosses a letter containing a postscript in which he set out his views in diagram form (L.II.1003). This postscript is reprinted in full on the following page. From the diagram, it would seem that Leibniz intended to divide 'unities per se' into two camps, so to speak, with substances in the one and modifications in the other. But because substances are always unities (1), if we interpret the division as being into two distinct kinds, then modifications will be substances. This they are not (2). Modifications are of substances, but they are not themselves substances (3). Accordingly, we shall interpret the division as meaning that both substance and its modifications are aspects of the unity per se. The same interpretation will be placed on the other divisions. That is to say, they will be interpreted, not as distinguishing two different and distinct things, but as dividing the same thing into two different aspects, both of which together constitute the thing in the division immediately above. Thus, substance will be both simple and composite. This we can interpret as meaning that no created substance lacks an organic body.

The proposed interpretation is rather contrived. It cannot be applied to the first division. A permanent absolute creature cannot be both a 'unity per se' and a 'unity by
aggregation'. The permanent absolute creature must be either one or the other. Leibniz’s definitions of substance rule out the possibility that such an aggregate is a creature. The examples of aggregated unities make this clear - houses, ponds, choirs of angels and armies of men are not creatures, and certainly not permanent absolute creatures (4). For Leibniz, they are aggregates of such creatures.

Leibniz himself seems to have intended his divisions in the opposite way to that which we propose here. He expressly says, for instance, that a unity per se is either a substance or a modification. He does not say that the unity per se is, or could be, both of these. Nevertheless, we repeat that, because a modification cannot be a substance in its own right, the only intelligible way to interpret Leibniz’s diagram is as meaning that a unity per se is a substance together with its modifications. In doing so, we are interpreting the diagram in such a way that it becomes intelligible to say that a substance (a corporeal substance) is a dominant monad together with its organic body.

In the postscript, the term 'monad' applies only to souls and minds, and the term 'composite substance' applies to that which is both primary matter and a substantial form. This is interesting because it conflicts with statements Leibniz made not only in other correspondences, but also in other letters sent to des Bosses. In one of these letters (to des Bosses, 30 April 1709) Leibniz defined the soul or the monad as what was
later to be described as a composite substance (in the postscript of 1715). That is to say, in 1709 he defines the soul or monad as the result of the combination of primary matter and substantial form:

You will understand, moreover, that I have been speaking so far, not of the union of the entelechy or active principle with primary matter or passive power (potentia), but of the union of the soul or of the monad itself (which is the result of both of these principles) with the mass or with other monads.

(Letter to des Bosses, 30 Apr. 1709: L.II.972)

In the 1715 postscript, the union of the entelechy and primary matter results in a composite substance, not in a simple one.

(5)

The monad had also been defined as the combination of primary matter and substantial form in the correspondence between Leibniz and de Volder.

Properly and exactly speaking, perhaps we should not say that the primitive entelechy impels the mass of its own body, but that it is merely combined with a primitive passive power (potentia) with which it constitutes (constituit) a monad.

(Letter to de Volder, 20 June 1703: L.II.862)

and again in the same letter,

I regard substance itself, being endowed with a primitive active and passive power (potentia), as an indivisible or perfect monad.

(ibid: L.II.863)

I therefore distinguish: (1) the primitive entelechy or soul, (2) primary matter (materiam) or primitive passive power (potentiam), (3) the complete monad formed by these two.

(ibid: L.II.864)

The problem can be stated in a different way. In Specimen
Dynamicum. Leibniz equated primitive active force and the soul or substantial form.

Primitive active force (vis), which is nothing but the first entelechy, corresponds to the soul or substantial form. (1695: L.II.714) (6)

It would seem that before 1709, Leibniz's monads consist of both primitive active force and primitive passive force, but that by 1715, the monad has become primitive active force alone (i.e. the soul), and that corresponding changes have been made to the concept of primitive passive force. But because he equates souls and primitive active forces, it is not possible for Leibniz to maintain both that souls are monads and also that monads are primitive active and passive forces.

The above discrepancy has not gone unnoticed by Leibniz's critics. Both C.D. Broad and H.R. Parkinson point to the fact that Leibniz frequently defines his monads as souls or substantial forms, and just as frequently as combinations of primary matter and substantial form.

Broad (7) attributes Leibniz's equation of souls (entelechies) and monads to carelessness. He also attempts to explain the discrepancy by appealing to differences between Plato's and Aristotle's theories of the soul. According to Aristotle, the soul is never separated from an organic body.

And for this reason those have the right conception who believe that the soul does not exist without a body and yet is not itself a kind of body. For it is not a body, but something which belongs to a body. (De Anima, Bk.2, Chap.2, 414a19: Hamlyn p.14)
Broad argues that when Leibniz follows Aristotle, the monad is defined as a combination of form and primary matter, but that when he follows the Platonic or Cartesian view under which souls and forms are complete substances which do not have to be attended by matter, the monad is defined as the soul itself. This is an acceptable account of how the discrepancy arose, but it does not fully exonerate Leibniz, who should have been careful not to mislead his readers with respect to what is arguably the most basic concept in his metaphysics.

Moreover, reference to Plato and Descartes in this connection is an unnecessary complication. Aristotle himself sometimes speaks of the soul, in its capacity as the essence or form of the body, as a substance in its own, independent right. He distinguishes between the mind or intellect (nous) and the soul (psyche). The Active Intellect is separate from matter, and is eternal and immortal. He says of it that,

it seems to be a different kind of soul, and this alone can exist separately, as the everlasting can from the perishable. (De Anima, Bk.2, Chap.2, 413b24: Hamlyn p.13)

If it is the case that Leibniz's monads are souls only when these souls are minds separable from matter, then they could be said to correspond to Aristotle's 'nous'. Aristotle's 'psyche' (soul) is in all organisms and is always joined to matter (body). Leibniz's souls, when these are considered as parts of the monad composed of soul and body, could be said to correspond to Aristotle's 'psyche'.
Evidence for the view that for Leibniz human beings have minds, souls and bodies is scarce, but can be found. In his *Refutation of Spinoza*, he wrote:

It must not be believed that the mind exists without feeling or without a soul. A reason without imagination and memory is a conclusion without premises. Aristotle, also, thought that 'nous', mind, or the acting intellect remains, and not the soul. But the soul itself acts and the mind is passive. (Refutation of Spinoza, c.1708: Duncan p.181)

Here Leibniz distinguishes between mind and soul in the same man. Nevertheless, although Leibniz is aware of Aristotle's distinction, he does not adopt the Aristotelian view in total. Leibniz agrees with Aristotle in so far as he distinguishes mind and soul and allows both in the same man, but Leibniz grants indestructibility to both mind and soul. Aristotle grants this only to the mind. However, for our purposes here it is sufficient to recognise that Aristotle's distinction between mind and soul may be at the root of Leibniz's differing definitions of monads.

Parkinson believes that there is no actual inconsistency in Leibniz's definitions of a monad both as a soul and as a soul together with its body. He writes,

In implying that a substantial form is an aspect of a substance, Leibniz may be thinking of a substance as something which strives for a certain end, while to say that a substance is form alone might serve to make the point that a substance cannot be extended, and that any distinction between form and matter - i.e. that which has the form - must not be made in terms which imply that extension is real. (Logic and Reality, p.171)

But actually, Leibniz can say that a substance cannot be
extended and still retain his definition of the monad as primitive active and passive force because forces are not extended. And even if Leibniz maintains that the monad is a combination of substantial form or soul and primary matter, again this need not imply that the monad is extended, so long as we remember that Leibniz is using the Scholastic notion of primary matter, because this does not necessarily include the notion of extendedness (8).

Dieter Turck (9) quotes a passage from Leibniz’s correspondence with des Bosses in which Leibniz asserts that when he says that the soul is a monad, he does so only in order to refute the Cartesian doctrine of occasional causes. Descartes had used a Platonic notion of the soul. Leibniz, in order to refute Descartes on his own ground, temporarily also adopted the Platonic notion of the soul. Here is the passage referred to by Turck:

I have stated in my previous letters that the soul enters into the actions of the body not through thinking, that is insofar as it is spiritual or free, but as the primitive entelechy of the body, consequently only through mechanical laws. In my articles in French, however, on the system of pre-established harmony, I considered the soul exclusively as a spiritual substance, and not at the same time as the entelechy of the body; for the reason that this was not pertinent to the matter with which I was concerned, namely to explain the agreement between body and mind: nor did Cartesians expect anything else. (17 March 1705: G.II.307)

Perhaps it could be claimed that Leibniz prefers the view of the monad as a soul together with primary matter, and that he only calls the soul a monad in order to simplify his account of the relationship between the mind and its body. This would
imply that the monad can only be a soul together with primary matter when the soul is considered as a primitive entelechy, and that only when the soul is considered as a spiritual substance, can it be regarded as capable of existence separate from its body (10). We presume that Leibniz felt that he had somehow to separate the mind and the body before he could explain how they were united. This may perhaps explain his disregard of the soul in its capacity as the primitive entelechy of the body, even though it might have been expected that this aspect of the soul would in fact be of the utmost importance to any explanation of the relationship between the mind and the body.

Of the other commentators on Leibniz, Carr, Rescher and Russell fail to notice the problem at all. Salvatore Russo (11) divides Leibnizian scholars into two camps: 1. those who believe that the monad is a soul. These include Wolff, Erdman, Russell, Calkins, and Carr; and 2. those who believe that the monad is soul plus body. These include Jacobi, Kuno Fischer, Dillmann and Dewey. As for ourselves, although we have indicated that both definitions are possible, our sympathies lie with the second camp, for we believe that the definition of the monad as a soul plus its body (as primary matter, not as secondary matter) is extremely useful. This should become clear in later chapters (12).

Our initial motivation for adopting the definition of a monad as a soul or substantial form together with primary
matter is because it gives us an opportunity to investigate the notions of primary matter and primitive passive force (13). We find that Leibniz uses primitive passive force to account for the monad's confused perceptions (14), and obviously, he cannot do this if the monad is only a soul. Nor is it desirable that Leibniz deny that the monad has confused perceptions. These are essential for the monad's contact with an external world (15) and for the monad's individuality (16). Primitive passive force also plays a large part in Leibniz's explanation of the body's resistance (17).

Let us for a moment consider what happens to primary matter if the monad is a soul on its own. Primary matter is no longer a part of the monad. Can it be a part of the composite substance when the monad is a soul? We know that Leibniz did sometimes attribute primary matter to the composite substance (18). In a letter to des Bosses of 21 April 1714, he says of composite substance that it,

will have to consist (consistere) of the primitive active and passive power (potentia) of the composite being, and this will be what is called primary matter and substantial form. (L.II.991) (19)

Similarly, in a paper usually thought to have been written sometime around 1711, Leibniz wrote that he had published some essays in the Acta Eruditorum of Leipzig in which he concludes that,

bodies are thus composed of two natures - a primitive active force (force) (called first entelechy by Aristotle) and matter or primitive passive force (force), which seems to be antitypy.
(Conversation of Philarete and Ariste: L.II.1014)

Philarete, expounding Leibniz's views, further explains that,

This primitive active force (force), which could be called life, is precisely what is contained . . . in what we call a soul or in simple substance. It is an immaterial, indivisible, and indestructible reality; he [Leibniz] locates it everywhere in the body, believing that there is no part of matter where there is not an organised body endowed with some perception or with a kind of soul . . . corporeal substance is composed of soul and matter.

(ibid: L.II.1015)

In both of these works, Leibniz has equated primary matter and primitive passive force (20), and attributed it to the composite substance. Although Leibniz's equation of primitive passive force and primary matter is common (21), there are exceptions. In another letter to des Bosses (5 Feb.1712: L.II.975), Leibniz claims that 'primary matter or the impulsion [exigentia] to extension and antitypy' arise out of the 'union of the passive power (potentiae) of the monads'. When primary matter is regarded in this way, the monads must have primitive passive force. They cannot in this case be only souls. This is obvious from the fact that Leibniz wants primary matter to arise out of the union of the primitive forces of the monads. Monads must here be combinations of both active and passive primitive forces.

In the postscript of the letter to des Bosses of 19 August 1715 (L.II.1003), Leibniz defines the monad as a mind or soul and the composite substance as a substantial form and primary matter. Leibniz cannot claim that the composite substance's primary matter arises out of the union of the
passive forces of the monads, for in this case, the monads have no passive force. Leibniz can claim that the composite substance's substantial form arises out of the union of the monad's primitive active forces, for these have not been denied of the monads, but there is nothing in the monads from which the composite substance's primary matter could arise. Primary matter cannot arise from the union of the monads' primitive active forces, for what is passive cannot arise from that which is active. An aggregate of primitive active forces (i.e. souls) can only give us an aggregated active force. It cannot give us an aggregated passive force, or primary matter. It follows that primary matter cannot be a part of the composite substance if the monad is a soul without primitive passive force. Only if primary matter and primitive passive force are distinguished, and primitive passive force is said to be a part of the monad, can the aggregate of monads have primary matter.

In another letter to des Bosses, Leibniz implies that, rather than primary matter arising from the union of the primitive passive forces, primary matter is identical to primitive passive force, and the union of these primary matters gives rise to a 'principle of resistance':

if there are only monads with their perceptions, primary matter will be nothing but the passive power (potentiam) of the monads, and entelechy will be their active power. But when you add composite substances, I must say that there must be added to these a principle of resistance to the active principle or motive force.

(20 Sept.1712: L.II.988)

It might be the case that Leibniz later equated this principle
of resistance with primitive passive force, making the latter a characteristic, not of the monad, but of the composite substance.

In the months separating the letters to des Bosses of 5 Feb. 1712 and 20 Sept. 1712, Leibniz has moved from the position of claiming that primary matter arose out of the union of the passive forces of the monads to the position of claiming that primary matter and primitive passive force are identical, and of replacing the composite substance's primary matter by a principle of resistance. By 1714 (letter to des Bosses, 21 Apr. 1714: quoted above), Leibniz has reverted to the 1711 view put forward in the Conversation of Philarete and Ariste, now equating primary matter, primitive passive force, and the principle of resistance, and attributing it to the composite substance. The monad has now become a soul on its own, and Leibniz is left with the problem of accounting for the presence of a passive force in what is an aggregate of active forces.

Our investigation into the nature of the monad is not yet at an end. Leibniz, it seems, was not content with only two definitions of monads - one of the monad as a soul and the other of the monad as a soul together with primary matter. In a letter to John Bernoulli, he writes,

I call a complete monad or substance not so much the soul, as the animal itself or something analogous, provided with a form and an organic body.

(Letter to John Bernoulli, 20/30 Sept. 1698) (22)

Monadem completam seu substantiam voco non tam animam, quam
According to Leibniz, an organic body is a collection of monads:

And *materia secunda* (as, for instance, the organic body) is not a substance . . . because it is a collection of several substances, like a pond full of fish, or a flock of sheep.

(Letter to Remond, 1715: G.III.657, Latta's transl. pp.96-7) (23)

When this organic body is ruled over by a soul, the resulting animal is said to be the monad. If we compare this definition with the postscript in the letter to des Bosses, we can see that the monad as soul plus organic body is similar to, but not identical with, that which, in the postscript, is called a substance, provided that the postscript is interpreted in the way we explained, i.e. such that the substance is both simple and composite.

It is not possible, without contradiction, to accept all three of the possible definitions of monads simultaneously. In the correspondence with des Bosses, the simple substance is a soul or mind; the composite is primitive active and passive force. The composite substance in the des Bosses correspondence is the same as that which is a monad in the de Volder correspondence. Neither of these definitions of monads is identical with that from the correspondence with John Bernoulli. In the letter to Bernoulli, the monad is a soul (i.e. a monad as in the des Bosses correspondence) together with an organic body. This organic body is an aggregate of substances, and is therefore secondary matter, not primary
matter. The monad as soul and primary matter is not the same as the monad as soul and organic body (24). In the correspondence with John Bernoulli, the monad is both simple and composite. It will be the 'substance' defined in the 19 Aug.1715 letter to des Bosses, if the composite substance in the des Bosses correspondence is taken to be analogous to the organic body of the Bernoulli-monad.

In this chapter we have looked at definitions of monads found in the correspondences with de Volder, des Bosses and John Bernoulli, and in the Conversation of Philarete and Ariste. It will be helpful to summarize these findings.

A. In the correspondence with des Bosses, monads are souls or minds. Composite substances are combinations of substantial form and primary matter, or of primitive active and passive force. This is true of the correspondence only after 1713. Before 1713, the monad is defined as in (E).

B. In the correspondence with de Volder, the monad is a combination of the primitive entelechy or soul and primary matter or primitive passive force, and the corporeal substance is a dominant monad together with an organic body (Leibniz to de Volder, 20 June 1703: L.II.864). Assuming that the primitive entelechy or soul is also primitive active force in this correspondence, the monad here is the same as the composite substance defined in (A).

C. In the correspondence with John Bernoulli, the monad is
a combination of soul and organic body. This is similar to the corporeal substance in the correspondence with de Volder, except that in the de Volder definition, the animal (corporeal substance) has a dominant monad (soul and primary matter), while in the Bernoulli definition, the animal (monad) has a soul, which cannot itself be a dominant monad (soul and organic body).

D. In the *Conversation of Philarete and Ariste*, the body (composite substance) is composed of primitive active and passive force. This corresponds to the composite substance of the des Bosses correspondence and to the organic body in the Bernoulli correspondence.

We now have the following possibilities open to us:

Monads may be either:  
1. souls or minds
2. primitive active forces
3. substantial forms (25)
4. primitive active force and primitive passive force
5. soul and primary matter (26)
6. soul and organic body

Further permutations of no. 6 are possible depending on whether or not nos. 1, 2, and 3 are equivalent to each other. It is even possible that Leibniz's souls are the same as the monad in no. 4 (27). If this were the case, the combination of soul and organic body would be a combination of dominant and subordinate monads. This, however, would entail that there be monads within
monads - a view which Leibniz would have found difficulty in embracing, because of his doctrine of the simplicity of substance.

Composite substances consist of primitive active and primitive passive force. Corporeal substances consist of a dominant monad as in nos. 4 and 5 above and an organic body (secondary matter) (28).

At the moment our concern lies more with the monads than with corporeal or composite substances, and in particular with the definitions of the monads given in nos. 4 and 5 above (29). In chapters 2 through to 5, we investigate the notions of primary matter and primitive passive force. In the main, we will assume that primitive passive force and primary matter are identical, although Leibniz sometimes denies this. Our reason for treating them as identical rests on the premise that the Aristotelian and Scholastic sense of 'ultimate substratum' adopted by Leibniz in his definition of primary matter points towards primary matter as an element of the simple monad, and not to it as an element of a composite substance. As an element of the monad, primary matter must be equivalent to primitive passive force.
CHAPTER TWO

PRIMARY MATTER

In the New Essays (Bk.3, Ch.10, §15: R&B 344) Leibniz cites Aristotle on primary matter (Metaphysica Z, 1029) saying that he has 'nothing against' what Aristotle says of it there. There, Aristotle wrote:

By matter (hyle) I mean that which in itself is neither a particular thing nor of a certain quantity nor assigned to any other of the categories by which being is determined. (The Works of Aristotle, vol. VIII)

Primary matter is the 'ultimate substratum', which is,

of itself neither a particular thing nor of a particular quantity nor otherwise positively characterized; nor yet is it the negations of these, for negations also will belong to it only by accident. (ibid.)

We cannot, therefore, attribute, either positively or negatively, any quality or quantity whatsoever to primary matter. Rather, primary matter is that which is left when our mind tries to think of a body without also thinking of qualities which belong to that body:

When all else is stripped off evidently nothing but matter remains. For while the rest are affections, products, and potencies of bodies, length, breadth, and depth are quantities and not substances (for a quantity is not a substance), but the substance is rather that to which these belong primarily. (ibid.) (1)

Both quantity and quality belong to the substance. The substance is not primary matter, but the conjunction of matter and form. In Aristotle's view, primary matter cannot be found
alone in the world, because without some form, one bit of primary matter can have no quality or quantity by which it could be distinguished from any other bit of primary matter (2). Because of this, Aristotle writes,

If we adopt this point of view, then, it follows that matter is substance. But this is impossible; for both separability and 'thisness' are thought to belong chiefly to substance. And so form and the compound of form and matter would be thought to be substance, rather than matter. (ibid.)

Elsewhere, Aristotle distinguished three elements in individual substances - form, matter and privation. Of privation, he says that it, 'in its own nature is not-being' (Physica, 192a: The Works of Aristotle, vol.II). Privation is absolutely nothing. It does not contain even the possibility of actuality. Primary matter, on the other hand, even although it is nothing, can still be referred to as something potential. Aristotle's primary matter has or contains privation (3). There is an infinite number of things which we could say that matter is not, but the very fact that we can say that it is not these things means that matter has the potential to take on the forms of any of these things which it is not. (Compare privation: we cannot even say of this that it is not something). Aristotle believed that matter could not have the potential to become something, if it was not already something, albeit something potential. He believed that something could not arise out of nothing, and so he concludes that primary matter is indeed something.

But as potentiality it does not cease to be in its own nature,
but is necessarily outside the sphere of becoming and ceasing to be. For if it came to be, something must have existed as a primary substratum from which it should come and which should persist in it; but this is its own special nature, so that it will be before coming to be.
(Physica, 192a: ibid. vol.II)

For instance, the primary matter which at the present moment has the form of wine, also has the potential to become vinegar. It also has privation because it has not yet become vinegar. Primary matter is what persists throughout the change from wine to vinegar.

For my definition of matter is just this - the primary substratum of each thing, from which it comes to be without qualification, and which persists in the result.
(ibid. vol.II)

When the wine becomes vinegar, the privation (of not-being vinegar) ceases, but the primary matter continues, having only taken on a new form (and a new privation - that of not-being wine) (4).

Does Leibniz agree with Aristotle on the nature of primary matter? Certainly he does not grant it the status of substance:

Primary matter is merely passive, but not a complete substance.
(On Nature Itself, or On the Inherent Force and Actions of Created Things. Sept.1698: L.II.819)

and he agrees that it is never found alone in the world without an accompanying form:

Materia prima is essential to every entelechy and can never be separated from it, since it completes it, and is itself the passive potentiality of the whole complete substance.

On the other hand, Leibniz may desert Aristotle when he attributes properties to primary matter, if these properties are analogous to the qualities which Aristotle refuses primary matter. In the very same passage in which he refers to Aristotle’s *Metaphysica*, Leibniz makes Theophilus tell Philalethes that,

> it is not as useless as you think to reason in general natural science about prime matter and to determine its nature - whether it is always uniform, whether it has any essential properties other than impenetrability (in fact I have shown ['On Nature Itself' pp. 503f], following Kepler, that it also has what could be called 'inertia').

(New Essays on Human Understanding, Bk. 3, Ch. 10: R&B 344) (6)

Moreover, also contrary to Aristotle, Leibniz might be obliged to attribute quantity to matter because he believes that primary matter can be increased and decreased (7). This implies that there is some quantity of matter which is increased or decreased. It might, however, be possible for Leibniz to claim that primary matter can only have a particular quantity when it is joined to a form (8).

Nor does Leibniz make the Aristotelian distinction between primary matter and privation. Nevertheless, he retains the idea of matter as that which persists throughout change, although he can only do so if he keeps primary matter as part of the enduring monad. He also retains the notion of primary matter as potentiality. For Aristotle, the soul actualizes what the body already has potentially. Similarities could be drawn between this doctrine and the Leibnizian idea of the soul or
form as that which gives reality or actuality to a body. One important difference between them, though, is that, for Leibniz, primary matter is also that which hinders the full actualization of the form (9).

In addition to acknowledging his debt to Aristotle, Leibniz also appeals to the Scholastics with regard to primary matter.

The *primitive force of suffering* or of *resisting* constitutes the very thing which the Scholastics call *materia prima*.  
( Specimen Dynamicum, Pt. 1, 1695: L.II.714)

Now, we would not expect all Scholastic philosophers to mean the same thing when they speak of primary matter (10). For a full investigation of Leibnizian primary matter, we would have to determine which particular Scholastics Leibniz is referring to. However, there are some characteristics of primary matter which most Scholastics accepted, so we will assume these to be the same characteristics which Leibniz wants to apply to his primary matter. Desmond Henry (11) explains that the Scholastics used primary matter to signify, 'matter as mere substratum, totally devoid of any formal aspect'. If we take this definition as common to all Scholastic philosophers — it is general enough to make this not unlikely — then Leibniz can be said to agree.

When I said that *primary matter* is that which is merely passive and separated from souls or forms, I said the same thing twice, for it would be the same if I had said that it is merely passive and separate from all activity.  
(Letter to John Bernoulli, 18 Nov.1698: L.II.830) (12)
As with Aristotle, the Scholastics adopted the notion of primary matter as a result of looking at and questioning the ability of things in the world to change their form. Matter, in the sense of Leibniz's secondary matter, changes its form frequently. Wood is burnt to ashes; coal to cinders; stone is weathered until it becomes sand; and wine ferments into vinegar. Both Aristotle and the Scholastics believed that something endured throughout these changes. What endured, they called 'primary matter'.

Of all the Scholastics, Thomas Aquinas is probably closest to Leibniz and Aristotle as regards primary matter. Aquinas agrees that primary matter is never found without form:

Though there is pure actuality without potentiality, there is never in nature a potentiality that is not related to some actuality; thus there is always some form to primary matter. (Disputations, de Spiritualibus Creaturis I: Gilby 434)

This quotation also shows that Aquinas, like Leibniz, considered primary matter to be potentiality. Aquinas also makes the Aristotelian, but non-Leibnizian, distinction between primary matter and privation. As with Aristotle, privation is something which can belong to primary matter.

Now, the subject of privation and of form is one and the same - viz., being in potentiality, whether it be being in potentiality absolutely, as primary matter, which is the subject of the substantial form and of the privation of the opposite form; or whether it be being in potentiality relatively. . . (Summa Theologica, Pt.1, Qu.48, Art.3: Pegis 468)

Also common to Aristotle and Aquinas is their use of
primary matter as a principle of individuation. Aristotle at *Metaphysica* Z, 1034a writes that,

> when we have the whole, such and such a form in this flesh and in these bones, this is Callias or Socrates; and they are different in virtue of their matter (for that is different), but the same in form; for their form is indivisible.

*(The Works of Aristotle, vol.VIII)*

Aquinas writes,

> Numerically distinct substances do not differ merely by their accidents, but also by matter and form. If one asks why one form differs from another of the same kind, no other explanation can be offered except that they are in different determinate matters. Nor can it be discovered how matter comes to be ear-marked otherwise than because of quantity. Therefore matter as subject to dimensions is indicated as the principle of this diversity.

*(Opusc. XVI, Exposition, de Trinitate, iv.2, ad.4: Gilby 451)*

(13)

And in the *Summa Theologica*:

> Forms which can be received in matter are individuated by matter, which cannot be in another as in a subject since it is the first underlying subject; although form of itself, unless something else prevents it, can be received by many.

*(Summa Theologica, Pt.1, Qu.3, Art.2: Pegis 28)* (14)

(14)

It should be noted that we are here concerned with the individuation of individuals within the same species. Aristotle and Aquinas held different views regarding the division of nature into species and genera, etcetera.

Any account of individuation which uses matter as an explanation must satisfy the following objection. Primary matter, being without form, has no characteristics by which some primary matter could be distinguished from some other
primary matter. In a word, primary matter is homogenous. If the same form attached itself in two separate instances to identical amounts of primary matter (15), there would result two material objects, absolutely identical with one another (apart from their spatio-temporal characteristics). The same form in the same matter can only produce a number of identical individuals.

To Aquinas's credit, it must be said that he did recognise this problem. This is why he believed that only 'determinate matter' can individuate (16). But what is determinate matter? It cannot be matter which has form. Aquinas seems to have thought that it is matter which has some quantity. In the quotation given above he says that matter can individuate only when it is, 'subject to dimensions'. Only quantified matter, it would seem, can take on a form. In this Aquinas may agree with Leibniz (17). Aquinas avoids the retort that quantified matter must already have a form which determines its quantity, by claiming that quantity is 'self-individuated'. It is so because 'the position or order of parts in the whole is implied in its very meaning' (IV Contra Gentes, 65: Gilby 452). Aquinas goes on to say that,

Wherever there is diversity of parts in the same species there also is individuation implied, for what are of the same kind are not repeated except individually. Because the category of dimensive quantity alone carries this separation of specifically similar units, dimensions would appear to lie at the root of individual multiplication. (ibid: Gilby 452)

We do not wish to enter into a discussion of the merits and
demerits of Aquinas's view. It will be sufficient here to contrast it with Leibniz's views. Actually, Leibniz uses a very similar account to explain how motion can occur in a plenum. In the New Essays on Human Understanding, Leibniz writes that,

we should think of space as full of matter which is inherently fluid, capable of every sort of division and indeed actually divided and subdivided to infinity; but with this difference, that how it is divisible and divided varies from place to place, because of variations in the extent to which the movements in it run the same way.

(New Essays, Preface: R&B 59)

However, as an account of individuation, this would not have satisfied Leibniz. The parts of Aquinas's individuated whole are, as he says, 'specifically similar'. They themselves are in need of a principle of individuation. Perhaps Aquinas could say that they are individuated by their particular positions and orders with respect to each other within the whole. But for Leibniz, this would be impossible, because for him, the position and order of the parts is itself an outcome or result of the individuality of the units. The positioning and ordering of the parts cannot be the reason for their individuality.

Aquinas might also have argued that the parts of the whole are themselves wholes with other parts within them, whose order and position individuates the (part-) wholes. This would result in either 1. an infinite regress of parts which are individuated by being composed of smaller parts, in which case, everything would be compound, or 2. at some point we must arrive at an indivisible whole, or at a whole without parts (for instance, Leibniz's monads). Of these indivisible wholes, we can say that they cannot be individuated using Aquinas's concept of
determinate matter (18).

Leibniz differs from both Aristotle and Aquinas in finding the principle of individuation to lie, not in matter, but in form. The concept of form is not our present concern. Forms as individuators will be discussed in chapter 8 (19).

In our comparison of Leibniz with Aristotle and Aquinas regarding primary matter, we have seen that Leibniz agrees with both philosophers on the majority of points: for instance, that primary matter is devoid of form; that it is not a substance; that it is never to be found without an accompanying form; and that its nature is potentiality, not actuality. Where Leibniz differs from them is in not recognising privation; in not making primary matter a principle of individuation; in finding a relation primary matter and the inertia and impenetrability of material bodies (20); and in sometimes regarding primary matter as a force, namely, as a primitive passive force (21). Leibniz diverges further from Aristotle and Aquinas by relating primary matter to fluidity:

there is no body, however small, which has no elasticity and is not thus permeated by a still subtler fluid; and thus that there are no elementary bodies, nor any most fluid matter, nor any solid globes of some second element, I know not what; but that analysis proceeds to the infinite. (Specimen Dynamicum, Pt.2, 1895: L.II.731)

The subtle most fluid matter is primary matter.

I think that perfect fluidity is appropriate only to primary matter - i.e. matter in the abstract, considered as an original quality like motionlessness. But it does not fit secondary matter - i.e. matter as it actually occurs,
invested with its derivative qualities.
(New Essays, Bk.2, Chap.23: R&B 222)

je crois que la fluidite parfaite ne convient qu'a la matiere premiere, c'est a dire en abstraction, et comme une qualite originale, de meme que le repos; mais non pas a la matiere seconde, telle qu'elle se trouve effectivement, revetue de ses qualites derivatives.
(G.V.206)

Bodies possess primary matter, but it does not follow that there are any perfectly fluid elementary bodies, because primary matter is never found alone without form. Primary matter without form is an abstraction, and only as such is it perfectly fluid. There is primary matter in bodies, but this is always only as an element of a monad. The other element of the monad is the form. Bodies are aggregates of monads (secondary matter) and are infinitely divisible, due to the fact that every monad has an organic body which is again composed of monads with their own organic bodies. Leibniz even attributes the infinite divisibility of secondary matter to primary matter, saying that it is the principle of divisibility:

But if one were to understand by the term 'matter' something that is always essential to the same substance, one might in the sense of certain Scholastics understand thereby the primitive passive power of a substance, and in this sense matter would not be extended or divisible, although it would be the principle of divisibility or of that which amounts to it in the substance.
(Letter to Arnauld, 9 Oct.1687: Mason pp.153-4)

It might be objected that it does not follow from the above quotation that Leibniz himself viewed primary matter as the principle of divisibility of an extended substance, on the grounds that in this passage he is merely stating what would be
the case if matter were essential to substances. However, we
know that Leibniz did sometimes think that matter was essential
to every substance (bar God). A monad’s secondary matter
(organic) body can change, but the primary matter (of the
monad) remains unchanged, and is always a part of the same
monad. Moreover, we know that Leibniz did, in the main, accept
the Scholastic definition of primary matter. It is therefore
not unreasonable to interpret the passage as positive evidence
for the fact that Leibniz’s primary matter is the principle of
divisibility.

Materia prima, then, is both the principle of
divisibility of extended substances and the most subtle fluid
which is never reached because of the divisibility of the
extended substance. Primary matter is both that which is never
reached in the division of substances, and also the reason why
it is never reached. We could add that it must also be the
reason why the attempt to find a most subtle body can be made.

Leibniz may have found it more to his advantage to have
made form rather than matter, the principle of divisibility. In
chapter 6 (22) we explain the connections in Leibniz’s work
between the form and the boundaries of bodies. When a body is
divided (e.g. cut), we merely make more explicit a boundary
which already separated the parts. This boundary is there
because the parts have form. For this reason, it may have been
more sensible for Leibniz to have made form the principle of
divisibility of extended substances. Also, if form were the
principle of divisibility, primary matter would no longer be
called upon to fulfil the dual role of being at once both that which is never reached when an extended substance is divided and also the reason why it itself is never reached. If form were the principle of divisibility, it could then be said that the form is the reason why secondary matter is infinitely divisible and also the reason why perfectly fluid bodies are never reached. Forms can provide a reason for the infinite divisibility of secondary matter because they are responsible for the individuation of the secondary matter's parts, while the fact that the division of secondary matter never ends could be explained by the fact that every monad has some primitive active force. This last reason is also an explanation of the absence of perfectly fluid bodies.

The connection between primary matter and perfect fluidity allows Leibniz to say that monads with a lot of primitive passive force and very little primitive active force constitute the subtle matter found at the lower levels of matter. Perfectly fluid or subtle matter would only be actual if there could exist monads which had no primitive active force. But such monads, according to Leibniz, are never found, and so division proceeds to infinity. No matter how far we divide, more subtle matter will always be possible.

We said that the perfect fluidity of primary matter is another point of contrast between the primary matter of Aristotle and Aquinas and that of Leibniz. Leibniz also differed from them in the way in which he arrived at the
concept of primary matter. Aristotle and Aquinas were both searching for an enduring something which would ensure the continuing identity of any changing object or being. The closest Leibniz comes to reasoning of this kind is when he says that silver cannot be merely the sum of its qualities because it also needs primary matter as something for the qualities to belong to (New Essays, Bk.3, Chap.10: R&B 344). It is interesting that this occurs immediately before a passage in which Leibniz declares his acceptance of the Aristotelian definition of primary matter.

It is more common to find Leibniz arguing for the presence of primary matter from the inertia and impenetrability of material bodies. In the Leibniz-de Volder correspondence, Leibniz argues from the fact that inertia and impenetrability are proportional to the body's extension to the statement that 'it is in them that I locate the nature of the passive principle or of matter' (24 March/3 April 1699: L.II.840). Elsewhere (On Nature Itself, Sept.1698: L.II.818), he again argues that matter is not, 'indifferent to rest and motion' but has, 'an active force proportional to its magnitude' with which it strives toward motion, and a 'passive force of resistance' in which, he says, he locates,

the concept of primary matter or mass [molis], which is everywhere proportional in a body to its magnitude. (ibid.: L.II.818)

Peculiarities concerning these views will be discussed later, after the following more general exposition of the concepts of
resistance and derivative forces in Leibniz's thought.
CHAPTER THREE
DERIVATIVE FORCES

Primitive forces belong to, or rather are, the monads. Leibniz also makes use of the concept of derivative forces. It is the effects of derivative forces which we see in the material world of phenomena. As with primitive forces, derivative forces can be either active or passive. Primitive and derivative forces are related to each other in a way which we will now attempt to explain.

Derivative or 'accidental' forces are, says Leibniz, 'mere modifications'. (Letter to de Volder, 10 Nov. 1703: L.II.867). Modifications, he explains in the same letter, are transitory or temporary. They either happen to a substance now (i.e. in the present) or in the future. Leibniz does not say that modifications can happen to a substance in the past. (Presumably, they cannot happen in the past because, in these cases, the modification has already taken place and its temporary life has expired.) Leibniz also claims that if a modification is not present, then other modifications must occur between the present time and the future time when the modification does occur. In other words, Leibniz believed in a temporal continuum of modifications:

we must distinguish between properties which are perpetual and modifications which are transitory. Whatever follows from the nature of a thing can follow from it permanently or temporarily, and, if temporarily, either at once and immediately, that is, in the present, or by the mediation of some prior modification, so that it is future. (ibid.: L.II.868)
It should also be observed that this comparison between modifications and properties reveals that nothing can be both a property and a modification of the same thing at the same time.

Are derivative forces modifications of the monads (i.e. of the simple substances) or of the composite substances? The view is taken here that they are modifications of simple substances, because Leibniz himself says that,

Derivative forces are in fact nothing but the modifications and echoes of primitive forces.
(Letter to de Volder, 20 June 1703: L.II.863) (1)

In another letter to de Volder, Leibniz elaborates on the notion of derivative force, saying that it,

is itself the present state when it tends toward or pre-involves a following state, as every present is great with the future. But that which persists, insofar as it involves all cases, contains primitive force, so that primitive force is the law of the series, as it were, while derivative force is the determinate value which distinguishes some term in the series.
(21 Jan.1704: L.II.869)

(Vis autem derivativa) est ipse status praeens dum tendit ad sequentem seu sequentem prae-involvit, uti omne praeens gravidum est futuro. Sed ipsum persistens, quatenus involvit casus omnes, primitivam vim habet, ut vis primitiva sit velut lex seriei, vis derivativa velut determinatio quae terminum aliquem in serie designat.
(G.II.262)

Derivative forces, then, are modifications of primitive forces and are related to primitive forces in the same way as a particular term in a series is related to the law of the series (2). It follows from this that derivative forces are
modifications of simple substances. We can ask further whether in any animate being, the derivative force of its organic body is a modification of the primitive force of the dominant monad, or a modification of the primitive forces of the subordinate monads which compose or result in the organic body itself. We should perhaps answer that derivative force is a modification of the dominant monad, because this will mean that derivative force is a modification of the law of the series, and the law of the series is primitive force.

However, we do not want to conclude that derivative force is a modification of the dominant monad's primitive forces, for claiming this provokes many contradictions and problems concerning 1. Leibniz's views on the relations between primary matter and resistance (3), and 2. his modification of primitive forces as perceptions (4).

Nevertheless, all is not lost. Leibniz's use of 'velut' ('as it were') in the passage quoted immediately above allows us to interpret him there as saying that, although derivative force is a modification of primitive force, it is not a modification of the primitive force which is the law of the series, even though it is related to the primitive force of which it is a modification in the same way as a modification which is a term in the series will be related to the primitive force which is the series. In other words, Leibniz's use of 'velut' in relation to derivative force enables us to claim that derivative force is not a term in the series of any one
monad. (Observe, however, that his use of 'velut' in relation to primitive force does not allow us also to claim that any one individual monad is not a law of a series. Since the monad is only primitive active and primitive passive force, if it is to have a law at all, this law will have to be identical with one or other or both of these forces. Later we will argue that Leibniz equates the law of the series with primitive active force alone (5)).

If derivative force is not a term in a law of a series, it is possible to say that it is a modification of the primitive forces of the subordinate monads when these forces are aggregated into bodies. It follows from this that, rather than being a modification of any one individual law of the series, derivative force will be a modification of an aggregate of such laws. Also observe that in claiming that derivative force is a modification of an aggregate of monads, we are not also claiming that derivative force is a modification of a corporeal substance, where a corporeal substance is that which has both subordinate monads and a dominant monad, and where the dominant monad provides the unity necessary for the corporeal substance to be a substance at all. Instead, we are interpreting derivative force as a modification only of the subordinate monads taken collectively, and not as a modification of the subordinate monads and the dominant monad taken together (6). In what follows, remember that when we speak of active and passive primitive forces as modified in derivative force, we are to be taken as meaning aggregates of
such primitive forces.

Derivative passive force must be a modification either of both primitive active and primitive passive force together, or of primitive passive force alone. It cannot be a modification of primitive active force alone, because Leibniz believed, quite rightly, that,

in things that are limited we need a principle of limitation, just as we need a principle of action in acting things. (Letter to de Volder, 10 Nov.1703: L.II.866)

Primitive passive force provides this very principle of limitation necessary to explain the derivative passive forces (or limitations) of material bodies. Primitive active force cannot do so. Passive force limits active force and in so doing, prevents any one created monad from being fully active, which only God is. Derivative passive force prevents any aggregate of monads from being fully active and must, therefore, be a modification of only primitive passive force.

It may at first be difficult to conceive how something passive can be modified. Would not this make what is passive even more passive? In English, the term 'modification' carries with it the idea of a reduction or decrease. To modify something is in some way to reduce it or to make it less strong. If Leibniz were using the term in this sense, then indeed if primitive passive force were modified, we would expect it to become even more passive. Leibniz, however, uses the term 'la modification' to mean 'the present state' of something. Present-day French does not ascribe this sense to
'la modification'. The *French Larousse Classique Illustrée* (7) defines 'la modification' as 'changement dans la maniere d'etre'. A change in something's being is not necessarily the same as that being's present state. A change is more likely to be the passage from one present state to the next. Larousse’s second definition - the 'changement qui se fait dans une chose, sans en alterer l’essence' - is closer to Leibniz’s meaning, for this contains the idea that the essence (the primitive force) remains unchanged by the modification. But even in this definition, a modification is still a change rather than a present state. To find the meaning Leibniz wants, we have to turn to the French noun 'le mode', which the Larousse dictionary defines as 'maniere d’etre' rather than as 'changement dans la maniere d’etre'. 'Le mode' can, without difficulty, be regarded as a 'present state' (of being) (8). But why, we may ask, does Leibniz use the term 'la modification' when the meaning he really wants is that of 'le mode'? Why is derivative force not said to be a mode of primitive force, rather than a modification of it? Our answer is easily found. Leibniz is using the Scholastic meaning of 'la modification', in which the term is synonymous with the term 'le mode' (9). 

We should note that at one point in the de Volder correspondence, Leibniz refers to modifications as 'varying limitations', saying that a modification is, merely a varying limitation, and modes merely limit things but do not increase them and hence cannot contain any absolute
perfection which is not in the thing itself which they modify. (10 Nov.1703: L.II.867)

As modes which 'limit' (limitant) things, the meaning of 'modifications' is closer to the way they are understood in the English language. However, we suggest that there may be a sense in which a 'varying limitation' can be understood which brings the present-day French meaning of 'la modification' closer to the Scholastic meaning of the word. It may be the case that a modification is a varying limitation because of the fact that, in the acting out in time of the nature of the substance, an infinite number of modifications are necessary. The limitation is always changing or varying, and so the modification never fulfils itself properly, but is instead always tending towards a limit. We could compare this to the Platonic idea that everything in the spatio-temporal realm never 'is' because it is always 'becoming'. Plato's answer was permanent forms in a non-spatio-temporal realm. Leibniz's answer was primitive forces constituting a substance which is itself neither spatial nor temporal.

This suggests that, at least insofar as modifications are concerned, there is little difference between a present state and a change from one present state to another present state, and that, hence, the difference between the present-day French meaning and the Scholastic meaning of 'la modification' is negligible. If the substance is always in a state of readiness to pass onto the next modification, it becomes difficult to say whether the modification is an instantaneous present state or a
change from one state to the next (10).

Because we are interpreting derivative force as a modification of primitive forces only when these are considered as aggregates, to understand a modification as a 'present state' of a substance, we must regard the aggregate body as a substance, although strictly speaking it is not a substance, because it is an aggregate of substances (11). A derivative force will be the present state of the aggregate, rather than the present state of any one individual substance. Indeed, derivative force is most easily understood as being the present state of an aggregate of substances rather than the present state of an individual monad, for it is aggregates of substances which have inertia and impenetrability (and motion), and these are the means by which the presence of derivative force in a body is made known.

It is for this reason that we said at the beginning of this chapter that derivative forces are those forces whose effects are seen in the material world. Derivative forces form the subject matter of the physical sciences. Although they are made evident to our senses by both the resistance and the motion of material bodies, for the time being, we will restrict our attention to the resistance of these bodies.

Leibniz uses the term 'resistance' both as a general term covering both inertia and impenetrability, and as a more specific term synonymous with inertia.

Thus the resistance of matter contains two factors:
impenetrability, or antitypy, and resistance, or inertia.
(Letter to de Volder, 24 March/3 Apr. 1699: L.II.840)

In what follows, to avoid confusion, the terms
'impenetrability' and 'inertia' will be used, reserving
'resistance' for its more general use.

Regarding impenetrability, it must be said that this is
not to be confused with the hardness or firmness of any
impenetrable body. Rather, impenetrability in a body only means
that another body cannot pass through it, but must either push
the impenetrable body out of its way, or itself go around it.
C.O. Broad interprets the impenetrability of a body as,

The fact that two bodies cannot at the same time continuously
occupy the same region.
(Leibniz: an Introduction, p.61)

This, however, is clearly a consequence, and not a definition,
of impenetrability.

The impenetrability of a body goes hand-in-hand with its
inertia. The inertia of a body is its opposition to change. The
body's impenetrability dictates that, in a collision, the
bodies must change their positions. Inertia can be either an
opposition to movement from a state of rest, or an opposition
to greater movement from a state of motion. C.O. Broad calls
these 'inertial quiesence' and 'inertial self-propagation'
respectively (Leibniz: an Introduction, p.62). In both cases,
the inertia of the body causes it to change from one state to
another state, whether that state be one of motion or of rest.
Leibniz himself recognised the distinction:
matter has been so created by God that there inheres in it a certain repugnance to motion and, to put it in a word, a resistance, insofar as the body in itself withstands being moved and thus opposes all motion if at rest, or all greater motive force applied in the same direction if in motion, so that it weakens the force of the impelling body.

(Letter to de Volder, 24 March/3 April 1699: L.II.839)

In fact, these two types of inertia differ only in degree and not also in kind, since for Leibniz there is no absolute rest. Rest is only a very small amount of motion:

True, a body without movement cannot impart any to itself; but I maintain that there is no such body.

(Letter to Arnauld, 9 Oct. 1687: Mason p.148)

Experimental evidence for the inertia of matter is found in the fact that,

more causality or force is needed to move a larger body at a given velocity than to move a smaller one at the same velocity.

(Letter to de Volder, 1699: L.II.849)

This movement cannot be explained merely by the fact that one body is larger than another, for if matter did not have a force of resistance, both bodies could be equally easily moved.

It is not always true that a larger body will require more force if it is to be moved at the same velocity as a smaller one. A larger lump of gold requires more force to be moved than a smaller lump of gold, but more force may be required to move an even smaller lump of mercury. Leibniz himself may have recognised this fact in a letter to Clarke when he wrote that,
it is not so much the quantity of matter, as its difficulty of giving place, that makes resistance. For instance, floating timber contains less of heavy matter, than an equal bulk of water does; and yet it makes more resistance to a boat, than the water does.

(Leibniz's Fifth Paper, §34, 18 Aug. 1716: Alex. p. 65)

Some matter, then, will resist more than other matter. There can be the same quantity of matter in two bodies and yet one of them resist more than the other does. Such a position is confusing if Leibniz equates primary matter and primitive passive force, and makes primitive passive force responsible for the resistance of matter, for then we would expect that the more primary matter a body has, the more resistance the body will exhibit (12).

We should observe that although Leibniz here says that floating timber contains less heavy matter than water and yet resists the boat more, in the following paragraph, he notes that non-heavy matter does not sensibly resist. Mercury (quicksilver), he says,

contains about fourteen times more of heavy matter, than an equal bulk of water does; but it does not follow, that it contains fourteen times more matter absolutely. On the contrary, water contains as much matter; if we include both its own matter, which is heavy; and the extraneous matter void of heaviness, which passes through its pores. For, both quicksilver and water are masses of heavy matter, full of pores, through which there passes a great deal of matter void of heaviness [and which makes no sensible resistance]; such as is probably that of the rays of light and other insensible fluids.

(ibid., §35, 18 Aug. 1716: Alex. p. 66)

The bracketed passage was not included in the letter sent to Clarke, but was included in a copy of this letter which Leibniz sent to an English correspondent. It is this passage which is
of interest to us here, since in saying that non-heavy matter does not resist Leibniz implies that heavy matter does resist. Yet in the previous passage, the timber is said to resist more than the water, even though it has less heavy matter. The only way to reconcile these two passages is to claim that although heavy matter does resist, the amount of resistance offered by any one body does not depend on how much heavy matter that body has. Leibniz must say that the same amount of heavy matter need not always resist to the same extent. Heavy matter is presumably the matter which results from the primary matter of the subordinate monads since it is this heavy matter which Leibniz says is the body's own. If this is the case, then this interpretation sits uneasily on the interpretation we will later apply to the relation between primary matter and the body's resistance (13), for there the sum of the primary matters of the subordinate monads is said to be proportional to the resistance of the aggregate body, and in this case it will matter how much primary matter each subordinate monad has (14).

We saw above that both impenetrability and inertia are essential properties of primary matter (15). But inertia is also a property of secondary matter (la matiere):

since matter itself is nothing but a phenomenon - though well-founded - which results from the monads, this is also true of inertia, which is a property of this phenomenon. (Letter to Nicolas Remond, 11 Feb.1715: L.II.1071)

Since both inertia and impenetrability are properties of
primary matter and inertia is also a property of secondary matter, it is reasonable to assume that impenetrability is also a property of secondary matter, and especially so since Leibniz often speaks of inertia and impenetrability together, seemingly giving them the same ontological status. The question of how inertia and impenetrability can be properties of both primary and secondary matter is an important one, as is the related question regarding their relation to derivative force.

In *Specimen Dynamicum*, Leibniz had written that primary matter,

brings it about, namely, that one body is not penetrated by another but opposes an obstacle to it and is at the same time possessed of a kind of laziness, so to speak, or a repugnance to motion, and so does not allow itself to be set in motion without somewhat breaking the force of the body acting upon it. Hence the derivative force of suffering thereafter shows itself in various ways in secondary matter. (Specimen Dynamicum, Pt.1, 1695: L.II.714)

Going by this passage, it would appear that inertia and impenetrability are not themselves derivative forces, but rather are the means by which the presence of derivative passive force is exhibited in any body. That is to say, if any body is inert or impenetrable, we can assume that it possesses derivative passive force. One reason for coming to this conclusion lies in the fact that Leibniz uses the word 'thereafter' (postea). In Latin this term includes the notion of future time. Leibniz is here suggesting that derivative force occurs temporally prior to the body's act of resistance. Were derivative force and resistance one and the same thing, we would not expect them to be separated in time. Another reason
for believing there to be a difference between derivative force and inertia or impenetrability lies in the fact that Leibniz says that derivative force shows (ostendit) itself via the body's resistance. Inertia and impenetrability are the means by which the presence of derivative passive force is made known rather than being identical with that force (16).

With regard to the question of how inertia and impenetrability can be properties of both primary and secondary matter, we can now see that, since they are not derivative forces themselves, and hence are not modifications of either primary matter or of secondary matter, it is possible to view them as properties of both. They can be properties, i.e. permanent features, of secondary matter because all bodies in the world are seen to resist. And they can be properties of primary matter because it is a permanent feature of primary matter that it will give rise to resistance in an organic body.

Derivative forces, of course, cannot be properties of either primary or secondary matter because they are modifications, and so are transitory rather than permanent.

In the above passage from Specimen Dynamicum, Leibniz speaks of one body opposing an obstacle to another body, and of one body breaking the force of another body. Leibniz never allows such causal terminology to be used in relation to the primitive forces, and even with regard to the derivative forces, he is usually unwilling to speak of causal influences. In the passage from Part 1 of Specimen Dynamicum, he seems to
allow causal influences between bodies, but by Part 2, he has arrived at the position of denying causal influence. There he says that when two bodies collide with each other,

The effect of percussion will be equally distributed between both, and thus that both act equally in the collision, so that half of the effect comes from the action of one, the other half from the action of the other. And since half of the effect or passion is also in one and half in the other, it suffices to derive the passion which is in one from the action which is in it, so that we need no influence of one upon the other, even though the action of one provides an occasion for the other to produce a change within itself. (Specimen Dynamicum, Pt.2, 1695: L.II.733-4)

Ultimately, the body does not break the force of the body acting upon it. Instead, the acting body breaks its own force. Thus, when two bodies collide, each body is restrained, not by the derivative passive force of the other, but by its own derivative passive force. Only the close harmony between the primitive forces makes it appear that the derivative forces have any causal influence.

We will see later (17) that Leibniz uses causal relations between bodies in his account of the relation between one dominant monad and bodies which are not its own (i.e. bodies which are composed of monads which are not subordinate to that particular dominant monad).

To understand how Leibniz can say both that bodies interact causally (and physically) with each other, and also that they do not interact causally and physically, we have to distinguish two ways in which the body can be viewed. In the first, 1. the body is regarded as an aggregate of primitive
forces, as an aggregate of monads. Body is here the result of
the aggregation, or of the bringing together in certain
groupings, of monads. In the second, 2. body is regarded as a
phenomenon, viz. as that which is perceived. As such it is
essentially an element in, or a feature of, a monad's
perceptions (18).

These two ways of looking at the body are by no means
mutually exclusive. A body can be present within a monad's
perceptions while also itself being an aggregate of monads
(19). We suggest here, however, that when Leibniz argues
against any causal or physical influence by one body on
another, he is seeing the body principally as an aggregate of
monads which themselves have no influence on, nor are influenced
by, any other monad. We also suggest that Leibniz may be able
to make a case for causal interactions between bodies when he
regards the body principally as a confusedly-perceived
phenomenon (20).

The relation between these two views of the body can be
explained in terms of the relation between primitive and
derivative forces, if the latter are interpreted as
modifications of aggregates. We can say that the body, as a
phenomenon, displays derivative force. When it is (sense)
perceived, the primitive forces of which it is composed are
modified as derivative forces. We can now claim that these
derivative forces are shown by the presence of resistance and
motion in the bodies which are perceived, and also that when
bodies resist and move they interact causally and physically with each other. (This is not to assert that the derivative forces themselves shift from one body to another. Leibniz, we know, denies that this is so. What it is to assert is that bodies, as phenomena, interact physically and causally (21).)

Our interpretation of derivative force goes some way towards an explanation of the relation between the subordinate monads, or the aggregate of monads, and the extended, material body which these monads are supposed to compose (22). We tentatively suggest that it may now be possible to claim that 1. as an aggregate, the body cannot be extended, but that once this aggregate is modified, it is extended (or is perceived as extended), and 2. as an aggregate, the body cannot exert any influence, physical or otherwise, but that once this aggregate is modified (once it is perceived?) the resistances and motions of the body which exhibit the presence of the derivative force, let the body be regarded as exerting causal and physical influence.

Since derivative passive force restrains the derivative active force of the same body (when bodies are regarded as not acting causally), we would expect that the primitive passive force of the monad itself should restrain its own primitive active force. Similarly, we would expect that this will also be the case for any aggregate of monads, i.e. that in the aggregate of monads, the primitive active forces taken collectively will be restrained by the primitive passive forces of the same monads in the aggregate. This is a reasonable
position to hold if causal connections are denied, for without these connections, it must be the primitive passive force of the one monad which limits the primitive active force of the same monad. Later we shall interpret the resistance of a body as the result of the primitive passive forces of the subordinate monads in the aggregate body, but this does not alter the fact that the primitive passive force limits the primitive active force of the same monad, and cannot limit the primitive active force of any other monad. It should be said that even if derivative forces do not pass from one body to another, the bodies themselves can still be said to interact with each other (23).

We must note here that such a view leads to the conclusion that the primitive active force of a monad cannot increase without a corresponding decrease in the primitive passive force of the same monad. And vice versa, the primitive passive force cannot be increased without a corresponding decrease in the monad's primitive active force. Thus, in a collision, a body exerts active force on another body, only to find itself resisted, and hence to have its active force resisted by its own passive force.

It could be said that in these cases the primitive active or passive force does not actually increase or decrease, but merely that its effects are hindered or enhanced, and that thus, for example, when a body is restrained by its own primitive passive force, its primitive active force has not
been decreased, but has merely been prohibited from having its full effect. It would be difficult to determine which was actually the case, i.e. whether the force was decreased or merely failed to have an effect, since the phenomena would be the same in both cases.

That primitive active force cannot increase without a decrease in primitive passive force and conversely that primitive passive force cannot increase without a decrease in primitive active force suggests that the two forces are inversely proportional to one another. We will see later that this causes problems for the view that primitive active force is responsible for distinct thought and primitive passive force for confused perception (24).
CHAPTER FOUR
PRIMARY AND SECONDARY MATTER

In this chapter, we consider the relation between material bodies and the immaterial monads which are their foundations from the point of view of the relationship between the primary matter (of the monads) and the secondary matter (which is the material body). Later we will also attempt to elucidate the relationship between the soul or primitive active force of the monads and the motion of these material bodies. Our discussion here will also involve the related topics of extension and resistance.

In chapter 3 we noted Leibniz’s belief that ‘the derivative force of suffering [thereafter] shows itself in various ways in secondary matter’ (Specimen Dynamicum, Pt. I, 1695: L.II.714). Secondary matter is mass (massam):

By “matter” I here mean mass (massam) or secondary matter, where there is extension with resistance.
(Letter to des Bosses, 30 Apr. 1709: L.II.970)

Primary matter is somehow related to this mass or secondary matter.

For the rest, I arrange in the monad or the simple substance, complete with an entelechy, only one primitive passive force which is related to the whole mass (massam) of the organic body.
(Letter to de Volder, 20 June 1703: L.II.864)

Primary matter is related to secondary matter in such a way that any increase or decrease in the one is accompanied by a corresponding increase or decrease in the other. Leibniz
explains to des Bosses:

But what, you may ask, shall we say of this primary matter itself, which belongs to the soul? I reply that it is certainly created together with the soul or that the whole monad is created. Then does not primary matter increase and decrease? I acknowledge that it does, since it is only primitive passive power. Then mass (massa) also increases, you say. I agree that the number of monads increases, the result of which is the mass (massa) but not the extension and resistance, nor the phenomena, any more than when new points arise.

(Letter to des Bosses, 30 Apr. 1709: L.II. 972) (1)

An increase in primary matter can be accompanied by an increase in the number of subordinate monads in the organic body only if secondary matter is an aggregate of monads:

Matter in itself, or mass (moles) which may be called primary matter, is no substance, not even an aggregate of substances, but something incomplete. Secondary matter (massa) is not one substance but a plurality of substances.

(Letter to John Bernoulli, 1698)

Die Materie an sich selbst oder die Masse (moles), die man auch erste Materie nennen kann, ist keine Substanz, ja, nicht einmal ein Aggregat von Substanzen, sondern etwas Unvollständiges. Die zweite Materie (massa) ist nicht eine Substanz, sondern eine Mehrheit von Substanzen.

(Buchenau pp. 370-371)

But it is confusing that the mass (massa) of an organic body can increase in conjunction with an increase in the primary matter of the dominant monad, while yet the resistance (inertia and impenetrability) of that secondary matter need not correspondingly increase. In terms of force, this means that an increase in the primitive passive force of the dominant monad need not lead to a corresponding increase in the derivative passive force which shows itself in secondary matter, for if
the presence of derivative passive force is shown by the
inertia and impenetrability of secondary matter, and these
resistances do not increase, this would indicate that the
derivative passive force had not increased either. Conversely,
if the resistance of the body signals the presence of
derivative passive force in the body, then an increase in the
inertia and impenetrability of a body would be expected to
reflect an increase in the body's derivative passive force. To
claim that an increase in a monad's primary matter need not be
accompanied by an increase in the monad's body's resistances is
tantamount to claiming that an increase in a monad's primary
matter need not be accompanied by an increase in derivative
passive force. This is problematic if derivative passive force
is a modification of the dominant monad's primitive passive
force, but may be acceptable if derivative passive force is a
modification of the aggregate of subordinate monads.

Inertia and impenetrability are, for Leibniz,
proportional to the body's extension (Letter to de Volder, 24
March/3 April 1699: L.II.840). Thus, in the above quotation
from the letter to des Bosses, Leibniz is able to claim that
neither the resistance nor the extension of a body increase
with any increase in the primary matter. But this too is a
confusing conclusion, since the secondary matter increases, and
the relation between secondary matter and extension is so close
that we are again tempted to say that if the one increases, the
other must do so too.

Extension, according to Leibniz, is an abstraction taken
from the notion of an extended being:

I deny that extension is a concrete term, since it is an abstraction from what is extended.
(Conversation of Philaret and Ariste, c.1711: L.II.1008-9)

That which is extended is an aggregate of substances, of which extension is an attribute:

Extension is an attribute; the extended, or matter, is not substance but substances.
(Letter to de Volder, 23 June 1699: L.II.843)

Later in the same letter, Leibniz states that:

Extension is itself, for me, an attribute resulting from many substances existing continuously at the same time.
(ibid.: L.II.845)

Five years on, he again wrote to de Volder saying that,

extension is an abstraction from the extended and can no more be considered substance than can number or a multitude, for it expresses nothing but a certain nonsuccessive (i.e., unlike duration) but simultaneous diffusion or repetition of some particular nature, or, what amounts to the same thing, a multitude of things of this same nature which exist together with some order between them; and it is this nature, I say, which is said to be extended or diffused.
(Letter to de Volder, 30 June 1704: L.II.874)

This 'multitude of things' can only be a multitude of monads, i.e. secondary matter. So much is uncontroversial (2). But what is this nature which is common to each of these monads, and which is diffused or repeated? A study of Leibniz's texts unearths a number of options. In the same letter as quoted immediately above he says that,

this nature which is said to be diffused, repeated, and
continued is that which constitutes a physical body, and it can be found in no other principle but that of acting and enduring, since no other principle is suggested to us by the phenomena.
(ibid.: L.II.874-5)

In the postscript to the *New System, and Explanation of the New System*, this nature is said to be a force of acting and enduring:

I had to inquire more deeply into the notion of bodily substance, which on my view lies rather in the force of acting and resisting than in extension, which is but a repetition or diffusion of something anterior, that is to say, of this force.
(1695-6: Park. p.132)

Primitive active forces are principles of action (3). They can also be said to be principles of endurance, for on them depends the continuing identity of the monads and of bodies (4). This suggests that when Leibniz speaks of a principle of acting and enduring in the correspondence with de Volder, what he means is that extension is a repetition of the monads' primitive active forces.

This interpretation brings the passage from the de Volder correspondence into line with that from the *New System, and Explanation of the New System*, for at least both passages now agree that the repeated nature is force. These passages would be more similar if the force referred to in the *New System* were primitive. It is possible to say that primitive force is repeated since even if it were derivative force which was repeated, primitive force would also be repeated due to the fact that derivative force is a modification of primitive force.
But there is one major difference between the two passages. In the New System passage, the force is said to be a force of acting and resisting. Although primitive active force is a force of acting, it is not also a force of resisting. The resisting force is primitive passive force. Hence, the most probable interpretation of the New System passage is that extension is a repetition of a force which is a combination of primitive active and primitive passive forces, i.e. that extension is a repetition of monads. In the correspondence with de Volder, only primitive active forces are repeated, and although primitive active forces are sometimes monads, this is not the view put forward in the de Volder correspondence where Leibniz describes the monad as the combination of active and passive forces (6).

In both passages Leibniz speaks of only one thing which is repeated - i.e. only one principle, one nature, or one force, is repeated. This suggests that in a corporeal substance, the body is extended because the nature of the dominant monad (as both principle and force) is repeated. But we know that the body is an aggregate of monads which are distinct from the dominant monad. We suggest that what Leibniz might have had in mind was the idea that what is similar in the natures of both the dominant monad and its subordinate monads is repeated, and that it is repeated due to the very fact that there are a number of subordinate monads. Anything dissimilar will not be repeated due to the fact that it belongs to the
nature of only one monad. This interpretation conforms to the explanation Leibniz gives in a letter written to support the views he had published in the *Journal des Savans*, 18 June 1691:

Besides extension, there must be a subject which is extended, that is, a substance to which it belongs to be repeated or continued.

(1693: Duncan p.44)

It will belong to the dominant monad that there be certain subordinate monads, which, by the fact that they have certain features similar to those of the dominant monad, are subordinate to this dominant monad rather than another (7).

But interpreting Leibniz’s extension in this way presents problems for the interpretation given of the de Volder correspondence passage. We interpreted Leibniz there as saying that primitive active force is repeated. This, together with our account immediately above, entails that the subordinate monads’ primitive active forces are similar to the dominant monad’s primitive active force (and also similar to each others primitive active forces). But we shall see (8) that primitive active force (as substantial form, which, at least in the correspondence with de Volder is identical with primitive active force) is a principle of individuation in the monads. By their primitive active forces, monads are different from each other, not similar. The same point can be made with regard to the force of acting referred to in the *New System*, and *Explanation of the New System*. It may be for this reason that
Leibniz sometimes talks of extension as a diffusion of materiality, or of resistance, or of antitypy. For instance, in the Conversation of Philarete and Ariste, Leibniz twice asserts that it is antitypy or materiality which is repeated in extension:

Extension is the diffusion of that quality or nature. For example, there is in milk an extension or diffusion of whiteness, in the diamond an extension or diffusion of hardness, in body in general an extension or diffusion of antitypy or of materiality. (Conversation of Philarete and Ariste, c. 1711: L.II.1010)

Thus extension, when it is an attribute of space, is the diffusion or continuation of situation or locality, just as the extension of a body is the diffusion of antitypy or materiality. (ibid.: L.II.1011)

At at least one point in the correspondence with de Volder, he refers to resistance as the nature which is repeated:

But it would appear from this that something must always be assumed which is continuous or diffused, such as the white in milk, the color, ductility, and weight in gold, and resistance in matter. (Letter to de Volder, 24 March/3 April 1699: L.II.838)

If a body's resistance is repeated in extension, then our interpretation of extension as the repetition of what is common to the dominant and subordinate monads can be taken as correct. The resistance of matter shows the presence of derivative passive force. If resistance is repeated, derivative passive force will also be repeated (9). And since derivative passive force is a modification of primitive passive force, if the derivative passive force is repeated, primitive passive force will also be repeated. It then becomes possible to claim
that extension is a repetition of the monads' primitive passive forces. The primitive force of one monad can be similar to that of another in a way in which the form of one monad cannot be similar to the form of another, for primitive passive force (at least insofar as it is primary matter) is homogeneous (10). Thus, when Leibniz writes in Specimen Dynamicum that,

extension means only the continuation or the diffusion of a striving and counterstriving already presupposed by it, i.e. the diffusion of a resisting substance.
(Specimen Dynamicum, Pt. 1, 1695: L.II.712),

we can take him to mean that the dominant monad's primitive passive force is repeated by the subordinate monads which compose its organic body. Similarly, the dominant monad's body's resistance is repeated because it is similar to the resistance exhibited by the subordinate monads' bodies (11).

In the Conversation of Philarete and Ariste, extension is said to be the diffusion of antitypy or of materiality. We can immediately accept the diffusion of materiality as a repetition of the monads' primary matter (or primitive passive forces), but we would not have expected Leibniz to have regarded extension as a repetition of antitypy (impenetrability) alone. Instead, we would have expected him also to say that inertia is repeated, particularly because both inertia and impenetrability are properties of primary matter. If primary matter is repeated, its properties will be repeated too. It might be the case that Leibniz intended materiality to be understood as including inertia. (In the passage from the
correspondence with de Volder, and also in the Specimen Dynamicum quotation, we took Leibniz to mean both inertia and impenetrability when he spoke of resistance, even though he may have been using resistance in its more limited capacity as inertia).

If Leibniz did believe that both inertia and impenetrability are repeated in extension, it is possible to explain why he believed both of these to be proportional to the body's extension (12). It is obvious that if extension is merely a repetition of these resistances (or of the primitive forces responsible for these resistances), then the more the resistance is repeated, the greater will be the extension (13).

It has been established above that extension, for Leibniz, is an attribute which arises out of the fact that the monads making up an extended object have common characteristics, which characteristics are thereby repeated. We have spent some time discussing Leibniz's notion of extension in an effort to see its connection with secondary matter. It is clear that the monads whose nature is repeated or diffused in extension are those self-same monads which make up secondary matter. Leibniz himself states that an extended mass is composed of 'two or a thousand others' (Draft of letter to Arnauld, 28 Nov/8 Dec.1686: Mason p.88) and this is secondary matter, which is an aggregate of substances (14). In the light of this, it would be expected that any increase in the number of monads in secondary matter, or 'massa', would also lead to an increase in the extension of that secondary matter. If the
number of monads in the secondary matter increases, we would expect that the primitive active and primitive passive forces which these monads are, will be repeated more often. Under all the interpretations of the nature which is repeated (i.e. whether this be primitive active force, primitive passive force, or both), it should be the case that if the number of these forces increases, as they do when secondary matter increases, then the extension of the body will also increase. But Leibniz denies that secondary matter is proportional to the body's extension (15).

Moreover, if secondary matter should be proportional to extension, then primary matter should also be proportional to extension, because secondary and primary matter are proportional to one another. This conclusion is particularly compelling if it is claimed that extension is an attribute which arises either from the repetition of the monads' primitive passive forces or from the repetition of the monads' primitive active and primitive passive forces, but not if extension is said to arise from a repetition of only the monads' primitive active forces.

Before going on to determine why Leibniz has not come to the conclusions which we expected, let us first recap on what his conclusions actually are. In general terms, we can say that Leibniz believed that:

1. resistance in a body is proportional to the body's extension (16).
2. primary matter is not proportional to extension.

3. secondary matter is proportional to primary matter.

From 1 and 2, it follows that,

4. primary matter is not proportional to a body's resistance.

From 2 and 3, it follows that,

5. secondary matter is not proportional to the body's extension.

And from 1 and 5, it follows that,

6. secondary matter is not proportional to the body's resistance (17).

There is an important point to be made regarding the proportionality between resistance (as inertia and impenetrability) and extension (no. 1).

It is to be expected that, since the size of a body (and hence also its extension, or what may be called the extent of its extension) and the amount of resistance which a body offers are different according to the material out of which the body is made (18), then the extension of the body and its resistance will also be in different proportions according again to the material in question. This is only to be expected. We cannot tell from the extension of any body what its resistance will be unless we also know the particular ratio which holds between its extension and its resistance, for these ratios will differ from body to body, although they will always remain the same for bodies composed of the same material, e.g. wood, or rather
for particular types of wood, like elm or oak. Leibniz's statement that the resistance of a body is proportional to its extension must therefore be modified, so that it becomes the statement that the resistance of a body is proportional to its extension, and the proportion holding between the resistance and the extension, although always the same for bodies of the same material, differs for bodies of different materials.

Jumping ahead to no.3 - that secondary matter is proportional to primary matter - there is another important qualification to be made. In the letter quoted above from the correspondence with des Bosses (19), Leibniz says only that when the primary matter of the dominant monad increases, then the number of monads in the secondary matter also increases, but he makes no comment on the primary matter of the monads making up the secondary matter. This last fact opens up the possibility that although the number of monads in the dominant monad's body increases, the sum total of primitive passive force in this body need not increase in proportion with the increase of the primary matter of the dominant monad. Some or all of the new monads in the increased secondary matter may have either very little or very much primitive passive force, but whichever is the case, it is not a function of the increase in the primary matter of the dominant monad. The primary matter of the dominant monad only has an 'effect' on the number of monads in the secondary matter. An increase in the number of monads may result in either a very large total of primitive passive force, or in a very small total, depending on how much
primitive passive force each of these new monads contains.
(Bear in mind also that the primitive passive forces of the 'old' monads may increase or decrease).

Having made this point, we can now look at its consequences in relation to the fact that Leibniz wants to deny that the resistance of a body is proportional to primary matter (no.4). It was argued above that if derivative passive force is a modification of primitive passive force, then the two would be expected to be proportional to each other. And, since resistance is the means by which the presence of derivative passive force is made known, resistance, derivative passive force and primary matter should all be proportional to each other (20). However, it was presumed in this argument that it was the primary matter of the dominant monad which was proportional to the resistance of the secondary matter. Now we can see that it may well be that which Leibniz denies when he denies that the resistance of the secondary matter increases when the primary matter (of the dominant monad) increases. When discussing derivative forces we argued that derivative force is a modification of the primitive forces of the subordinate monads rather than a modification of the primitive force of the dominant monad (21). In itself, this is a desirable thesis since all bodies resist, and yet not all bodies have dominant monads, i.e. some are mere aggregates of monads with no unifying monad to make the aggregate into an animated whole. If we say that the derivative forces are modifications of the primitive forces of the subordinate monads, then the primary
matter of the dominant monad need no longer be proportional to
the derivative forces, nor to the inertia and impenetrability,
of its secondary matter body, for if derivative force is not a
modification of the dominant monad's primitive force, there is
no reason to claim that these proportions must obtain.
Resistance, therefore, does not need to be proportional to the
primitive passive force of the dominant monad, but it will be
proportional to the sum of the primitive passive forces of the
subordinate monads. Resistance need only be proportional to the
primary matter of the dominant monad if the primitive force of
the dominant monad is proportional to the sum total of the
primitive forces of the subordinate monads, and we have seen
that this is not necessary, since primary matter and secondary
matter need only be proportional in the qualified sense given
above. Thus, no.4 has been qualified so that the resistance of
the secondary matter is now proportional only to the sum of the
primitive passive forces of the monads which compose this
secondary matter, and we can allow Leibniz to state that
resistance is not proportional to primary matter if by primary
matter he intends the primary matter of the dominant monad
only, or the primary matter of any one particular subordinate
monad (22).

The above interpretation involves attributing the
resistance of a body to the primitive passive forces of the
subordinate monads. We here include under the term
'subordinate' those monads which are not subordinate because
they are not dominated by a unifying monad, but which compose a
'mere aggregate' i.e. an inanimate object. Such an interpretation gains credibility when seen in the light of Leibniz's account of what happens when one body collides with another. As part of an argument against the notion that the material world is ultimately composed of hard, indivisible, extended atoms, Leibniz argues that, since no change ever occurs through a leap (for this would contradict the principle of continuity, which Leibniz at times takes to be self-evident, and at other times to be in accordance with the wisdom and perfection of God), there is no point at which these extended atoms could change from moving in one direction, to rest, and then to movement in another direction (see Specimen Dynamicum, Pt.2, 1695: L.II.730). Leibniz concludes that there can be no extended, indivisible atoms. He then gives his own account of collision. Bodies, he says, are similar to inflated balls. When they collide, they press against each other, their shapes change, and their motion gradually slows down on account of the increased pressure working against their motive force (derivative active force) and hindering it. He illustrates the situation thus:

![Diagram](attachment:image.png)

where the dotted lines signify what would happen if there were corporeal atoms. The colliding objects can only change shape (or have elasticity) if there are no extended atoms to prevent the movement from motion to rest (infinitely small motion) taking place without a leap. Leibniz, rightly or wrongly, draws
from his experiments the conclusion that:

dthere is no body, however small, which has no elasticity and

is not thus permeated by a still subtler fluid; and thus that

there are no elementary bodies, nor any most fluid matter,

nor any solid globes of some second element, I know not what;

but that analysis proceeds to the infinite.

(Specimen Dynamicum, Pt.2, 1695: L.II.731)

At the end of this analysis, more correctly, at each

stage of division proceeding to infinity, there are monads,

and these monads have primitive passive force (23). It is the

primitive passive forces of these monads which accounts for, or

is the reason for, the resistance of the aggregate body of

which they are parts. Moreover, if this is the case, or rather

since this has to be the case, for resisting aggregates of

monads which have no dominant monad, it is likely also to be

the case for resisting bodies which do have dominant monads

governing the aggregate. Besides, this interpretation allows us

to give a credible status to Leibniz's assertion that primary

matter is not proportional to the resistance of the body.

We turn now to look at the relationship between secondary

matter and extension (no.5). This also has consequences for

the relation between primary matter and resistance, for if it

turns out to be the case, as was argued above, that secondary

matter must be proportional to the body's extension, then since

primary and secondary matter are proportional, and resistance

and extension are proportional, there would again be reason to

argue that resistance and primary matter must be so too.

Our argument for the proportionality of secondary matter
with extension rests on the idea that the extension of an object is dependent on the number of monads which go to make up the secondary matter, and on the repetition of these monads' natures. One way of arguing against the proportionality of secondary matter and extension lies in making plausible the notion that although more than one monad is needed in secondary matter in order for it to be extended, the actual number of monads, provided it is more than one, has no bearing on the resultant extent of the body's extension.

In a letter to de Volder, Leibniz says of extension that it, will not be a mode of the substances from which it results, because it is itself invariable and designates a numerical determination of these things which remains the same in any change whatever. (6 July 1701: L.II.855)

What Leibniz meant by this statement is unclear. Extension is 'invariable' and 'remains the same' throughout all changes. He could be saying that even when the number of monads in the extended object increases or decreases, the extension of the object remains the same. It is, however, more likely that Leibniz here meant only that, provided there is more than one monad, the secondary matter will have extension, and that it is the attribute of having extension which is invariable, rather than that the extent of the extension, or the size of the extended object remains the same, for we know that objects can get larger and smaller. Leibniz's phrase 'numerical determination' suggests that the number of monads in the
aggregate does actually make a difference to the amount of space which the object occupies. Equally, however, Leibniz may have meant by 'numerical determination' only that the extended object has to be composed of more than one monad.

The invariability of extension has to be interpreted as meaning that the attribute of extension belonging to the extended object is invariable. It cannot mean that the actual size of the object is invariable, because this is obviously false, and would, moreover, contradict Leibniz's assertion that resistance is proportional to extension (unless he were also to claim that the resistance of a body is similarly invariable).

A slightly more convincing argument against the idea that secondary matter and extension are proportional can be found in a passage taken from Leibniz's *Refutation of Spinoza*. There Leibniz claims that, rather than what is similar in the monads determining the size of the object, it is the dissimilarities which determine such characteristics. What is common to the monads gives rise to extension; what is different in the monads gives rise to differences of size and shape:

> But just as number supposes numbered things, so extension supposes things which are repeated, and which have, in addition to common characteristics, others peculiar to themselves. These accidents, peculiar to each one, render the limits of size and shape, before only possible, actual. (Refutation of Spinoza, c.1708: Duncan p.176)

Thus, although the repetition of what is common to the subordinate monads results in extension being attributable to the object, the actual extent of the extension is determined by
what is not common to all of these monads (24).

We conclude that it is not necessary for Leibniz to claim that the number of monads in the secondary matter is proportional to the extension of that matter. Extension as an attribute is invariable and is not dependent on how many times any one feature of the monads is repeated. It is dependent only on the fact that some feature is actually repeated. Conversely, the size of the object, or the extent of the extension, is determined by certain dissimilar and non-repeated features of the monads making up the extended object. This too, is not, or need not be, dependent on the number of monads involved.

The qualified sense in which primary matter and secondary matter are proportional permits Leibniz to claim that secondary matter is not proportional to resistance (no.6), for again the actual number of monads need make no difference to the resistance of the aggregate. Only the amounts of primitive passive force in each of the subordinate monads will have any bearing on the resistance of the aggregate body. Two bodies could have the same amount of resistance even though one of them had $x$ number of monads composing it, and the other $x + y$ monads, providing only that some or all of the monads in the first had each a greater amount of primitive passive force than some or all of the monads in the second, such that the sum total of primitive passive force of all the monads in each body respectively was the same.

Finally, there is the question of Leibniz's denial of
proportionality between primary matter and extension (no.2).

The same arguments apply here as applied in the case between secondary matter and extension, provided that we take primary matter to be the total of primary matters of all the subordinate monads in the extended object. It was argued above that extension is merely a repetition of the primitive forces of the monads, and that therefore the primitive forces of the monads would be expected to be proportional to the resulting extension of the aggregate body. But again it will hold that the actual number of times the primitive force is repeated is irrelevant to the extent of the extension. Primary matter need not be proportional to the extension of the body, 1. if this extension is treated as an invariable attribute, or 2. if the size or extent of the body's extension does not depend on the number of monads in the extended body.

Nor need the primary matter of the dominant monad be proportional to the extension of the secondary matter body, when extension is interpreted as variable, i.e. as the 'extent of the extension'. For although primary and secondary matters are proportional, if the number of monads in the secondary matter need have no influence on the extension of the object, then an increase in the number of these monads (when this increases in proportion to an increase in the primary matter of the dominant monad) can occur without there being a corresponding increase in the extension of the object.

We have seen, then, that all of Leibniz's assertions
(nos. 1-6) can be held simultaneously if we interpret nos. 1 and 3, in very specific ways. These interpretations are compatible with Leibniz's own words, except that our interpretation of the relation between primary matter and resistance conflicts with what Leibniz told Clarke concerning heavy matter in this 5th letter (25). Also, our interpretations of the relation between the body's extension and secondary matter are not entirely convincing. If the extension of a body is invariable, then resistance must also be invariable. This contradicts our experience of our own body's resistance and extension. Yet, if extension is variable, we expect it to be in some way connected to the number of monads in the secondary matter body, and presumably to be proportional to the secondary matter. Only the denial of a direct correspondence between a body's extension and the number of monads in the body gives us any reason to accept that secondary matter is not proportional to extension.

Before concluding this section, there are a few points concerning the relation of primary matter to extension remaining to be made.

In a passage from the Refutation of Spinoza, primary matter and extension are equated. Leibniz wrote:

extension, or if you prefer, primary matter, is nothing but a certain indefinite repetition of things as far as they are similar to each other or indiscernible.  
(c.1708: Duncan p.176)

This statement is reminiscent of the view expounded to Jacob
Thomasius in 1669:

Primary matter is mass itself, in which there is nothing but extension and antitypy or impenetrability.
(Letter to Jacob Thomasius, 20/30 April 1669: L.I.148) (26)

Such a view is at odds with the idea that primary matter and extension are not proportional to one another, and at odds with the idea that primary matter is an element of the monads - the monads have nothing in them which could be repeated, since they are indivisible and not composed of parts.

But the view is not at odds with the idea, put forward in the correspondence with des Bosses, that primary matter arises 'out of the union of the passive power of the monads' and is, the impulsion [exigentia] to extension and antitypy or to diffusion and resistance.
(Letter to des Bosses, 5 Feb.1712: L.II.975) (27)

If primary matter is the result of the union of the passive power of the monads, then it can be an 'indefinite repetition of things', namely, an indefinite repetition of these unified monads.

But Leibniz cannot hold both the above view of primary matter (i.e. that it is the same as extension, that it arises out of the union of passive forces, and that it is not the same as primitive passive force) and also hold the view expounded in the earlier parts of his chapter, where it is equal to primitive passive force, is not equal to extension, and where it is an element of the monads rather than of composite substance. Such a view takes primary matter to be only what is
needed by extension, and not to be actually identical with it:

Materia prima . . . [is] the primitive passive power, or principle of resistance, which does not consist of extension, but of what extension needs, and complements the entelechy or primitive active power, so as to produce the complete substance or Monad.

(Letter to des Bosses, 11 March 1706: Russell’s transl. p.268)

Materiam primam . . . est potentiam primitivam passivam seu principium resistentiae, quod non in extensione, sed extensionis exigentia consistit, entelechiamque seu potentiam activam primitivam complet, ut perfecta substantia seu Monas prodeat.

(G.II.306)

(Similar points could be made about Leibniz’s unusual statement that substantial form similarly arises from 'the union of monadic entelechies'. These will be made in the correct place.)

Why Leibniz told des Bosses that primary matter arose out of the union of the passive forces of the monads is a mystery which will not be solved here. For our purposes we need only observe that: 1. such a view conflicts with the interpretation given in the main bulk of this chapter where primary matter is primitive passive force and belongs to the monads; 2. if primary matter arises out of the union of the primitive passive forces of the monads, then primary matter would also have to be proportional to the body’s resistance, at least under the interpretation we have given above; but that nevertheless, 3. the view of primary matter as the result of the union of passive forces is helpful in explaining what would otherwise be very confusing passages in Leibnizian texts.
In the postscript to his 19 August 1715 letter to des Bosses, Leibniz states that perceptions and appetitions are modifications of the soul. Further evidence that Leibniz believed perceptions to be modifications can be supplied. For instance, at the beginning of 1699, Leibniz told John Bernoulli that,

Even if the soul does not consist of parts, yet in its perceptions it expresses a thing consisting of parts, namely, the body. Since it has many perceptions at the same time, therefore, and future consequences arise naturally from present perceptions, it is not strange that so many modifications flow spontaneously from the soul.

(Letter to John Bernoulli, 21 Feb.1699: L.II.833-4)

and in the Explanation of the New System of the Communication between Substances ... 1696, Leibniz wrote,

Again, I am asked whence it comes that God does not think it enough to produce all the thoughts and modifications of the soul, without these useless bodies, which the soul, it is said, can neither move nor know.

(Latta's transl. p.323)

This last quotation is not conclusive, especially since thoughts are here distinguished from modifications, and there is evidence (as will be seen later) that thoughts are a kind of perception. Nevertheless, taken in conjunction with the other two quotations, it does seem likely that perceptions are modifications (1).

But modifications of what? The above quotations suggest that they are modifications of the soul. But what is the soul?
In the correspondence with de Volder, the soul is primitive active force, and the monad is the combination of primitive active and passive force. But in the letter to des Bosses, the soul is a monad, the composite substance being the combination of primitive active and passive forces.

We shall find that if perception is to be a modification of the soul, then the soul must consist of both primitive active and primitive passive forces. This is because confused perceptions are modifications of primitive passive force. Similarly, if perceptions are modifications of the monad, then the monad must consist of both primitive active and passive forces. This opens the door for Leibniz to define the soul as primitive active force, but closes the door to calling the soul a monad.

We grant that the above goes against many of Leibniz's texts, but argue that, nevertheless, only by adopting such a stance could Leibniz have made his metaphysical system in any way a convincing account of the world.

One objective in the following pages is to state the case for a connection between confused perception and primitive passive force. Persuasive evidence for a connection between confused perception and primitive passive force can be found in the final paragraph of *On the Method of Distinguishing Real from Imaginary Phenomena*. The passage reads as if Leibniz added it merely as an after-thought. He writes:
Substances have metaphysical matter or passive power insofar as they express something confusedly; active, insofar as they express it distinctly.

(L.II.607)

Metaphysical matter is primary matter, and passive power here refers to primitive rather than derivative power. Clearly, without primitive passive power a monad would not express anything confusedly. And since perception is a kind of expression (2), we can also claim that without primitive passive power, a monad would be unable to perceive confusedly. In a moment we shall learn of the importance of primary matter in connection with our perception of the material world.

In the New Essays, Philalethes states that,

'Perception, as it is the first faculty of the [soul] exercised about our ideas; so it is the first and simplest idea we have from reflection. [Thinking often] signifies that sort of operation of the mind about its ideas, wherein the mind is active; where it with some degree of voluntary attention, considers any thing. [But in what is called] perception, the mind is, for the most part, only passive; and what it perceives, it cannot avoid perceiving.'

(New Essays, Bk.2, Chap.9, 1704: R&B 133-4)

Philalethes takes the part of Locke, but since Leibniz goes on to elaborate on this point and does not negate it, we can take it to be a statement of Leibniz's own views. Besides, in Bk.2, Chap.21 of the New Essays, it is explained in the words of Theophilus, who takes the part of Leibniz, that,

if we take 'action' to be an endeavour towards perfection, and 'passion' to be the opposite, then genuine substances are active only when their perceptions (for I grant perceptions to all of them) are becoming better developed and more distinct, just as they are passive only when their perceptions are becoming more confused.

(R&B 210)
and, in a letter to Nicolas Remond,

Furthermore, since all monads (except the primitive one) are subject to passions, they are not pure forces; they are the foundation not only of actions but of resistance and passivity, and their passions are found in their confused perceptions. It is in this that matter or the numerically infinite is involved. (11 Feb. 1715: L.II.1072)

All of these quotations suggest that in thought, a monad can express what it thinks about distinctly - this occurring because the monad has primitive active force - while in sense perception, a monad expresses what it perceives only confusedly - this occurring because the monad has primitive passive force.

A difficulty for this view arises out of the fact that we can both be thinking about something distinctly and at the same time be sense-perceiving it confusedly. Such a situation is ruled out if the primitive active and passive forces in the monad are inversely proportional to each other, for if this is so, then an increase in the monad's primitive passive force would be accompanied by a decrease in the monad's primitive active force and vice versa. The case for saying that these forces are inversely proportional to each other has been given above (3).

To return to the issue at hand, it only remains to be pointed out that Leibniz's critics have not, in the main, noticed the complexities in Leibniz's views on this subject. To take the most contentious of these, Nicholas Rescher explains
the matter as follows:

Thus Leibniz comes to call perception primitive force, the clear perceptions of a monad and its appetition toward new clear perceptions being its primitive active force (vis primitiva agendi) and its confused perceptions primitive passive force (vis primitiva patiendi) or, preferably, prime matter (materia prima).
(The Philosophy of Leibniz, p.84)

Perception and primitive force should not be equated. We know that perceptions are modifications, not forces, and are presumably rather modifications of forces. Rescher has noticed a connection between 'clear' perceptions and primitive active force and between confused perceptions and primitive passive force, but has explained this incorrectly as a case of identity (4).

Rescher gives a number of references in support of his claim, but when checking these it was found that none of them actually do support his reading. They are all but one taken from the correspondence with de Volder. Two of the references even direct us to a letter from de Volder to Leibniz (6.II.244-5). This correspondence is concerned more with the connection between the derivative forces of the aggregate body and the primitive forces of the monads than it is with the relation between perception and primitive forces.

All the sources which Rescher mentions involve discussion of monadic activity and passivity, but no attempt is made in any of them to connect these with the monad's perceptions, distinct or confused, in the way Rescher proposes. Rescher's contention, then, that primitive active force actually is
distinct perception, and primitive passive force, confused perception, is not only false, but also unsupported by textual evidence. We shall, therefore, contrary to Rescher, continue to hold that perceptions are modifications of primitive forces, and are not themselves primitive forces.

If perception takes place in the soul, and if primitive passive force is a necessary condition for the possibility of confused perception, it is not unreasonable to hold that primitive passive force should be a part of the soul. Alternatively, a very close relationship between primitive active force (the soul) and primitive passive force must obtain in order that the primitive active force can be limited by the passive force, because only through such limitation is the soul able to produce confused perceptions. Whichever alternative is the case will depend on how Leibniz defines souls and monads and to what be ascribes perceptions, i.e. whether these arise from the soul alone, or from the whole monad taken as a conjunction of soul and primary matter.

Nevertheless, since perception is a modification, and since confused perception is so closely related to primitive passive force, it is reasonable to claim that confused perceptions are modifications of primitive passive force, despite the fact that this contradicts Leibniz's assertions to the effect that all perceptions are modifications of the soul (assuming that the soul is primitive active force on its own rather than a monadic conjunction of active and passive force).
It would not, however, be impossible for Leibniz to argue that confused perceptions are modifications of the soul (as primitive active force alone) when this soul is limited by primitive passive force. But it would be simpler for him to claim that confused perceptions are modifications of the whole monad (as primitive active and primitive passive force). Observe that it is also reasonable to hold that, for Leibniz, distinct perceptions are modifications of primitive active force.

We must now attempt to prove that confused perception is perception of bodies in space and time, i.e. perception of material, extended objects and their sensible qualities in the world of phenomena in which we live.

But first it is necessary to reach some kind of understanding of the nature of confused perception. Because Leibniz seldom discusses confused perception, it must be interpreted by drawing parallels between confused perception and what Leibniz does actually tell us about confused knowledge (5).

Leibniz's views on knowledge are most concisely and clearly explained in two papers: the first is a paper published in the Acta Eruditorum of November 1684, entitled, Meditations on Knowledge, Truth and Ideas (L.I.448-454); the second is a letter to Queen Sophia Charlotte of Prussia written 8 years later in 1702. Its popular title is, On What is Independent of Sense and of Matter (L.II.888-898).
In the *Meditations* (L.I.448), Leibniz divides knowledge into the following kinds:

```
knowledge
  
  obscure  clear

  confused  distinct

  inadequate  adequate

  symbolic  intuitive (6)
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Perfect knowledge, i.e. that which God possesses, lies on the right-hand side of the above diagram. It is intuitive, adequate, clear and distinct. At the other extreme, is obscure knowledge. This is knowledge of something when this knowledge is not sufficient to enable a person to recognise the thing again, or enable him to distinguish that one thing from other things. We can have obscure knowledge not only of flowers, birds, animals, etc. but also of concepts. Propositions can be obscurely known if they contain an obscurely known concept.

Clear knowledge, on the other hand, enables us to recognise the thing again. When clear knowledge is distinct, it is possible to enumerate a sufficient number of marks which will distinguish the object (or concept) from others. Confused clear knowledge occurs when we can distinguish the object from others but cannot enumerate one by one all (or at least a sufficient number of) the marks which make it different from every other object. Thus, in the case of both distinct and confused
knowledge, we can distinguish the object (or concept) from other objects (or concepts), but in the case of confused knowledge, we cannot explain why the object is different. We know there is a difference, but cannot explain by words or any other signs what this difference consists in (7).

Confused knowledge, then, will always be knowledge of things which can be analysed into parts. When such things are confusedly known, the whole thing can be distinguished from other things, but the parts of it cannot be distinguished or used to give reasons why this thing is different from any other thing.

Making parallels now with confused perception, we must say that confused perception will always be perception of things which have parts, and that although the whole can be distinguished from the other things, the parts cannot be individually perceived as parts (8). It could be added that these parts cannot then be of use in distinguishing between the confusedly perceived thing and another thing, but the subject is more complex and will be dealt with in a moment.

If the parts of what is confusedly perceived are monads, we can conclude that confused perception is always perception of aggregates of monads, with or without substantial unity. It will therefore be perception of material, extended objects, i.e. of secondary matter. It will be, in effect, the perception of what is perceived by the senses, or via the senses. This follows even if the parts of what is confusedly perceived are
subordinate monads' bodies because these bodies, too, are aggregates of monads, ad infinitum. Individual monads cannot, by definition, be perceived confusedly, because monads have no parts.

There is a considerable amount of textual evidence to support this conclusion, some of it more favourable than the rest. All of the evidence given below points to other bodies as the parts of the confusedly-perceived objects. This is consistent with the view that monads are not parts, but foundations, of material objects. Confusingly, however, although monads are not parts of bodies, aggregates of monads (secondary matter, organic bodies) are parts.

At the end of the Meditations, Leibniz writes,

Moreover, when we perceive colors or odors, we are having nothing but a perception of figures and motions, but of figures and motions so complex and minute that our mind in its present state is incapable of observing each distinctly and therefore fails to notice that its perception is compounded of single perceptions of exceedingly small figures and motions. So when we mix yellow and blue powders and perceive a green color, we are in fact sensing nothing but yellow and blue thoroughly mixed; but we do not notice and so assume some new nature instead.
(Meditations on Knowledge, Truth and Ideas, Nov.1684: L.I.454)

Leibniz here does not say that the perception of these colours and odours is confused, but if the parallels with confused knowledge are warranted, the conclusion must be allowed.

Eight years earlier, Leibniz had adopted basically the same position, this time calling such perception 'confused'. In
Paris, he had written that,

In those things in which there is variety, such as color, there is a reason why this variety is not perceived distinctly by us. This is because we perceive color in a definite period of time. But this time can be sub-divided into infinite parts, in each of which we do something pertaining to the perception, which we do not remember, however, because of a defect in our organs.

(Paris Notes, April 1676: L.I.249)

But there is also a significant change of position between these two passages. In 1676, time is sub-divided, but there is no mention of the colour itself being divided. However, by 1684, colour is divisible; in fact, it is actually divided, and the reference to time has disappeared. A number of perceptions occur in each case, but in 1676 the perceptions occur through time, while Leibniz’s view of 1684 makes the perceptions capable of occurring simultaneously and melding into one 'global' perception of the colour (9). Actually, while he was in Paris Leibniz did believe that the colour was divided. He writes that 'the perception of a sensible quality is not one perception but an aggregate of infinites' (April 1676: L.I.250), but this division of colour is due to the division of time. Had Leibniz coined the term 'monad' in 1676, he would undoubtedly have said that the object which has the quality is composed of an infinite number of monads. In 1676, these are perceived successively, but by 1684, Leibniz believed they could be perceived simultaneously (but still individually).

By 1714, these two different views have been merged with one another so that Leibniz can claim that we would,
learn the beauty of the universe in each soul if one could unravel all that is rolled up in it, but that develops perceptibly only with time. But, since each distinct perception of the soul includes an infinity of confused perceptions which envelop the entire universe, the soul itself does not know the things which it perceives until it has perceptions which are distinct and heightened.

(Principles of Nature and of Grace, Based on Reason, §13, 1714: L.II.1040)

It should be said that here a number of confused perceptions can be enveloped in one distinct perception, whereas in the 1684 passage, confused perceptions are enveloped within another confused perception.

So far, all we are able to claim is that Leibniz's confused perception is perception of sensible qualities, e.g. perception of colours, odours, tastes, and smells, and the perceptions of tactile qualities like hardness, wetness, and the like. Is our perception of the objects to which these sensible qualities belong also confused?

Perception of sensible qualities can only take place through one particular sense organ, dependent upon which sensible quality is being perceived. Thus, colour is only perceived by sight, sound by hearing, flavour by taste. Leibniz makes a distinction between these qualities and qualities which can be, or are, perceived via more than one sense. These, he believes, are perceived by a common sense. Aristotle had already made a similar distinction, and had used the same terminology (see De Anima, Bk.3, Chap.1, 425a: Hamlyn p.46). Leibniz writes:

We must do justice to the senses, however, by recognising that,
besides these occult qualities, they enable us to know other qualities which are more manifest and furnish more distinct concepts. It is these which are ascribed to the common sense, because there is no external sense to which they are particularly attached and belong. It is of these that definitions of the terms or words we use can be given. Such is the idea of numbers, which is found alike in sounds, colors, and the qualities of touch. It is thus, too, that we perceive the figures which are common to colors and to qualities of touch but which we do not observe in sounds.

(On What is Independent of Sense and of Matter, 1702: L.II.890)

Material objects possess not only occult (sensible) qualities but also what we shall here call 'common qualities', i.e. the qualities of figure and number mentioned above. Our knowledge of the concepts of these common qualities can be both clear and distinct, despite the fact that our knowledge of the concepts of sensible qualities will, according to Leibniz, always be confused, although still clear (ibid.: L.II.890). But what of our perception of these common qualities? Is our perception of material objects changed by the fact that we can have clear and distinct concepts of some of these objects' qualities?

Our perception of sensible qualities such as colours, was said to be confused because there are no marks given in the perception by which we can distinguish, say, one colour from another. These perceptions are still clear, for obviously the necessary distinctions can be made, but they can be made only by looking at the colours themselves. This is why our perception of sensible qualities cannot give rise to clear and distinct concepts of these qualities. Now, since perception of the common qualities can give rise to clear and distinct concepts of such qualities, we would expect this to be because
our perception of these qualities does provide us with marks by which these qualities can be distinguished from one another. But need this imply that our perceptions of these qualities is any less confused? We are able to have distinct concepts of the common qualities because we are able to compare the sight perception we have, say, of a square with the tactile perception we also have of it. Our sense perception of a square by sight and our sense perception of it by touch can be equally clear, yet still confused. This conclusion is only to be expected if a square object is made up of an infinite number of monads and the reason for confused perception is that we are unable to perceive each individual monad clearly. The comparison between a quality perceived by sight and the same quality as perceived by touch, which comparison enables us, says Leibniz, to have clear and distinct concepts, need not necessarily make any difference to the sense perceptions of these qualities. That is to say, it is not an obvious truth that the having of a clear and distinct concept of something need in any way alter the sense perception of the thing itself.

If our sense perception of an object's qualities, both of those qualities which are sensible and those which are common to some or all of the senses, is always confused, then it is possible to claim that our sense perception of the material object to which these qualities belong is also confused. Within the context of Leibniz's philosophy, this is a very desirable conclusion - as we shall see in a moment - and there is evidence that such a conclusion would have been acceptable to
Leibniz. For example, he often makes comments like the following:

our confused thoughts represent the body or the flesh and constitute our imperfection.
(Reply to the Thoughts on the System of Pre-established Harmony, 1702: L.II.945) (10)

The conclusion that our sense perception of material objects is always confused could be proved from the fact that these objects are, for Leibniz, composed of a number of monads, none of which we can distinguish from any of the others. Leibniz speaks this way of the sea. Thus, in the Principles of Nature and of Grace, 1714, he writes that,

Each soul knows the infinite, knows everything, but confusedly. Thus when I walk along the seashore and hear the great noise of the sea, I hear the separate sounds of each wave but do not distinguish them; our confused perceptions are the result of the impressions made on us by the whole universe. It is the same with each monad. ($13: L.II.1040-41$)

Still, there remain a number of difficulties. Against the above quotation could be levelled the objection that although we perhaps do not hear each individual wave distinctly, we can at least see or hear some of them clearly. And if we can see or hear individual waves, we can distinguish them, albeit perhaps only in the same way as we can distinguish, say, red from green. When we distinguish the individual waves, our sight perception of the whole sea would not be confused. Instead, it would be distinct because we can see its parts, by which, were it possible to see two seas simultaneously, we could
distinguish the one from the other, and give reasons for this by reference to the parts. Our sight perception of the sea would then be analogous to the distinct knowledge we can have of the concepts of objects. (Distinct knowledge occurs when we can enumerate enough marks to distinguish one concept from another. These marks need not be distinctly known, i.e. the knowledge can be distinct, though at the same time also inadequate). Similarly, in the case of sense perception, it could be argued that although our sense perception of the individual waves is confused, though clear (i.e. we can distinguish one from another but cannot give sufficient marks as to why this is the case), our sense perception of the sea as a whole can be distinct (although also inadequate), because we could now enumerate the individual waves as marks by which to distinguish the sea from another object.

The example of the sea is not perhaps the best one to use. Consider instead the case of two flowers - a daisy and a dandelion. We can perceive the parts of each, and give names to them, for instance, the petals, stem, bracts, stamen, and the like. If we were to distinguish between our concept of a daisy and our concept of a dandelion, such individual parts of each flower would provide 'marks' by which we could distinguish the one from the other. But is it not also true that the same thing, or something similar, occurs when we perceive these differences by way of our senses? It could be argued that our sense perception of a daisy is heightened, or made more distinct if we can distinguish all the various parts which
compose it. The sense perception of these parts will still be confused (unless we can go on distinguishing more parts within the parts), but just as in the case of knowledge and concepts, so in the case of perception, we will be justified in saying that the sense perception of the daisy, or of any other object in which parts can be identified, is distinct (11).

Such an interpretation of sense perception of composite objects is intuitively correct. We want to be able to distinguish between the sense perception of someone who, probably through lack of attention or of concentration, misses, or fails to see, many small details which a more attentive person would notice, and we want to be able to say that the sense perception of the latter is more distinct than that of the former. And, indeed, Leibniz does speak of distinctness in relation to sense perceptions. He speaks of degrees of distinctness and confusedness:

If the perception is more distinct, it makes a sensation.

and he speaks of how,

although each created monad represents the whole universe, it represents more distinctly the body which is particularly affected by it and of which it is the entelechy.
(Monadology, §62, 1714: L.II.1055)

But how can such distinctness be made compatible with the fact that every object in the phenomenal world is composed of an infinite number of monads and their bodies and that, since we cannot perceive each individual monad separately and
distinguish it from the others, our sense perception of these objects is confused? Often Leibniz writes as follows:

Therefore whatever follows from the laws of body must necessarily be represented in order by the soul to itself, some of it distinctly but some confusedly (that, namely, in which a multitude of bodies is involved). In the former case, the soul understands; in the latter, it senses.
(Letter to de Volder, 24 March/3 April 1699: L.II.841)

Similarly, in *On the Elements of Natural Science*, he writes:

Thus we shall deal with body and with its qualities, both the intelligible ones which we conceive distinctly and the sensible ones which we perceive confusedly.
(The Plan of the Book, c.1682-4: L.I.427) (12)

and in the *New Essays*, of how,

the soul is a little world, where distinct ideas represent God and confused ones represent the universe.
(Bk.2 Chap.1: R&B 109)

Moreover, he is surely speaking his mind truthfully when, in the *Discourse on Metaphysics*, he says that,

our sense perceptions, even when they are clear, must necessarily contain a certain confused feeling, for, since all the bodies of the universe are in sympathy with each other, ours receives impressions from all the rest, and, though our senses are in response to all of them, it is impossible for our soul to pay attention to every particular impression. This is why our confused sensations result from a really infinite variety of perceptions.
(Discourse on Metaphysics, $33$, 1686: L.I.501) (13)

There are two possible solutions to this apparent inconsistency. Firstly, it could be said that we must recognise that the confusedness and distinctness of perceptions have degrees of more and less. All sense perceptions will be
confused, but confused to a lesser or greater degree, such that a sense perception which is hardly confused at all could even be said to be slightly distinct (14). Sense perceptions of sensible qualities will still be confused, but it can be said that they are distinct in comparison with other perceptions, for instance, in comparison with those which Leibniz calls unconscious, minute or 'petites' perceptions:

These minute perceptions, then, are more effective in their results than has been recognised. They constitute that je ne sais quoi, those flavours, those images of sensible qualities, vivid in the aggregate but confused as to the parts; those impressions which are made on us by the bodies around us and which involve the infinite; that connection that each being has with all the rest of the universe. (New Essays, Preface, 1704: R&B 54-55)

It could then be concluded that our sense perceptions do, in the main, tend towards the more confused side in the scale of degrees, whereas our thoughts will tend towards the distinct side.

The second solution is perhaps more convincing. In the passage quoted above from §33 of the Discourse, Leibniz speaks of clear sense perceptions. Because of their clarity, these sense perceptions will enable us to distinguish one object from another, or one part of an object from another part. When we see objects, we are able to distinguish them from other objects and also give reasons as to why one object is different from another. That is to say, we can usually notice differences in the objects themselves which make it obvious that the object differs from others by more than its spatio-temporal positions. One chair, for instance, is different from
another, perhaps because one has three legs and the other has four. Because of this, it can be said that our sense perception of material objects is distinct, although also inadequate because we will only perceive the differences between objects confusedly. (Even if we are able to distinguish some of the parts distinctly, it will never be the case that we can sense perceive all the parts of an infinitely divisible object distinctly.)

However, this distinctness is in fact due to the fact that our conceptual abilities are involved in the differentiation of one object from another. Distinct knowledge involves an ability to enumerate the distinguishing elements of a thing. In sense perceptions alone, we cannot enumerate anything. No reasons can be given as to why the object is different from another for the very act of giving a reason takes us out of the realm of sense perception and into the realm of thought and understanding. It might be said that we could point to the differences between the objects, but even this pointing requires first some conceptual division of an object into constituent parts. Moreover, when we see (or touch or feel, etc.) an object, what we see are the objects sensible qualities, and these are themselves confusedly perceived in the sense that we cannot enumerate differences which distinguish one quality from another. These qualities may be used in the enumeration of differences between objects themselves (and this is why we said above that the sense perception of an object could be distinct), but the sense perception of the qualities
themselves is always confused. At base, this is all that our sense perception is. When we perceive material objects which have a number of differentiating qualities, this expression of the object is not sense perception alone, but always involves some conceptualization. If our comparison between knowledge and perception is acceptable, then, since the concepts involved in our knowledge of the objects of the common sense are 'at once sensible and intelligible' (On What is Independent of Sense and of Matter, 1702: L.II.892), our sense perception of these will also be both sensible and intelligible. However, just as our knowledge of an object's sensible qualities only uses sensible concepts (ibid.), so too, our sense perception of these will also always rely solely on the senses for its information. No interpretation is made by the reason, in this case. It follows again, that sense perception per se is always perception of qualities and is always therefore confused. We have not, therefore, proved that for Leibniz confused perception is perception of material bodies in space and time. Perception of bodies does incorporate an element of distinct perception. However, we have established that confused perception is perception of these bodies' qualities. For our purposes it is sufficient that perception of material bodies requires some confused perception.

Having established that sense perception is always confused - at least to some degree - and that confusedness of perceptions is due to the primitive passive force of the perceiving monad, the time has come to advance a hypothesis on
a possible relation between confused perception and derivative passive force. (Even if the reader does not accept that for Leibniz all sense perception is confused, he must accept that sense perception of the qualities of material objects in space and time occurs because the perceiving monad has primitive passive force, and since no body could ever be perceived which did not have these sensible qualities, that in the final analysis, sense perception of the material objects themselves only occurs because the monads have primitive passive force.)

We have seen (chapter 3) that derivative forces are modifications of primitive forces, and have interpreted this to mean that, certainly in the case of derivative passive force, it is a modification arising out of the primitive passive forces of the subordinate monads which make up any extended, resistant, aggregate body.

We have seen, too, that perception is a modification of a monad (i.e. again a modification of primitive forces) and have interpreted confused perception as a modification of, specifically, primitive passive force.

Both derivative passive force and confused perception are therefore modifications of primitive passive force. And this is not the only point of similarity or of resemblance between them. For instance, both perceptions and derivative forces are 'present states' of a monad. Thus Leibniz wrote to de Volder that,
Derivative force is itself the present state when it tends toward or preinvolves a following state, as every present is great with the future.
(Letter to de Volder, 21 Jan.1704: L.II.869)

while, of perception, he says that,

every present state of a simple substance is a natural consequence of its preceding state, in such a way that the present is great with the future.
(Monadology, §22, 1714: L.II.1047)

In the Monadology, perception is also called a 'passing state':

The passing state which enfolds and represents a multitude in unity or in the simple substance is merely what is called perception.
(ibid., §14, 1714: L.II.1045-6)

Leibniz has not said that derivative force is a passing state, and he makes no mention of it enfolding and representing a multitude in unity. But derivative force could be a passing state because its present already involves the future, since from the present it will pass to the future in order that the future will become present.

Do these similarities give us reason to believe that derivative passive force and confused perception are indeed one and the same thing? This cannot be the case, because perception, both confused and distinct, is a kind of expression, representative not only of the force of which it is a modification, but of the whole universe (15). Derivative passive force, on the other hand, is not said by Leibniz to be an expression of anything at all, and if it were an expression,
it could only be an expression of the primitive force of which it is a modification. Perception, then, is much wider in scope than derivative force.

Yet, if both derivative passive force and confused perception are modifications of primitive passive force, we must find some explanation as to why this primitive passive force is sometimes modified as derivative passive force, and at other times as confused perception.

Interestingly, that which is confusedly perceived is also that which displays the inertia and impenetrability which herald the presence of derivative passive force. This fact provides us with the chance to present a very elegant hypothesis regarding the relationship between confused perception and derivative passive force.

Both derivative passive force and confused perception are due to the primitive passive forces of the monads, being their modifications. Derivative passive force has been interpreted as a modification of the primitive passive forces, taken in aggregate, of subordinate monads. If confused perception is also a modification of such an aggregate, Leibniz will have to explain how the aggregate can be modified as both derivative passive force and as confused perception. It might not be impossible for him to do this. There is nothing intrinsically objectionable in the idea that primitive force is modified in two different ways simultaneously. Nevertheless, the issue can be avoided, because confused perception does not have to be a
modification of an aggregate of monads. There is nothing in
Leibniz's texts to prevent confused perception being a
modification of the primitive passive force of the dominant
monad, or of the primitive passive forces of the subordinate
monads when these are considered individually. Indeed, when the
subordinate monads are considered individually, they are
themselves dominant monads, for every monad, according to
Leibniz, is dominant over some others. (Sometimes Leibniz
expresses this by saying that every monad has an organic body)
(16).

If confused perception is interpreted in this manner, the
following hypothesis becomes immensely appealing.

Because confused perception is sense perception, it
becomes possible to claim that a dominant monad only perceives
itself to have an organic body because it (i.e. the dominant
monad) has primitive passive force. This organic body will be
resistant, i.e. inert and impenetrable, and also extended in
space. This resistance and extension will be due, not to the
primitive passive force of the dominant monad, but to the
primitive passive forces of the subordinate monads which, in
effect, compose, or are the foundation of, the secondary matter
of the organic body. This is possible because derivative
passive force has been interpreted as the modification of this
aggregate. (Note, however, that the sum of the primitive
passive forces of the subordinate monads is not proportional to
the primitive passive force of the dominant monad (17)). The
primitive passive force of the dominant monad is only
responsible for the confused perception which the dominant monad has of the subordinate monads. It is not responsible for the primitive passive forces of these subordinate monads. The subordinate monads in turn, when they are considered as dominant monads with their own organic bodies, will perceive their own organic bodies (aggregates of even more subordinate monads) confusedly, due to their own primitive passive forces. These same primitive passive forces, in addition to making the subordinate monads individually perceive their own organic bodies confusedly, are also the primitive passive forces whose conjunction results in the resistance of the organic body of the monad dominant over them.

Expressed simply, the view proposed here is that the dominant monad's primitive passive force makes that monad confusedly perceive the subordinate monads which make up its organic body. And because it is perceived confusedly, this organic body is perceived as material and extended. The body is resistant because the subordinate monads have their own primitive passive forces, and these, taken together, are perceived confusedly by the dominant monad (and perhaps by other monads, but not by the subordinate monads involved) as the resistance of the organic body. This organic body would, however, still resist even if it were not perceived by the dominant monad, or indeed if it did not have a dominant monad, because its resistance is itself a result of the fact that many other resistant bodies are in the organic body - these bodies being the organic bodies of the subordinate monads, which
bodies are also perceived confusedly by the subordinate monads to which they belong because the subordinate monads have primitive passive force (18). Such confused perception of organic bodies, and resistance of these organic bodies, can be continued to infinity.

Leibniz himself does not state the above hypothesis as such, but there is reason to believe that he would not have been averse to such an interpretation, if not, indeed, positively delighted by it. And if a similar interpretation can be given of the relation between derivative active force and distinct perception, the relation between the dominant monad and its aggregate body becomes immediately more intelligible.

The above interpretation fits nicely with what Leibniz tells us about extension in his *Refutation of Spinoza*, c.1708:

extension is not an attribute of itself since it is only the repetition of perceptions.
(Duncan, p.179)

and to de Volder:

I believe that perception is involved in extension, and motion as well, and that substance and accident equally involve and are involved in each other.
(23 June 1699: L.II.843)

Extension will be a repetition of the perceptions had by the subordinate monads. When these subordinate monads perceive confusedly, the extended body will be resistant to other bodies, and when they perceive distinctly, the extended body
will move, though this last point has still to be proven (19).
CHAPTER SIX

SUBSTANTIAL FORMS (1)

We turn now to look at the nature of Leibniz's substantial forms. First we should remind ourselves that substantial forms are primitive active forces:

their nature consists of force and [that] there follows from this something analogous to sense and appetite, so that we must think of them in terms similar to the concept which we have of souls . . . Aristotle calls them first entelechies. I call them, more intelligibly perhaps, primitive forces, which contain not only the actuality or the completion of possibility but an original activity as well.

(A New System of the Nature and the Communication of Substances, 27 June 1695: L.II.741) (1)

That the substantial form is not a combination of both primitive active and primitive passive force, but is primitive active force alone, is clear from the fact that Leibniz refers to the forms as that which contains 'the completion of possibility'. Primitive passive force (as primary matter) is the potentiality, or the possibility itself. Primitive active force is that which has the ability to make the possibility actual (2). Primitive active force can be thought of as a blanket-term covering both souls and substantial forms. Rational souls and substantial forms are not equated, but are merely similar to one another.

In the New System of 1695, this similarity between substantial forms and rational souls is expressed in the recognition that they share the same basic nature, differing only in kind, according to their degrees of perfection (or, as
we shall see, in their degrees of primitive active force).

I concluded, nevertheless, that we must not mix up indifferently, or confuse, minds or rational souls with other forms or souls, for they are of a superior order and have incomparably more perfection than have the forms which are sunk in matter, which I believe are found everywhere. (New System of the Nature and the Communication of Substances, 27 June, 1695: L.II.742)

Unfortunately, only three years later, Leibniz writes:

It is this substantial principle itself which is called the soul in living beings and substantial form in other beings, and inasmuch as it truly constitutes one substance with matter, or a a unit in itself, it makes up what I call a monad. (On Nature Itself, Sept.1698: L.II.818)

Here, the difference would appear to be more than merely one of kind, for there is a difference in 'kind' between living and non-living substances. This view entails that Leibniz's equation of primitive active force with 'life' and his inclusion of this primitive active force in the soul or the monad, must be to the exclusion of substantial forms, since these are not living, nor are they the forms of the living beings.

This primitive active force, which could be called life, is precisely what is contained . . . in what we call a soul or in simple substance. (Conversation of Philarete and Ariste, c.1711: L.II.1015) (3)

In this conversation, Leibniz had also equated primitive active force and Aristotle's primitive entelechy:

bodies are thus composed of two natures - a primitive active force (called first entelechy by Aristotle) and matter or primitive passive force, which seems to be antitypy. (ibid.: L.II.1014)
Leibniz had also equated Aristotle's primitive entelechy with his substantial form in the passage from the *New System*, which we quoted at the beginning of this chapter (4). This being so, it can again be concluded that substantial forms are equivalent to primitive active forces. Unfortunately, they cannot be equivalent if the primitive active force is 'life' and the substantial form is the 'soul' of non-living beings.

However, it is true of the majority of Leibniz's statements on the nature of monads that there is no one assertion that is not denied elsewhere. Substantial forms are not always equated with the primitive entelechy. Just as primary matter was said to arise out of 'the union of the passive power of the monads'(5), so too, a substantial form can arise out of the 'union of the monadic entelechies':

> From the union of the monadic entelechies, however, there arises a substantial form. (Letter to des Bosses, 5 Feb. 1712: L.II.975) (6)

When this is the case, the substantial form cannot be analogous to the soul, for the monadic entelechies can cease to be unified, entailing that the resultant substantial form can also cease to be, and whatever can arise and be extinguished in this way is also destroyed by the cessation of the union, unless it is conserved miraculously by God. Such a form, moreover, will then not be a soul, which is a simple and indivisible substance. (ibid.: L.II.975) (7)

Thus, as with the monad itself, so with the substantial form, there are a number of conflicting descriptions. It will be
helpful to recap here before going on to discuss the relationships between Leibniz's substantial forms and those of Aristotle and the Scholastics.

We have seen that the substantial form is often equated with primitive active force, and also with the soul, when this is not being regarded as a monad.

As primitive active force, however, the substantial form can be an element of either the simple substance or monad, or an element of the composite substance when this is composed of primitive active and passive force (as in the postscript to the letter of 18 Aug. 1715 to des Bosses: L.II.1003).

The substantial form can be the 'soul' of non-living beings. As such it conflicts with the description given of it as an element of the monad, for we cannot deny that monads, being active, are alive. It conflicts, too, with the equation of soul and substantial form, where soul is the principle of life. The description of the substantial form as the 'soul' of non-living beings does not, however, conflict with the description of the substantial form as arising out of the union of monadic entelechies, because this union would be a non-living aggregate, for instance, a rock or a piece of stone, a corpse or a marble tile.

Nevertheless, the description of the substantial form as a result of the union of monadic entelechies does conflict with the many statements in which Leibniz equates the substantial
form with the primitive entelechy of Aristotle. Moreover, it conflicts with the description of the substantial form as basically a kind of soul, for Leibniz himself stated that this union of monadic entelechies could not be a soul.

Although we have been able to make a case for the denial of any equation between substantial forms, souls and primitive active forces, it is more common than not for Leibniz to equate them. Moreover, he does not give us any indication of how substantial forms, souls and primitive active forces could differ from one other. It is easier to understand how they differ in degree than how they differ in kind. For instance, the substantial form, as we shall see, is a principle of action. Here its connection with primitive active force can readily be seen. If Leibniz did not equate substantial forms and souls, he could deny that the soul is a principle of action, but, significantly, he does not do so. This argument applies to all the features we find attributed to substantial forms. There is no one feature which it is advantageous to ascribe to the form and yet not also to the soul (8).

For these reasons, and also because in doing so, no major difficulties arise, we accept in what follows that Leibniz equates substantial forms, souls and primitive active forces, with the qualification that rational souls are more perfect than substantial forms. We have already accepted his sometime equation of primary matter and primitive passive force (9). In trying to explain the relation between immaterial monads and material bodies, we regard the monad principally as a
combination of substantial form and primary matter, and take this to be the same as the combination of primitive active force and primitive passive force. We hope that the explanatory value of this definition will become obvious.

Our working definition of a monad is basically that which Leibniz gave to de Volder:

I therefore distinguish: (1) the primitive entelechy or soul; (2) primary matter or primitive passive power; (3) the complete monad formed by these two.
(Letter to de Volder, 20 June 1703: L.II.864)

We grant that Leibniz does not here refer to substantial forms or to primitive active forces, but we do know that, sometimes at least, Leibniz refers to substantial forms as primitive entelechies, and that he refers to souls and substantial forms as being primitive active forces.

Our recap at an end, we can now consider Leibniz in relation to his predecessors. Leibniz regarded himself as the restorer of substantial forms back into philosophy. In this respect, his metaphysics looks backwards to the Greeks and to the mediaeval philosophers. This restoration is an early feature in Leibniz's philosophical career. In 1679, he wrote of his philosophy as follows:

There is another important thing in my philosophy which will give it access to the Jesuits and other theologians. This is my restoration of substantial forms, which the atomists and Cartesians claim to have exterminated.
(Letter to John Frederick, Duke of Brunswick-Hanover, Fall 1679: L.I.401)
But this restoration of substantial forms is also a persistent feature in Leibniz’s writings. We find him referring to it in 1686 (Discourse on Metaphysics, §11, 1686: L.I.474) and in 1695 (A New System of the Nature and the Communication of Substances, 27 June 1695: L.II.741).

There are two questions to be asked concerning these substantial forms: 1. What is Leibniz’s account of their nature and how does this differ from the nature they were given by the older philosophers? and 2. Why did Leibniz feel the need for them in his philosophy? Obviously we cannot begin to answer the second question without having first answered the preceding one.

An important aspect of the substantial form is the role it plays as a principle of motion and of rest, or as a principle of action. Early in his philosophical career he wrote that,

In Aristotle, nature is the principle of motion and of rest. But substantial form is properly nature in the same philosopher.

(On Transsubstantiation, c.1668(?): L.I.181) (10)

Leibniz follows this statement with one asserting a connection between the substantial form as a principle of motion and rest, and the substantial form as a principle of individuation, but we shall return to this aspect in a moment.

Later in the same paper, Leibniz appeals to the Scholastic notion of ‘suppositum’. This denotes a substance or entity which subsists in itself, and which contains within
itself, a principle of action. He goes on,

From this it follows further that substantial form is itself a principle of action; in bodies, of motion.
(ibid.:L.I.182)

Around 1680-84, Leibniz ends a paper by stating that,

much that is excellent and certain can be said about the nature of conatus and the principles of action, or as the Scholastics called it, of substantial forms.
(On the True Method of Dealing with Philosophy and Theology: G.VII.327)

There is a difference between Aristotle's principle of motion and rest and Leibniz's principle of action. This can easily be explained if we remember that in Leibniz's view all bodies move, and there is no body that is ever completely at rest (11). Leibniz therefore has no need of a principle of rest.

Leibniz may also have preferred the description, 'principle of action' to that of 'principle of motion' because the substantial form is (usually) an element of the monad itself, and monads do not move. The phrase 'principle of action' is sufficiently general to enable the form to be both a principle of action for the monads and a principle of motion for bodies. Observe, however, that his description of the substantial form as a principle of impetus (Letter to des Bosses, 19 Aug.1715) stresses the form's importance in relation to the movement of bodies, and especially so because in this letter, the principle of impetus (the substantial form) belongs to the composite substance, i.e. to the aggregate body.
The concepts of action and motion are closely bound up with one another. That which moves thereby also acts, whether consciously or not. The concept of force, as that which lies behind the action or motion, is clearly relevant here. It can therefore be understood why Leibniz at times found the nature of substantial forms to be primitive active force, and also why he sometimes referred to this force as a primitive motive force (12).

In support of the relation between the substantial form and the motion of bodies and the action of substances, Leibniz could call upon not only Aristotle, but also on St. Thomas Aquinas:

That the accidental form is a principle of action is due to the substantial form. Therefore the substantial form is the first principle of action, but not the proximate principle. In this sense the Philosopher says that the soul is that whereby we understand and sense.

(Summa Theologica, Pt.1, Qu.77, Art.1: Pegis p.721)

The accidental form is here equivalent to Leibniz’s derivative active force, which is a modification of the substantial form, i.e. of primitive active force (13).

The above is by no means the only characteristic belonging to the substantial forms. In 1669, in a letter to his teacher at Leipzig, Leibniz wrote that,

the substantial form consists in something indivisible and cannot be increased or decreased.

(Letter to Jacob Thomasius, 20/30 Apr.1669: L.I.151)

Again the view can be traced back to Thomas Aquinas (14). Here,
the quotation from Aquinas is so similar to that from Leibniz that we are tempted to say that Leibniz merely lifted the words verbatim from the Scholastic text:

For the substantial being of each thing consists in something indivisible, and every addition and subtraction varies the species, as in numbers, according to Metaph. viii. Consequently, it is impossible for any substantial form to receive more or less.

(Summa Theologica, Pt.1, Qu.76, Art.4: Pegis p.709-10) (15)

But we can deny that Leibniz merely lifted his view straight from Aquinas due to the fact that he also argues for his view using examples not provided by Aquinas. Thus, we find Leibniz justifying his view with the fact that,

neither can a figure be increased or decreased. Even if one circle is greater than another, one circle is not more circle than another, for the essence of a circle consists in the equality of all lines drawn from its centre to its circumference. But equality itself consists in an indivisible; nothing can be more or less equal.

(Letter to Jacob Thomasius, 20/30 Apr.1669: L.I.151)

At this time Leibniz believed that forms arise out of the figures of bodies, and the figures arise out of the motion of the parts, and so ultimately he believed that figures arise out of the motions of bodies:

But, if it [i.e. mass] is continuous in the beginning, forms must necessarily arise through motion . . . For division comes from motion, the bounding of parts comes from division, their figures come from this bounding, and forms from figures; therefore, forms come from motion. From this it is clear that every arrangement into a form is motion, and the vexatious problem of the origin of forms is answered . . . We shall say that they arise from the power of matter, not by producing something new, but merely by taking away something old and causing boundaries through a division of parts.

(ibid.: L.I.149)
Leibniz's youth and philosophical inexperience prevented him from realizing that this is, in fact, no explanation at all, for he has not explained why such figures should arise from these motions rather than any other figures, or why these motions which will produce certain figures arise in preference to different motions which would produce different figures. To explain these events, Leibniz had first to realize the priority of the notion of form, which realization was dependent upon his insights into the relativity of motion and thephenomenality of figure.

Nevertheless, although Leibniz's views on form, figure and motion change, he retains the indivisibility of the substantial form. As authorities for the indivisibility of the substantial form, Leibniz cites Thomas Aquinas:

I concede that the substantial form of the body is indivisible, and it seems to me that that is also St. Thomas' opinion. (Letter to Arnauld, 28 Nov./8 Dec. 1686: Mason, p.93) (16)

It seems to me that Saint Thomas considers the animal soul to be indivisible. (Letter to Arnauld, 9 Oct. 1687: Mason p.150)

That Leibniz perceived a close connection between indivisibility and indestructibility is evident from the fact that both of these assertions are followed immediately by statements about the indestructibility of the substantial forms. Leibniz lists his companions on this issue (Letter to Arnauld, 9 Oct. 1687: Mason p.149).

The indestructibility and the indivisibility of the
substantial forms are closely connected for Leibniz, because when talking of destruction, he means the natural destruction of a material body when it decomposes or is broken. This kind of destruction involves a breaking down of parts. But the monad, of which the form is an essential element, has no such material parts. It follows, certainly for Leibniz, that neither the monad nor the form can be destroyed. In the Theodicy, Leibniz criticises the Scholastics for not admitting the indestructibility of the substantial form, and he attributes this to their failure to perceive the difference between indestructibility and immortality.

Sennert and Sperling did not venture to admit the subsistence and the indestructibility of the souls of beasts or of other primitive forms, although they allowed that they were indivisible and immaterial. But the fact is that they confused indestructibility with immortality, whereby is understood in the case of man that not only the soul but also the personality subsists. In saying that the soul of man is immortal, one implies the subsistence of what makes the identity of the person, something which retains its moral qualities, conserving the consciousness, or the reflective inward feeling, of what it is: thus it is rendered susceptible to chastisement or reward. But this conservation of personality does not occur in the souls of beasts: that is why I prefer to say that they are imperishable rather than to call them immortal. Yet this misapprehension appears to have been the cause of a great inconsistency in the doctrine of the Thomists and of other good philosophers: they recognized the immateriality or indivisibility of all souls, without being willing to admit their indestructibility, greatly to the prejudice of the immortality of the human soul.

(Theodicy, §89: Huggard p.171)

Leibniz adds that Duns Scotus held the same view, and besides, the subsistence of material atoms had been accepted as possible, so why not the subsistence of immaterial substances, 'which are the sole and true atoms of Nature' (ibid: Huggard p.172).
Connected to the doctrine of the indivisibility of the substantial form is the role of the substantial form as a principle of unity. In his letter to Arnauld of 28 Nov./8 Dec. 1686, Leibniz explains that unity cannot arise out of mere contiguity of parts. Even if two diamonds are brought so close to each other that they touch each other 'they will not be more substantially united on that account' (Mason p.94). Such a unity could be divided. The two diamonds could again be separated. And even if there were only one diamond, it itself could be divided. Indeed, Leibniz goes even further than merely asserting that the material object could be divided, for he believes that, for all that it may appear solid and continuous to us, it is in fact actually divided. Moreover, an object is not merely divided into a finite number of material parts - it is actually infinitely divided in such a way that each material part is again divided into more material parts. Leibniz argues that because,

the continuum is not only infinitely divisible, but every part of matter is in fact divided into other parts as different one from another as the two diamonds mentioned above.

(ibid.: Mason p.95), we shall never find true indivisible entities,

except when one finds animate machines whose soul or substantial form creates substantial unity independent of the external union of contiguity.

(ibid.: Mason p.95) (17)

It is important to point out at this juncture that the substantial form does not confer unity on itself, nor on the
body, but on the organism or living creature which is the combination of substantial form and body. The form itself has unity, and so does not need to have unity conferred upon it, while the body is an aggregate of individual substances and remains so even when the form is present. The form cannot make many individual substances become one substance. The body remains infinitely divisible even when the soul is present. What is not infinitely divisible is the animal itself, and this is not divisible because it has a soul or substantial form.

Herbert Carr (18) makes this point implicitly when he says that the soul gives 'integrity' to the 'manifold interests of the individual organism'. C.D. Broad (19) makes the point explicitly when he says of Leibniz that,

he does not hold that the substantial form converts the machine which it animates into a single substance instead of an aggregate of substances; still less that it gives to it the kind of unity which is characteristic of a soul. What he holds is that the substantial form makes the whole composed of itself and the machine which it animates into a single natural psycho-physical unit.

Russell's interpretation of Leibniz is not so accurate. Russell (20) believed that Leibniz spoke 'as if the presence of the soul prevented the body from being a mere aggregate' and that Leibniz 'suggests that the body without the soul is a mere aggregate, but with it, acquires a true unity'. It is true that the body without the soul is a mere aggregate. But it does not follow from this that the body, when the soul is attached to it, is no longer an aggregate. All that happens is that the body is no longer a mere aggregate. It is still an aggregate,
but an aggregate which is part of an individual true unit, viz. part of the animated organism, and it is so because the soul is the other part of that organism. The soul or substantial form is that which confers unity on the organism composed of body (Broad’s ‘machine’) and soul/substantial form together. The quotation which Russell cites to support his view (i.e. the view that the soul makes an aggregate body into a unit) rather supports our view that the soul makes the combination of soul and aggregate body into a unit:

The number of simple substances in any mass, however small, is infinite; for beside the soul, which makes the real unity of the animal, the body of the sheep, for example, is actually divided, i.e. is an assemblage of invisible animals or plants, similarly composite except for what makes their real unity; and though this goes to infinity, it is plain that all in the end depends on theseunities, the rest, or the results, being only well-grounded phenomena.

(Remarques sur les Objections de M. Foucher, 1695: G.IV.492, Russell’s translation, pp.150-151)

This aspect of the substantial form as the reason behind the unity of the animal or any other individual substance can be traced to the philosophy of Thomas Aquinas. In his *Summa Theologica*, arguing that man can have only one soul, Aquinas wrote that,

nothing is absolutely one except by one form, by which a thing has being; because a thing has both being and unity from the same source, and therefore things which are denominated by various forms are not absolutely one.

(Summa Theologica, Pt.1, Qu.75, Art.3: Pegis p.705) (21)

This quotation also shows that Aquinas believed that the substantial form conferred being on the animal, where the animal is understood to be a composite of matter and form. But
he also says that the form gives being to matter. Hence, again in the *Summa Theologica*, we find him saying that, 'The form causes matter to be' (Pt. I, Qu. 75, Art 5: Pegis p.690) and that 'matter has actual being by the substantial form, which makes it to be absolutely' (Pt. I, Qu. 75, Art. 6: Pegis p.713). Leibniz says he agrees with those philosophers who, 'have recognized that it is form which gives determinate being to matter' (Letter to Arnauld, 9 Oct.1687: Mason pp.152-3). Leibniz is here speaking of secondary matter. We know that the form cannot make such an aggregate into a substance which is an indivisible unit. But, as we said above, when the aggregate is joined to a substantial form, the animal or animated organism, which is the conjunction of dominant monad and aggregate body, does have an indivisible unity because of the presence of the dominant monad's substantial form. As an indivisible unity, the animal has being. Leibniz seems to be saying that the animal's body gets being from the substantial form which is a part of the dominant monad. Without the form, the secondary matter aggregate has only a phenomenal, not a genuine unity, and therefore has only phenomenal being, not genuine being.

Conversely, any aggregate of secondary matter - bodies without forms - has only phenomenal unity and being:

I grant that the name of 'one' can be given to an assembly of inanimate bodies although no substantial form links them together, just as I can say: there is one rainbow, there is one flock; but it is a phenomenal or notional unity which is not enough for the reality in phenomena.

(Letter to Arnauld, 9 Oct.1687: Mason, p.153) (22)

The connection between indivisibility, unity and being
rests on the fact that, for Leibniz, 'Only indivisible substances and their different states are absolutely real' (ibid.: Mason p.153). The substantial form confers indivisibility on the animated substance, and in doing so, confers unity, and hence also true being on the animal, for all beings, according to Leibniz, are indivisible units (23). We can observe that if that which has being is alive (or animated) then the distinction between the soul as the form of animate beings and the substantial form as the 'soul' of inanimate beings cannot be made (24). If the form does give 'life' to the body, or rather makes it a part of a corporeal substance, the connection between the substantial form and the primitive active force can be understood, since that which is alive is also active, and that which is active has 'active force'.

Having seen how closely intertwined are all the characteristics Leibniz ascribed to his substantial forms, we can presume, correctly, that the next and final characteristic is no exception.

This is the one characteristic by which Leibniz's substantial forms differ from those belonging to the Aristotelian and Scholastic traditions. It consists in the fact that Leibniz's forms are principles of individuation. This characteristic is related to the others because for Leibniz all and only individual substances have indivisible unity. It is also connected with the idea of form as a principle of action. We have already noted above (25) that Leibniz saw some kind of
connection between motion and individuation, when he wrote his paper entitled *On Transubstantiation* (c.1668). But in this paper Leibniz does not explain why the form as a principle of individuation follows logically from the form as a principle of motion and rest. To explain the connection, we have to go forward a year to the 1669 letter from Leibniz to Thomasius (26). It is clear in this letter that Leibniz was thinking that the boundaries of bodies, or their figures, were involved in the individuation of a body. Each body has its own boundaries, and from this, its own figure and its own form, since in this letter 'form' and 'figure' are synonymous. Boundaries of bodies are created by the movement of various parts of the body away from or towards other parts of the body. This at the same time causes various changes in the body's figure and form (Letter to Jacob Thomasius, 20/30 Apr. 1669: L.I.149).

Leibniz's views on motion soon changed. The form of a body became no longer simply the figure of the body. Nevertheless, the idea of the form as the principle of individuation remained. A connection between the form as a principle of individuation and as a principle of action also remained, because Leibniz adopted the view that all action was internal to the monads. He rejected the idea that monads could act upon (influence) any other monad. Any one monad's actions change only itself. It follows from this that all its actions must arise from within the monad too, since no other monad can have any influence on it either. The monad is an individual in the very strong sense by which it is not dependent on any other
monad, save God (if, indeed, He is a monad).

It might be worth remarking that Leibniz appears to use the form as an individuator of corporeal substances, animals or bodies, rather than as the individuator of the monad itself.

And so, to Herman Conring, he asks rhetorically,

Who would deny substantial forms, that is, essential differences between bodies?
(Letter to Herman Conring, 19 March 1678: L.I.289)

In First Truths, we find Leibniz arguing for the existence of a form on the grounds that without a form, or a soul, in corporeal substances,

there could exist two corporeal substances perfectly similar to each other, which is absurd.
(First Truths, c.1680-84: L.I.416)

We saw in Chapter 2 that Aristotle and Aquinas both used matter as their principle of individuation. Hence, although Leibniz agrees with these philosophers on most points concerning substantial forms, he does not agree fully. All the same, Leibniz did think that by taking the form as a principle of individuation he was carrying on the Aristotelian tradition (Letter to Jacob Thomasius, 20/30 April 1669: L.I.147) (27). He also believed that he was using Aquinas' method of individuating angels and extending this to cover the individuation of all individual substances (Discourse on Metaphysics, §9 1686: L.I.472). (This suggests that the form can be regarded as the individuator of the monads itself as well as the individuator of corporeal substances). Leroy
Loemker says in a note that Leibniz actually used a Scotist method of individuation (L.I.561-2 n.91). We have a little more to say concerning individuation in chapter 8.

Leibniz also differs from the Scholastics with regard to substantial forms in that he refused to allow them to be used in the explanation of physical phenomena. This had been one of the Scholastic abuses of the forms:

I agree that the consideration of the forms serves no purpose in the details of physics and that they ought not to be used to explain particular phenomena. In this the Scholastics failed, as did the physicists of the past who imitated them, thinking that they could account for the properties of bodies by mentioning forms and qualities, without taking pains to examine the manner of their operation. This is as if one were content to say that a clock has a time-indicating property proceeding from its form, without inquiring wherein this property consists.

(Discourse on Metaphysics, §10, 1686: L.I.473)

Imagine that some angel wished to explain to us how bodies are made heavy; he could achieve nothing by speaking, however beautifully, about a substantial form, or sympathy, or other things of this kind. Rather he would only then satisfy our curious understanding when he gave us an explanation, sufficiently understood, which, when we have comprehended it, will enable us to demonstrate with geometric certainty that gravity must necessarily arise from it.

(An Introduction on the Value and Method of Natural Science, c.1682-4: L.I.444-5)

This geometrical demonstration involves looking at the working of parts of the body:

But the way in which a body operates cannot be explained distinctly unless we explain what its parts contribute. This cannot be understood, however, unless we understand their relation to each other and to the whole in a mechanical sense, that is, their figure and position, the change of this position or motion, their magnitude, their pores, and other things of this mechanical kind, for these always vary the operation.

(ibid.: L.I.446)
Even the perceptions of the soul or substantial form can be explained mechanically:

it is not sufficient to say that a heavy body senses and desires the earth unless we explain at the same time how this sense and this desire arise. In this way we should finally have to come to the construction of the organs of the sensing being, that is, to the mechanical principles. For what happens with perception happens nonetheless mechanically, and to the passions of the soul there correspond bodily motions in the organs which always follow mechanical laws.

(ibid.: L.I.445) (28)

We shall come back to this correspondence between the passions of the soul and the movements of the body (chapter 12). For the moment, we must show how Leibniz tried to reconcile the mechanistic explanation of the world, as explained above, with the Scholastic explanation in terms of souls and forces.

A brief synopsis of Leibniz's position could start from a description of the natural sciences (e.g. physics) as sciences which attempt to find general laws which prevail in the world of nature, i.e. in the world of bodies. It is for this reason that we call these laws, 'laws of nature'. Such laws can be general, like the principle of the conservation of energy, or more specific, such as that when two hydrogen atoms come close enough in space to an atom of oxygen, the three atoms will bond together in such a way that the substance we call water is produced.

Let us consider a specific scientific truth. An atom is generally considered to be composed of neutrons, electrons and protons. Electrons have a negative charge, protons a positive
charge, and these charges are such that a proton has the same amount of positive charge as an electron has of negative charge. Therefore, when the number of protons is equal to the number of electrons, all the positive charge is cancelled by the negative charges and vice versa, and the atom then has a neutral charge. (The charge of the neutron is, as we would expect, neutral). The number of electrons in an atom does not have to equal the number of protons. Electrons can easily be removed from any atom, or transferred from one atom to another; they can even be removed from one material and transferred to a different material. It is more difficult to remove protons from the nucleus of the atom because the force binding the protons and neutrons together is far greater than that binding the electrons to the nucleus.

But why should it be that the positive charge of the proton matches the negative charge of the electron? Why could it not be the case that an electron has double the amount of negative charge as the proton has positive, so that the atom, to have a neutral charge, would need twice the number of protons as electrons? Why, also, does the neutron have a neutral charge? The physicist does not attempt to answer these questions. And so, it is at this point that philosophy, or rather, metaphysics, enters upon the scene, for the philosopher will try to answer such questions.

Of course, atomic theory is now very different from atomic theory in Leibniz’s day, but nevertheless Leibniz’s point of view can still be explained, as we have done, using
20th century scientific examples instead of 17th century examples. The point which Leibniz was making is that at some point physics and the other sciences must come to an end, and it is at this point that philosophy takes over. The sciences can explain phenomena by making appeal to the laws of nature which hold in the world, but they cannot explain those laws of nature themselves. Scientists may indeed be able to explain why, since the charges of the electrons, protons and neutrons are as they are, atoms have a neutral charge when the number of protons equals that of electrons, but they cannot explain why the electrons, protons and neutrons have the charges which they do. Leibniz's examples are different, and, in fact, he restricts the inadequacy of the sciences to the most general principles, whereas our example is quite specific. A present-day 'Leibniz' would argue that physics, for instance, cannot explain why the principle of the conservation of energy holds true of the world.

And, although all particular phenomena of nature can be explained mathematically or mechanically by those who understand them, it becomes more and more apparent that the general principles of corporeal nature and of mechanics themselves are nevertheless metaphysical rather than geometrical and pertain to certain forms or indivisible natures as the causes of what appears rather than to the corporeal or extended mass.

(Discourse on Metaphysics, §18, 1686: L.I.484-5) (29)

One must always explain nature along mathematical and mechanical lines, provided one knows that the very principles or laws of mechanics or of force do not depend upon mathematical extension alone but upon certain metaphysical reasons.

(Letter to Arnauld, 4/14 July, 1686: Mason p.66)
I agree that the particular effects of nature can and ought to be explained mechanically, though without forgetting their admirable ends and uses, which providence has known how to contrive. But the general principles of physics and mechanics themselves depend upon the action of a sovereign intelligence and cannot be explained without taking it into consideration. (Letter of Mr. Leibniz on a General Principle Useful in Explaining the Laws of Nature through a Consideration of the Divine Wisdom, Nouvelles de la Republique des Lettres, July 1687: L.I.542) (30)

Of course, it might be claimed that, even though there are questions which cannot be answered by physics and mechanics, these same questions cannot be answered satisfactorily by metaphysics either. But this was not Leibniz's view. He believed these questions could be answered, namely, by having recourse to substantial forms, to the principle of perfection and, ultimately, to the goodness of God.

This method of reconciling the Scholastic use of forms and souls and the mechanistic, corpuscularian approach to the explanation involves explaining the phenomena of nature mechanistically and then explaining the principles of mechanics by use of Scholastic substantial forms and of God. This places the metaphysical use of forms, souls and God in a higher position than the use of mechanical principles. Metaphysics becomes somehow more fundamental than the other sciences.

But this is not the only way in which Leibniz attempted the reconciliation of the old with the new. Often he writes as if the Scholastic and mechanistic explanations are equally good or bad at explaining the various phenomena of nature. And so we find him telling des Billettes how,
I believe that everything really happens mechanically in nature, and can be explained by efficient causes, but that at the same time everything also takes place morally, so to speak, and can be explained by final causes. These two kingdoms, the moral one of minds and souls and the mechanical one of bodies, penetrate each other and are in perfect accord through the agency of the Author of things, who is at the same time the first efficient cause and the last end. 

(Letter to des Billettes, 4/14 Dec. 1696: L.II.771)

These two kingdoms are such that each,

separately suffices in detail to give a reason for the whole, as if the other did not exist. But neither is adequate without the other when we consider their origin, for they emanate from one source in which the power which makes efficient causes, and the wisdom which rules final causes are found united. 

(Considerations on Vital Principles and Plastic Natures, 1705: L.II.956) (31)

Leibniz does not appear to have recognized any inconsistency here. But there is at least an apparent, if not a true, inconsistency due to the fact that in the first way of reconciling Scholasticism and mechanics, metaphysical principles were seen to explain the mechanical principles. Under the second way of reconciliation both metaphysics and mechanics are regarded as complete and self-contained systems, each equally capable of explaining all phenomena independently of each other, and which both lead back, in their own ways, to God as either the first cause (mechanics) or the last cause (metaphysics).

In the second way of regarding the reconciliation, contrary to the first way, mechanical principles do not have to be explained by metaphysics. Further interpretations of the relation between final and efficient causes, and a
reconciliation of the inconsistency explained here, will be
given in chapter 15.
CHAPTER SEVEN

SUBSTANTIAL FORMS (2)

So why did Leibniz consider it necessary to restore the doctrine of substantial forms? The answer is to be found in the characteristics outlined in the previous chapter. Each of these characteristics was thought by Leibniz to provide a solution to a perplexing philosophical problem. Usually this was a problem which the Cartesian, mechanistic philosophy had been unable to answer satisfactorily.

Firstly, the activity of the substantial form is used to provide an explanation of both the motion of bodies and of our own changing perceptions. Leibniz criticised the Cartesian account of body as 'res extensa' (1) on the grounds that extension cannot make intelligible the motion of any body. How did Descartes account for the motion of bodies? Principle No.43 in Pt.2 of Descartes' *Principles of Philosophy* is entitled 'En quoi consiste la force de chaque corps pour agir ou pour resister'. In the text itself, Descartes speaks of a force in bodies which prevents them from being separated - 'un corps qui est joint à un autre corps, a quelque force pour empecher qu'il n'en soit separe' - and of a force which prevents bodies from being joined together - 'lorsqu'il en est separe, il a quelque force pour empecher qu'il ne lui soit joint'. Moreover, a body at rest has a force by which it remains at rest and resists motion - 'lorsqu'il est en repos, il a de la force pour demeurer en ce repos et pour resister a tout ce qui pourrait le faire changer' - and a body in motion has a force by which it
resists rest and continues in motion - 'lorsqu'il se meut, il a de la force pour continuer de se mouvoir avec la meme vitesse et vers le meme cote' (2). Descartes, then, accounted for the body's motion by the presence in the body of a force. Leibniz's objection to Descartes lies not in his ascription of force to bodies, but in the inability of Descartes' extension, which for Descartes is characterised by the geometric concepts of length, breadth and depth, to account for the presence of this force in the body. As an extended thing, body is passive. The power mentioned in the *Principles* is not sufficient to provide an inherent activity in bodies. For Descartes, this activity has to be provided and preserved by God (3). For Leibniz, the activity necessary for motion is provided by an active force in the body itself.

But in the concept of motion there are included not only body and change but a reason and a determinant of change as well, which cannot be found in a body if its nature is considered to be purely passive, that is, to consist in extension alone or even in extension and impenetrability. (Letter to de Volder, 6 July 1701: L.II.855)

As further confirmation of the fact that the concept of extension is insufficient for the explanation of the motion of material objects, Leibniz could have added that the extension of a body does not entail the movement of that body. An extended body can be either at rest or in motion. Indeed, the world could be composed of many extended objects, and also be completely motionless.

The positive side of Leibniz's critique consists in an
attempt to establish the presence of a force in the body or corporeal substance.

the concept of diffusion is inadequate to understand the nature of what is diffused. This is itself the very nature into which I think we ought to inquire. And I leave it to your judgment whether this can be anything but a force from which activity and passivity follow.

(Letter to de Volder, April 1702: L.II.858) (4)

Extension is not only incapable of explaining the motion of any extended body, but also incapable of explaining the resistance of a body. And so we find Leibniz saying that,

the concept of extension is not complete in itself but requires a relation to something which is extended, and whose diffusion or continuous repetition it implies, and therefore that it presupposes also a bodily substance which involves the power to act and resist, and which exists everywhere as corporeal mass, the diffusion of which is contained in extension.

(Specimen Dynamicum, Pt.2, 1695: L.II.728)

The forces which must be present in corporeal substances if these substances are to display movement (and resistance) are derivative forces. In the correspondence with Arnauld, Leibniz claims that motion is a consequence of derivative force (9 Oct.1687: Mason p.148), and in a letter to de Volder (21 Jan.1704: L.II.869) he wrote that motion is not itself derivative force, but yet it 'follows from' that force. Both of these passages tell us only that motion arises from derivative force, without specifying whether this force is active or passive or indeed both. However, we have already observed that the resistance (inertia and impenetrability) of a material body signals the presence of derivative passive force (5), so we can reject the idea that motion arises from derivative passive
force, and the idea that it arises from a combination of derivative active and passive forces. This leaves us in the position of claiming that motion arises from derivative active force alone. This is not the only reason why we ascribe this view to Leibniz.

In the letter of 21 Jan. 1704 to de Volder, Leibniz speaks as if all derivative forces are active (L.II.869). Hence, when he says that motion arises from derivative force, we interpret this as the claim that motion arises from derivative active force. Moreover, we cannot deny that activity is displayed by motion, and this being the case, we expect that it would arise from derivative active force rather than from passive force. In the Critical Thoughts on the General Part of the Principles of Descartes, Leibniz refers to this force as an action.

Thus, in order to say that something is moving, we will require not only that it change its position with respect to other things but also that there be within itself a cause of change, a force, an action. (1692: L.II.648)

If motion is the result of a derivative active force in the corporeal substance, then motion is ultimately due to the monads' primitive active force, since derivative forces are modifications of primitive forces (see chapter 3). Just as it was argued that the derivative passive force is a modification of primitive passive force, so derivative active force must be a modification of primitive active force. This primitive active force is the monad's soul or substantial form, at least under the definition of the monad which we have adopted here.
Because of this, it can be said that the soul or the substantial form is a principle of motion and is responsible for the motion of bodies. Leibniz writes,

since these activities and entelechies cannot be modes of primary matter or of mass [molis], which is something essentially passive . . . it can be concluded that there must be found in corporeal substance a primary entelechy or first recipient of activity, that is, a primitive motive force which, superadded to extension, or what is merely geometrical, and mass [molem], or what is merely material, always acts indeed and yet is modified in various ways by the concourse of bodies, through a conatus or impetus. It is this substantial principle itself which is called the soul in living beings and substantial form in other beings.

(On Nature Itself, Sept.1698: L.II.818) (6)

Leibniz's forms can therefore be regarded as principles of motion and used to account for the motion of bodies. This is an improvement on Descartes' theory because it obviates the need to resort to God as the preserver of the active force in passive matter.

Another argument for the presence of force in bodies is available to Leibniz due to his conception of motion as relative. This view is given in his 5th letter to Clarke, and elsewhere (7).

I will here show, how men come to form to themselves the notion of space. They consider that many things exist at once and they observe in them a certain order of co-existence, according to which the relation of one thing to another is more or less simple. This order, is their situation or distance. When it happens that one of these co-existent things changes its relation to a multitude of others, which do not change their relation among themselves; and that another thing, newly come, acquires the same relation to the others, as the former had; we then say, it is come into the place of the former; and this change, we call a motion in that body, wherein is the immediate cause of the change.

(Leibniz's Fifth Paper to Clarke, §47, 18 Aug.1716: Alex. p.69)
Phenomenally, what we see when we observe moving bodies is merely a change in their positions relative to each other. In the letter to Clarke, Leibniz attributes motion to the body which changes its position with respect to the greatest number of bodies (the other bodies change their position only with respect to the body which is assumed to be moving, and not with respect to each other). Elsewhere, however, Leibniz argues that we cannot, from the evidence of our senses, determine which body is actually moving, because the phenomena would be the same whether only one body moved and the others remained stationary, or all the other bodies moved (while keeping their positions to each other stable) and the one body remained at rest. From such positional or relational facts we cannot, contrary to the view put forward to Clarke, determine which body or bodies is actually moving.

It also follows from the relative nature of motion that the action of bodies upon each other or their force of percussion is the same, provided they approach each other at the same velocity. That is to say, if the given phenomena appear the same, whatever may be the true hypothesis or however we may ascribe motion or rest to them, the same result will be produced in the unknown or the resulting phenomena, even with respect to the action of bodies upon each other. This conforms to our experience; we will feel the same pain whether our hand strikes a stone which is at rest, suspended from a thread, if you will, or the stone strikes our hand at rest with the same velocity.

(Specimen Dynamicum, Pt.2, 1695: L.II.729)

Similarly, against Descartes (8), he writes:

If motion is nothing but the change of contact or of immediate vicinity, it follows that we can never define which thing is moved. For just as the same phenomena may be interpreted by different hypotheses in astronomy, so it will always be possible to attribute the real motion to either one or the
other of the two bodies which change their mutual vicinity or position.  
(Critical Thoughts on the General Part of the Principles of Descartes, 1692: L.II.647)

In the sentences which follow this last quotation above, Leibniz goes so far as to claim, not only that the relativity of motion is not enough to enable us to establish the true subject of the motion, but even that, if the motion is merely change of relative position, there can be no true motion at all.

Hence if there is nothing more in motion than this reciprocal change, it follows that there is no reason in nature to ascribe motion to one thing rather than to others. The consequence of this will be that there is no real motion.  
(ibid.: L.II.647-8)

Nevertheless, Leibniz does want there to be real (or absolute, as he sometimes calls it) motion. In a letter to Christian Huygens, Leibniz states that the body which moves is the subject, again adding that phenomena cannot aid us in determining which body is the true subject, i.e. which body is actually moving:

As for the difference between absolute and relative motion, I believe that if motion, or, better, the motive force of bodies, is something real, as it seems we must acknowledge, it is necessary for it to have a subject. For if a and b approach each other, I assert that all the phenomena involved will happen in the same way, regardless of which one the motion or rest is assigned to. Even if there were a thousand bodies, I still hold that the phenomena could not provide us (or angels) with an infallible basis for determining the subject or the degree of motion and that each body could be conceived separately as being at rest.  
(12/22 June 1694: L.II.686)

The subject of motion is that which contains force:
motion, in so far as it is only a modification of extension and change of surroundings, embraces something imaginary; with the effect that one cannot decide to what subject it belongs among those that change, without recourse to the force which is the cause of the motion, and which exists in bodily substance. (Letter to Arnauld, 30 Apr. 1687: Mason p. 122)

But you will not deny, I think, that each body does truly have a certain degree of motion, or, if you wish, of force, in spite of the equivalence of these hypotheses about their motion. (Letter to Huygens, 12/22 June 1694: L. II.686) (9)

So far, Leibniz has established that the moving body contains force (10). Thus, if we can determine which body has the force within itself, we can determine which body is moving and which body is not moving. But Leibniz has already told us that the phenomena can be of no use to us in making such a decision, since the phenomena will be the same regardless of which body we ascribe the motion (or force) to. Other criteria are needed - criteria which do not rely solely on evidence given by our senses. And Leibniz does give certain criteria which he thinks can be used as guidelines for the ascription of (active) force to one body rather than to another.

These criteria are those of simplicity or ease of explanation. Thus, Leibniz says to Huygens that he believes that,

all hypotheses are equivalent and that, when I assign certain motions to certain bodies, I do not have, and cannot have, any other reason but the simplicity of the hypothesis which I choose, for I believe that one can hold the simplest hypothesis (other things being equal) for the true one. (Letter to Huygens, 4/14 Sept. 1694: L. II.688)

Similarly, in Specimen Dynamicum, he asserts that we must,
speak as the situation demands, in whatever way provides the more fitting and simpler explanation of the phenomena. (Specimen Dynamicum, Pt.2, 1695: L.II.729)

Leibniz does not here explain what he means by 'more fitting' (aptiorem) and 'simpler' (simpliciorem) explanations. Our intuitive notion of a simple explanation is that of one which is not complex, and which presumably therefore makes reference to as few causes as possible. This would conform to Leibniz's definition of a simple substance as one which is without parts (see Monadology, §1, 1714: L.II.1044 and Letter to de Volder, April 1702: L.II.857).

We should, perhaps, also add at this stage that Leibniz's conviction of the truth of simplicity stems from his belief that a perfect state of affairs is that which exists when the greatest amount of variety is combined with the greatest possible amount of order or simplicity (11).

Thus we may say that, no matter how God might have created the world, it would always have been regular and in a certain general order. But God has chosen that world which is the most perfect, that is to say, which is at the same time the simplest in its hypotheses and the richest in phenomena. (Discourse on Metaphysics, §5, 1686: L.I.470)

Such assertions are normally interpreted to mean that the world is ordered 'mini-maximally', which is to say that the most perfect world is that in which there is the greatest amount of simplicity composable with the greatest amount of variety. A less perfect world could have more variety, but this would be at the expense of simplicity, and conversely a less perfect world could have greater simplicity, but again only at
the expense of variety. The most perfect world is that in which both variety and simplicity are present, but neither at the expense of the other.

It follows from this view that the simplest hypothesis may indeed not be the true one, since it may be simple, but unable to account for as great a variety as a less simple one could account for. The true hypothesis is thus not merely the simplest one, but the simplest one which can account for all the phenomena we want to use it to explain. This is probably why Leibniz adds in parenthesis, 'other things being equal' in the letter to Huygens (see above).

Another qualification is necessary in connection with the simplicity of hypotheses and truth. This is that we can never be sure that we have actually achieved the simplest possible hypothesis capable of explaining the greatest variety of phenomena. There is always the possibility that in the future an even simpler hypothesis, explaining the same or more phenomena, could be found, and this would usurp the former hypothesis. Thus, although as Leibniz said to Huygens, we can 'hold (tenir) the simplest hypothesis ... for the true one', we can never allow ourselves to state dogmatically that it is in fact the true one.

Regarding the 'fitness' of an hypothesis as a criterion of its truth, we can follow Loemker in translating the French adjective 'convenable' as 'fitting' and conclude that the 'most fitting' explanation will be that explanation which is
the wisest one.

The supreme wisdom of God has made him choose especially those laws of motion which are best adjusted and most fitted to abstract or metaphysical reasons.
(Principles of Nature and of Grace, $11, 1714: L.II.1039)

In the rest of this section of the Principles, Leibniz states that he has found,

that we must have recourse to final causes and that these laws do not depend upon the principle of necessity, as do the truths of logic, arithmetic, and geometry, but upon the principle of fitness, that is to say, upon the choice of wisdom.
(ibid.: L.II.1040)

Thus, the most fitting explanation will be the wisest one, and the wisest explanation will be the simplest one capable of explaining the greatest variety of phenomena.
Leibniz sometimes uses a slightly different criterion, namely, that explanation which is the most intelligible is the true one. There will be no conflict between these two criteria if what is 'most intelligible' is always also the simplest. There is little reason to doubt that this is, in fact, the case.

In A New System of the Nature and Communication of Substances, Leibniz writes:

However, it is reasonable to attribute true motions to bodies if we follow the assumption which explains the phenomena in the most intelligible way, for to do this is in conformity with the concept of activity which we have just established.
(27 June 1695: L.II.750)

The concept of activity which has just been established is that, although metaphysically speaking no one substance ever
acts on any other substance, each one acting from a perfect spontaneity from within itself, nevertheless.

one may say that when the particular disposition of one substance provides a reason for a change occurring in an intelligible manner, in such a way that we can conclude that the other substances have been adapted to it on this point from the beginning according to the order of the divine decree, then that substance should be thought of as acting upon the others in this sense.

( Ibid.: L.II.749)

An acting substance is also described by Leibniz as the substance which has the most distinct expression:

one attributes action to that substance whose expression is more distinct, and one calls it cause.

(Draft of letter to Arnauld of 28 Nov./8 Dec. 1686: Mason p.84)

Distinct expression is due to primitive active force:

genuine substances are active only when their perceptions (for I grant perceptions to all of them) are becoming better developed and more distinct, just as they are passive only when their perceptions are becoming more confused.

(New Essays, Bk.2, Chap.21, 1704: R&B 210) (12)

Taking all of the above together, we could conclude that a moving body is the cause of the movement of another body if the first body has primitive active force, or at least more primitive active force than the second body.

Leibniz's critics do, in the main, agree with this view of Leibniz, in which there is a connection between motion and primitive active force. C.D. Broad writes,

Now it seemed to Leibniz that, if motion is to be real and to have real effects, the state of a moving body at each instant must be different from the state of a resting body at an
instant. There must be in the moving body, as he puts it, something which is present but which points towards a certain development in the immediate future. The difference at each instant between a moving body and a resting one consists in the presence of active force in the former and its absence in the latter.

(Leibniz: an Introduction, p.64)

Rescher concludes his discussion of the matter saying,

Consequently the solicitation, like the vis viva itself, is derivative from the activity of monads, and so the fundamentum of motion is active primitive force.

(The Philosophy of Leibniz, p.104)

Russell, too, makes the point by saying of Leibniz that,

He infers that, since this series of changes is possible without external influence, every body must contain in itself a principle of change, i.e., force or activity.

(Russell, Critical Exposition, p.83)

Having established that a body moves because of its derivative active force, and that derivative active force is a consequence of primitive active force, it remains to point out that, for Leibniz, all bodies move (13). All monads have primitive active force to a greater or lesser degree. All bodies composed of monads will actually move, but only that one with the greatest amount of primitive, and therefore also of derivative active force, will be said to move, although we should really say that they move more than the bodies or corporeal substances whose dominant or subordinate monads have less primitive active force.

We observed above that the substantial form is not only responsible for the movement of bodies, but also for the changes which occur in the monad itself. These changes take
place when the monad passes from one perception to the next. Such changes take place according to a law. This law is, in fact, the substantial form. The changes are effected via the action of the substantial form. Leibniz calls this action, appetition. We discuss both appetition and the law of the series in chapters 9 and 8 respectively.
CHAPTER EIGHT

SUBSTANTIAL FORMS (3)

In the indivisibility of the substantial form Leibniz finds the basis for a different argument for the presence of substantial forms in corporeal substances, because it leads to the ascription of true unity to the substantial form and to the ascription of its indestructibility. Both of these characteristics provide reasons for believing in the reality of substantial forms.

We begin with the argument from the form's unity. This again takes us back to Descartes' argument that extension characterises corporeal substance completely. Leibniz has argued that Descartes' matter is inert and has no activity with which to explain motion. But purely extended substance is not only passive, it is also infinitely divisible, or, according to Leibniz, actually infinitely divided. Not allowing the contiguity of parts to suffice for the unity of an extended object, Leibniz concludes that extended matter cannot be a principle of unity. An extended object is merely an infinite number of parts placed together in space. Descartes himself recognises the infinite divisibility of matter (1), but because he did not also stipulate that a substance must have unity, Descartes found no problem in the idea that an extended piece of matter could be a corporeal substance. But Leibniz believed otherwise. All substance for Leibniz must have unity. Leibniz's secondary matter cannot be a unit because it is actually divided into an infinite number of parts (2). Leibniz therefore
felt justified in concluding that corporeal substances must have substantial forms. These, being indivisible themselves, and thus being unities, can, by being related to the secondary matter as its form, give the whole substance composed of matter and form together, a kind of indivisible unity.

Thus Leibniz explains how he, perceived that it is impossible to find the principles of a true unity in matter alone or in what is merely passive, since everything in it is but a collection or aggregation of parts to infinity. [Now a multitude can derive its reality only from the true unities, which have some other origin and are entirely different from points, for it is certain that the continuum cannot be compounded of points. To find these real unities, therefore, I was forced to have recourse to a formal atom, since a material being cannot be at the same time material and perfectly indivisible, or endowed with true unity.] It was thus necessary to restore and, as it were, to rehabilitate the substantial forms which are in such disrepute today.

(A New System of the Nature and the Communication of Substances, 27 June 1695: L.II.741)

When revising the paper Leibniz changed the two sentences in parenthesis so that they read,

Now a multitude can derive its reality only from true unities which have some other origin and are entirely different from mathematical points, these being merely the extremities of what is extended, and modifications of which it is certain the continuum cannot be composed. To find the real unities, therefore, I was thus necessary to have recourse to a real and animated point, so to speak, or an atom of substance which must include a certain active form to make a complete being.

(ibid.: L.II.1185 note 119)

It is easy to see how substantial forms fitted the bill in relation to the indivisible unities required for the substantiality of bodies. And we have already seen (3) how the form gives unity to the whole animal. But why can the material
continuum not be composed of mathematical points? In the revised passage of the *New System*, Leibniz calls these mathematical points, modifications (modifications) (4). We know that these are not substances themselves, but rather what belong to substances. They cannot, thus, be of any use in making up the material continuum, for the substances of which they are the modes would be the true bases of the material continuum.

Also in the revised version of the passage quoted from A New System of the Nature and the Communication of Substances, Leibniz referred to mathematical points as the extremities of an extended body. Elsewhere, he had explained how such extremities can always be further divided. In his *Theory of Abstract Motion* (1671), Leibniz had argued for indivisible but unextended beings, and against indivisible, extended beings, by contemplation of the fact that,

There is a beginning and an end to any given space, body, motion, and time: Let that whose beginning is sought be represented by line \(ab\), whose middle point is \(g\), and let the middle point of \(ac\) be \(d\), that of \(ad\), be \(g\), and so on. Let the beginning be sought at the left end, at \(a\). I say that \(ac\) is not the beginning, because \(cd\) can be taken from it without destroying the beginning; nor is it \(ad\), because \(ed\) can be taken away, and so forth. So nothing is a beginning from which something on the right can be removed. But that from which nothing extended can be removed is unextended. Therefore the beginning of body, space, motion, or time - namely, a point, conatus, or instant - is either nothing, which is absurd, or unextended, which was to be demonstrated.

(Theory of Abstract Motion, §4, 1671: L.I.217)

This argument is sound, and proves why mathematical points, as the extremities of an extended body, cannot be the basis for,
or the components of, the material continuum.

The argument, however, is not successful against material atomism. The atomists, such as Epicurus or Gassendi, would argue that although cd and ed can logically (or conceptually) be removed from ac, they cannot physically be removed from ac. They would assert that the material continuum could be composed of corporeal indivisible, yet extended atoms. It is surely material atomism which Leibniz has in mind in the unrevised version of A New System of the Nature and the Communication of Substances when he says that, 'a material being cannot be at the same time material and perfectly indivisible'.

Leibniz has a number of arguments which he uses to refute atomism. We do not intend to discuss them in depth here. We will be content merely to state some of them briefly and to indicate where they can be found.

Against the existence of an atom which is conceptually divisible but physically indivisible, Leibniz argues that no reason can be given as to why this should be the case; that two conceptually divided parts must be held together by 'some kind of glue'; and that this glue would eventually stick all atoms together so that they 'congeal into eternal ice' (5). Moreover, without such a glue, atomism can provide no reasons for the cohesion or for the individuality of the atoms themselves. The ancient solution that atoms cohere when there is no vacuum between them is ridiculous - it would lead again
to the hypothesis of a future 'eternal ice' (6). Leibniz further argues that atoms, having nothing within them to distinguish them from each other, are contrary to the variety of nature (7); that our finite human minds cannot understand the world, mind, and matter completely, and so these things must be infinite - and thus matter is infinitely divisible (8); that corporeal atoms cannot obey the laws of motion (9); that atoms are contrary to the fluidity of bodies (10); that they go against the doctrine of the pre-established harmony, since if matter were not infinitely divided, not every portion of matter would express the whole universe (11); and, finally, that atoms are never found in experience (12).

Moreover, corporeal atomism, if it is to in any way accommodate the idea that these atoms move, needs to assert the existence of the void or of a vacuum. Therefore, any arguments against the void provide further ammunition against the atomists. Leibniz has a number of such arguments: for example, the void contradicts the principle of the identity of indiscernibles, since the different parts of a vacuum would be identical with each other (13), and for the same reason, the vacuum contradicts the principle of sufficient reason, and the principle of the best, since matter is supposed to be more perfect than the void (14).

Having disposed of material atoms and mathematical points, and having asserted the infinite divisibility of matter, and the impossibility of unity in that which is divisible, Leibniz needed a principle of unity with which to
explain how a man, or an animal, is a unit. This, as we know, he found in the notion of a substantial form.

With the substantial form as the principle of unity in the organism, and the doctrine that only those substances which have true unity are real, it is a short step to the assertion that a corporeal substance has to have a substantial form if it is to have any kind of real being at all. We have seen Leibniz argue for the reality of bodies only if they have substantial forms - see above, where he says that 'the multitude' can 'derive its reality only from the true unities'. We need only here point out that this reality can be achieved either by the fact that the individual indivisible beings which make up an aggregate body have their own substantial forms, or by the fact that in addition to the individual beings in the body having their own forms, there is a substantial form governing the aggregate as a whole, so that the form plus the aggregate body together make one complete indivisible being, regardless of the fact that the aggregate body is itself composed of similar indivisible beings made up of a soul and an aggregate body.

It is at precisely this point that we begin to get into difficulty. If the animal is composed of form and the aggregate body, and it is the form which ensures the unity of the composite of form and aggregate body, and if it is the substantial forms of the individuals which turn the individuals composing the aggregate into unities, what has happened to the
primary matter which is supposed to be an element of the monads?

In the correspondence with de Volder, the monad is composed of soul/substantial form and primary matter. Secondary matter is defined as an aggregate of such monads, and the complete animal, the corporeal substance, is said to be composed of the dominant monad together with its organic body, i.e. the secondary matter aggregate (Letter to de Volder, 20 June 1703: L.II.864). On this view of animate beings, the form of the dominant monad is still responsible for both the unity and the being or reality of the whole animal, but the animal itself is not said to be composed of soul/substantial form plus aggregate, but instead is said to be composed of a dominant monad plus the aggregate. Here, then, primary matter is included in the analysis of the animal because primary matter is an element of the dominant monad (and the same holds for the dominant monads and their aggregate bodies which make up the aggregate). Only under the interpretation given in the correspondence with de Volder, can sense be made of the notion of primary matter.

We conclude that, although Leibniz often speaks of an animal as being composed of soul/substantial form and (aggregate) body, we must interpret this as meaning that the animal is actually composed of a dominant monad (soul/substantial form and primary matter) plus its aggregate body, and say that Leibniz speaks of the animal as the combination of soul and aggregate body purely for the ease of
understanding of his readers (although it is questionable, as we have seen, whether it does actually make the matter clearer (15)), and also perhaps to reinforce the view that it is the form which is responsible for the unity and being of the whole animal and not the dominant monad (form plus primary matter) which is responsible (16).

We come now to the question of the substantial form's indestructibility. Leibniz was fervently against the common doctrine of a world soul, or of a single universal spirit. This is the doctrine that there is one universal spirit or soul which is the same in all the individual material bodies which it animates. Not being able to deny that individuals exist, proponents of the doctrine asserted that when an animal dies, its soul returns to the world soul, from which it had been temporarily separated. In the 17th. century, the doctrine was often explained by reference to two analogies: 1. in which individual people or other animals are compared to the pipes of an organ, and the world soul is compared to the wind which blows through all the pipes in order to make music - the wind in the pipes creates music, the world soul in animals gives them life; and 2. in which individual people and other animals are compared to drops of water and the world soul is compared to the ocean. Just as a drop of water can be returned to the ocean (of which it is said to have been a part all the time), so too, individuals, when they die, are said to return to the world soul, of which, again, they have been a part all the time (17).
The analogies differ from one another, and different characteristics of the world soul could be deduced from each of them, but common to both is the idea that individuals are not truly individuals in their own right. What life they have comes from the universal spirit. The individuality of animals and people is only temporary. When they die, they will lose their individual identity.

Leibniz attributed the doctrine of the world soul to Aristotle, on the basis of his belief in an 'active intellect' which is the same in all men and which survives after the deaths of individual men (18). The doctrine is also attributed by Leibniz to Spinoza because of Spinoza's belief in a single spiritual substance (19). Others to whom the doctrine can be attributed are the Quietists (e.g. Molinos, Silesius and Weigel), the Cabalists, also the Arabian, Averroes, Paracelsus, the elder Van Helmont (Jean Baptiste) and Henry More. A similar idea is present in the eastern religions of Hinduism and Buddhism in India, Taoism in China and Zen Buddhism in Japan.

Minor differences apart, common to all these thinkers is the denial of the true individuality of the human (or animal) soul. The world soul is eternal, but the individual soul dies at the moment of the body's death.

Leibniz could not countenance such a view. His substances are indestructible individuals, with a truly indestructible individuality. As a pluralist, the idea of a world soul or
spirit was abhorrent to him. The immortality of the human soul as an individual is necessary to Leibniz's belief in souls which express the whole world, since this belief includes the idea that the soul expresses all its own life, past, present and future, and all the lives, past, present and future, of every other individual. This the soul could not do if it were to cease to exist on the death of its body.

And so, of course, Leibniz sees the indestructibility of the substantial form as providing him with a very good argument against the doctrine of the world soul. Thus he tells Arnauld that,

my contention about these souls is not only necessary according to the Cartesians but also important for morality and religion, in order to destroy a dangerous opinion for which many intelligent people have an inclination and which the Italian philosophers, disciples of Averroes, had spread about the world, namely, that individual souls return to the world-soul when an animal dies, which is contrary to my proofs of the nature of individual substance, and cannot be conceived distinctly; since every individual substance must forever exist separately once it has begun to be.

(Letter to Arnauld, 9 Oct. 1687: Mason pp. 150-151)

(Why the doctrine of a world soul is damaging to religion and morality is not clear, but Leibniz saw it as such.)

In chapter 6, we noticed a close connection between indestructibility and individuation. In the Discourse on Metaphysics ($12, 1686: L.I.475), Leibniz argues for the need of substantial forms in bodies on the grounds that without an indestructible form, a body would have no identity from one moment to the next. Without a form, the body would consist only of qualities which are relative to our perceptions of them -
as, for instance, size, figure, motion, colour, and heat. None of these qualities is constant throughout the duration of the body's existence. Even the size of a body can vary depending on the distance which it is from the perceiver, and can vary independently of the perceiver. Leibniz argues that the body must have a substantial form which can encompass all of these changing qualities, and which thus ensures the identity of the body. Against Leibniz, it can be said that this argument does not require an indestructible substantial form, but only one which lasts for a certain time-span. Nevertheless, it is an additional incentive to believing that the form exists, not for a limited period of time, but indefinitely, because though the body can cease to be as a whole, its parts cannot cease to be absolutely, for nothing can come in or out of the universe.

When Leibniz uses substantial forms to account for the individuality of bodies, he again bases his reasoning on the inadequacy of the Cartesian identification of body as 'res extensa'. If bodies, he argues, were characterised solely by the properties arising out of the concept of extension, all bodies would be perfectly alike (20).

There is no corporeal substance in which there is nothing but extension, or magnitude, figure, and their variations. For otherwise there could exist two corporeal substances perfectly similar to each other, which is absurd. Hence it follows that there is something in corporeal substances analogous to the soul, which is commonly called form. (First Truths, c.1680-84: L.I.416)

This form is that which is, or belongs to, the dominant monad. Leibniz in this passage is referring to animated beings, as is
clear if we read it in conjunction with the following passage from the Leibniz-Arnauld Correspondence:

If the body is a substance and not a simple phenomenon like the rainbow, nor an entity united by accident or by aggregation like a heap of stones, it cannot consist of extension, and one must necessarily conceive of something there that one calls substantial form, and which corresponds in a way to the soul. (Letter to Arnauld, 4/14 July 1686: Mason p.66)

The individuality of the simple phenomena or the entities united by accident can be accounted for either 1. by the individuality of the corporeal substances in the aggregate, or 2. by appealing to Leibniz’s definition of the form as that which arises out of the union of primitive active forces (21). This union of primitive active forces could be accidental, and yet still allow the resultant entity to possess substantial form.

The problems raised by Leibniz’s account of individuation are numerous and complex, but of peripheral importance to our main subject. We shall be content, therefore, merely to indicate the nature of these problems.

Firstly, it is not immediately obvious that the substantial form is a principle of individuation. Certainly neither Aristotle nor Aquinas regarded it as such. Leibniz has to explain why he believes that God did not create two identical forms. Was this because God could not do so, or was it only because He chose not to do so? This question in turn raises questions concerning the necessity or contingency of the principle of the identity of indiscernibles. If the principle
is necessary, then God could not create two identical forms, but if it is contingent, then the principle must itself be argued for (22).

If monads were concepts, rather than instances of concepts, the case for forms as individuators would be watertight, because although many instances of a concept could be created, only one of each concept could be created. However, there are many arguments against such an interpretation of Leibniz (23).

A more successful argument may be found in Leibniz's doctrine of complete concepts. A case could possibly be made claiming that although God can create many instances of incomplete concepts, He can only create one instance of any complete concept. In this regard Leibniz has behind him the authority of the Scholastic doctrine of infimae species (24). (Aristotle's infimae species are general, not specific, and so are not in any way complete concepts (25)).

Leibniz's case might here be particularly strong because the complete concept possessed by each monad specifies the monad's body's spatio-temporal positions. If God were to create two identical monads, (and therefore two identical forms, whether these be the monads themselves, or elements of the monad) then there would be two identical bodies with the same spatio-temporal co-ordinates. However, a little reflection will suffice to show the dependence of this argument on the principle of the identity of indiscernibles (25).
Nevertheless, Leibniz does have some arguments to hand regarding the truth of the principle of the identity of indiscernibles. For example, he argues for it from the doctrine of complete concepts (27). Elsewhere, the principle is found to be a consequence of the principle of sufficient reason (28), and of the principle of perfection (29). Leibniz also finds grounds for holding the principle of the identity of indiscernibles in his principle of 'petites perceptions' (30). Russell (31) finds in Leibniz a close connection between the principle of indiscernibles and the law of continuity (from which Leibniz argues to the principle of 'petites perceptions'). Sometimes, however, Leibniz merely states the principle of the identity of indiscernibles as an axiom (32).

We will not attempt to evaluate these arguments, but will instead presume that at least some of them are valid and their conclusions correct. Of greater interest to us here is Leibniz's equation of primitive active force with the monad's law of the series, for in this lies the identity, not of the body, but of the monad itself.

The essence of substances consists in the primitive force of action, or in the law of the sequence of changes, as the nature of the series consists in the numbers.
(Notes on the Reply to Foucher, 1676: L.I.242) (33)

As the essence of a substance, the law of the series is important in establishing the continuing identity of any one substance (34). Although we are not concerned with the function of the law of the series in problems concerning individuation
and identity, we are interested in this law for other reasons, so we will proceed to look at the concept in greater detail.

Leibniz believed that the life of each monad consists in a series of perceptions and appetitions (35). Each perception which any monad has at a particular moment in time is, presumably, different from the perceptions had by any other monad at the same point in time. Moreover, this series of perceptions belonging to each monad is not a haphazard, arbitrary sequence devoid of order or continuity, because it is possible to construct a law from which can be deduced both the nature of the monad's perceptions and their order. Assuming that Leibniz has solved all the problems concerning the principle of the identity of indiscernibles, each monad's law of the series of its perceptions will be different from that belonging to any other monad - the essence of one monad will therefore differ from that of any other monad.

The idea of a monadic law of the series occurred to Leibniz through consideration of mathematical series. Individual perceptions (and appetitions) are modifications (36). Modifications are particular values which distinguish some term in a series, so we would expect particular perceptions to be the individual terms of the series of perceptions in the same way as individual numbers are individual terms in a mathematical or arithmetical series (37). Just as a numerical sequence, e.g. 1, 4, 9, 16, 25 . . ., can be expressed by a mathematical function or equation, e.g.
\[ f(x): x \mapsto x^2, \text{ so too, the series of perceptions and appetitions is} \]
thought by Leibniz to be expressible in the form of a law. This law is followed when a monad moves from one perception to the next, and each future perception will have the same relation to the perception immediately before it as that perception had to the perception which preceded it, just as the numerical relation between 4 and 9 is similar to that between 9 and 25. But, instructive as the analogy between mathematical and monadic series and laws may be, it is unfortunate that the analogy gives us no clue as to the form which the law of the series of perceptions can take. The analogy aids Leibniz in asserting the existence of many individual laws of the series—one for each individual monad—but does not aid him in explaining the way in which these laws could be expressed in the mind of God.

We have said that the law of the series of perceptions is identical with the monad’s primitive active force. On our view the law must also, therefore, be identical with the substantial form (38).

But how, it may be asked, can something be both a law and a force at one and the same time? Forces, it may be said, are active, but laws are neither active nor passive, being merely something which is followed or obeyed by an acting being. The law itself does not act.

Now this is indeed true. But we have available to us examples from present-day biological theory, which can be used
to show that at least Leibniz's equation of primitive active force with the law of the series is not an impossibility, and that it may indeed be easily comprehended.

The example we have in mind is that of the theory of the DNA molecule. According to the theory, all cells have their own DNA. Information is carried in the DNA through a sequence of organic bases; adenine, guanine, cytosine and thymine. The sequence of these bases is different not only for different species, but also for different individuals in the same species. The information present in the DNA code is all the information needed in order to form the complete organism, be it animal or plant. But DNA is not merely a code containing information, for it also transmits this information from the nucleus to the cell cytoplasm by using messenger RNA. The DNA molecule, it is thought, causes an RNA molecule to be made, which molecule then moves out of the cell nucleus and into the cytoplasm, where it causes a protein to be made in the cell.

From this brief summary, it is clear that DNA not only holds all the information necessary to create a living creature, but also that it acts, and does so in such a way that its information is actualized. The 'law' encoded in the DNA molecule can be said to achieve, through its actions, the manifestation of the code, or indeed the manifestation of itself. We can conclude that the DNA molecule is both a code (or a law) and a force (or an action). And if this is so for a DNA molecule, there would seem to be no reason why it could not also be true of Leibniz's monads. The substantial form of the
monad is both the law of the sequence of changes and the primitive active force which is necessary in order for the sequence of changes to be actualized, in a similar way to that whereby the action of the DNA molecule is necessary in order for the code contained in the DNA molecule to be actualized.

It must be remembered, however, that a DNA molecule is not a substantial form, for a substantial form, whether it be viewed as a primitive active force or as a law of the series of changes, or as both, is essentially immaterial, whereas a DNA molecule is essentially material. Indeed, without being material, the DNA molecule could not contain its code (equally, however, the animal has no form without matter). We could attempt to compare the DNA code with the monad itself. Alternatively, we could compare the DNA molecule to the corporeal substance, composed of dominant monad plus organic body. In this way, what a scientist sees as a DNA molecule could be compared to what we see as individual creatures in the world. However, we will not attempt these comparisons (39), because the point of our example is not to claim that Leibniz's substantial forms are today's DNA molecules, or even today's DNA codes, but merely to show that sense can be made of the idea of something, be it DNA molecule or Leibniz's substantial forms, which is both an acting force and a law at the same time.

There are other problems concerning the law of the series which deserve to be mentioned. In mathematics, the law or
formula not only determines the order of the numbers in the series, but also specifies which numbers are in the series. By analogy, we suppose that the law of the series of perceptions performs a similar function, and can therefore not only provide the order of a number of perceptions, but also determine the nature of the very perceptions which are ordered. But the nature of these perceptions raises two special problems for Leibniz's doctrine of the law of the series.

1. We observed (40) that some perceptions are actually compounded of other perceptions. But such compounding of perceptions is contrary to the idea of a law of the series. A mathematical formula can generate a series of numbers, but at each stage of its development there is one, and only one, number. Similarly, the law of the sequence of changes of perceptions can generate a series of perceptions, but again at each stage of its development there should be only one perception, unless, of course, the analogy between the numerical series and the perceptual series is not quite exact.

It could, perhaps, be said that the numbers in a numerical sequence are actually composed of other numbers. It could then be argued that just as, say, the number 4 can be composed of 2 + 2, or 3 + 1, so any one perception in the perceptual series could be composed of other perceptions.

Against this, it could be said that the numbers in a numerical sequence are taken as they are, so to speak, and are not, when they are in the sequence, to be considered as
conjunctions of other numbers. The sequence 1, 4, 9, 16, 25 . . . is a sequence of individual numbers. It is not a sequence of 1, 1+3, 1+3+5, 1+3+5+7, 1+3+5+7+9 . . . This, it could be said is a completely different sequence, and would require a different law or formula in order for it to be generated. Similarly, it will be said, the perceptions in the perceptual sequence are individual perceptions, and the law of the sequence of perceptions does not include in itself any information on the composition of these perceptions. The perceptions, as part of the sequence, are to be considered as individual wholes, and not as compounded of other perceptions.

Nevertheless, this counter argument is not so persuasive as it may at first appear to be. The numerical formula f(x): x→x² does actually tell us something of the actual composition of the numbers in the sequence generable by the formula. For although the formula cannot be used to generate the sequence given in the preceding paragraph, it could be used to generate the sequence, 1x1, 2x2, 3x3, 4x4, 5x5 . . . Here, of course, if the numbers are equivalent to perceptions, then one perception would be composed of two identical perceptions, but this is a consequence only of the particular numerical sequence. Other formulae could generate sequences in which this was not the case, as for instance, the formula f(x): x→x + (x-1) would generate both the sequence, 1+0, 2+1, 3+2, 4+3, 5+4 . . . and the sequence 1, 3, 5, 7, 9 . . .

This should be sufficient to exonerate Leibniz from the claim that the law of the series is incompatible with the
notion that perceptions can be compounded of other perceptions.
The next objection, however, is not so easily met.

2. We have observed that the law of the series must be responsible for both the nature of the perceptions in the sequence and the order of these perceptions. With regard to the nature of the perceptions, we saw, in chapter 5, that some of these are confused and others are distinct. We also saw there that the confusedness of these perceptions is due to the monad's primitive passive force. And here lies the crux of the problem - for if the law of the series of perceptions is equivalent to the primitive active force of the monad, it surely follows that this law of the sequence should be unable to generate confused perceptions as part of its sequence. Being primitive active force it should only be able to generate distinct perceptions (41).

To be able to generate confused perceptions, the law of the sequence of changes of perceptions would have to consist also of primitive passive force. Hence, if the law of the series is to be able to account for the existence of both distinct and confused perceptions in the series, then the law must consist of both primitive active and primitive passive forces.

In Leibniz's favour, we remark that he does often assert that the law of the sequence is primitive force, and that by this he could mean both primitive active and passive force together. For example, in a letter to de Volder, Leibniz writes
that,

primitive force is the law of the series, as it were, while derivative force is the determinate value which distinguishes some term in the series.

(21 Jan. 1704: L. II. 869)

Leibniz might mean by 'primitive force' both active and passive force. But in the context of the whole letter, the most likely interpretation is that he is actually referring only to primitive active force. Again, therefore, we should conclude that the law of the series is primitive active force alone, and accept the difficulties which Leibniz encounters if he then tries to include confused perceptions in the law of the series.

It may, however, be possible to make a case in Leibniz's favour by claiming that when he speaks of primitive passive force in relation to confused perception, he may actually be thinking, not in terms of more primitive passive force, but rather in terms of less primitive active force. Were this the truth of the matter, it might be possible for Leibniz to equate the law of the series with primitive active force and still include confused perceptions as some of the individual terms in the series (42).
CHAPTER NINE
APPETITIONS AND FREEDOM

Primitive active force is not only the law of the sequence of changes which determines both the nature of and the order of the perceptions which any one monad has, for it is also the force which must be present if the sequence or series of these perceptions is to be actualized. That is to say, it is the force which must be present if the sequence of perceptions is to be run through from beginning to end (if indeed there can be an end to an infinite series).

The action of this primitive active force is called 'appetition'. Leibniz defines appetition as,

The action of the internal principle which brings about change or the passage from one perception to another.
(Monadology, §15, 1714: L.II.1046)

In a letter to Louis Bourguet, written around the same time, appetition is defined as,

the striving from one perception to another.
(Dec.1714: L.II.1077)

If we remember that primitive active force, substantial form or soul, and the internal principle or law of the series of changes, are often all one and the same thing in Leibniz's metaphysics, we can say that appetition is 1. the action or the striving of the primitive active force of the monad; 2. the action or striving of the monad's soul or substantial form; or 3. the action or striving of the law of the series (1).
Appetitions do not actually cause perceptions. Rather, they cause the passage from one perception to another. That which determines what the perceptions will be, and in which order they will occur, is the law of the series (or the soul, substantial form, or the primitive active force). Appetition is not any of these three things. We repeat that appetition is rather the action of the law of the series; the action of the soul or substantial form; the action of the primitive active force. The distinction is a small, but important one (2).

It is not ridiculous to attribute to Leibniz the belief that the action of the soul or substantial form is divisible into a number (perhaps infinite) of discrete, separate acts. Just as there is a series of perceptions in each monad, so Leibniz talks of a series of appetitions.

Further, since the nature of a simple substance consists of perception and appetite, it is clear that there is in each soul a series of appetites and perceptions, through which it is led from the end to the means, from the perception of one object to the perception of another. (Metaphysical Consequences of the Principle of Reason, §8, c.1712: Park. p.175)

Appetition brings about the passage from one perception to the next. Since there is a series of appetitions as well as a series of perceptions, it would be reasonable to assume that for every single perception the monad has, there has been a corresponding single appetition (action) which has been instrumental in the bringing of the monad to the stage where it has that perception (3).
We saw (4) that there is a lively debate as to whether or not any one monad has one or many perceptions at any one instant. Can many perceptions, as modifications, occur simultaneously in the same monad? If there is one appetition for each individual perception, we can ask a similar question concerning a monad's appetitions, namely, can one monad have a number of appetitions simultaneously? Our answer might be expected to depend on our answer to the question in relation to perceptions. If there are many perceptions occurring in each monad at any one instant, so too, there will be many appetitions, one for each perception. Conversely, if there is only one perception at any one instant in a monad's lifetime, so too, there will be only one appetition at any one instant.

But although it makes sense to speak of a number of simultaneous perceptions in a monad, the idea of a number of simultaneous appetitions is not so appealing, for it entails that we think of the primitive active force of a monad as performing many simultaneous actions. This is not the way in which we intuitively think of force. We tend to think that any one force will result in only one action. If a monad were able to have many simultaneous appetitions, we would want to say that the same monad must have many distinct primitive active forces, each acting simultaneously. But it is not obvious that this is the way in which Leibniz conceived of a monad's primitive active force (5).

We could avoid this objection against simultaneous appetitions by denying that the answer to the question of
whether or not a monad can have a number of simultaneous perceptions will also provide the answer to the question of whether a monad can have a number of simultaneous appetitions. This denial involves rejecting the assumption, however reasonable it may be, that there is one single appetite for any one perception. In other words, we could allow that one appetite gives rise to the passage of the monad from one set of simultaneous perceptions to another set of simultaneous perceptions.

Alternatively, we could deny that the monad is capable of having a number of simultaneous perceptions. But in the light of the discussion in chapter 5, this is not obviously either easy or desirable. Nor would it be wise to restrict Leibniz’s monads to being able to have only one perception at any one moment when there is an alternative, namely, that we allow the possibility that one appetite can give rise to, or bring about the passage from and to, a number of simultaneous perceptions.

Our reason for denying that a monad could have a number of simultaneous appetitions was that this would entail that the monad also had a number of distinct primitive active forces at work simultaneously. We can continue to maintain the correctness of this consequence while also admitting the fact that Leibniz distinguishes different degrees of appetite in the monad. We have only denied that a monad can have a number of simultaneous appetitions. We have not denied that any non-simultaneous
appetitions which a monad can have will differ in degree. Leibniz does admit different degrees of appetition. In the Monadology, he writes that,

It is true that appetite need not always fully attain the whole perception to which it tends, but it always attains some of it and reaches new perceptions. (§15, 1714: L.II.1046)

Just how active the appetite is, will determine just how much of the perception is attained. An appetite which is the action of a small amount of primitive active force will result in very little of the perception being attained. Such perception will then be confused. Conversely, an appetite which is the action of a large amount of primitive active force will result in the attainment of probably the vast proportion of the perception. This perception will then be distinct (6). (How much of the perception is attained relates not to what is perceived - all monads always perceive everything - but rather to how distinctly that which is perceived, is perceived.)

As with many other concepts in Leibniz's philosophy, that of appetition has its roots in Scholasticism. And so, we should not be surprised to learn that Aquinas expounded the view that,

Even an ordinary man, though he has but one personality, has several appetites and operations corresponding to his various natural principles. Thus in his rational faculty he has a will; in the sensitive faculty he has a concupiscible and an irascible appetite; and besides these he has a natural appetite resulting from the natural forces in him. (Summa Contra Gentiles, Vol.4, Chap.36: English Dominican Fathers' transl. p.152)

Leaving aside the question whether all these different
appetites can occur in a man at the same time, it is clear that the account we have given of the different degrees of appetition is comparable with Aquinas' distinctions.

There is evidence to suggest that Leibniz equated appetition in the rational soul with will. In Leibniz's works, freedom, will and reason are closely connected concepts.

Firstly, freedom and will are basically synonymous:

To ask whether our will is endowed with freedom is the same as to ask whether our will is endowed with will. Free and voluntary signify the same thing. (Critical Thoughts on the General Part of the Principles of Descartes, 1692: L.II.639) (7)

Quaerere, utrum in nostra voluntate sit libertas, idem est ac quaerere utrum in nostra voluntate sit voluntas. Liberum et voluntarium idem significant. (G.IV.362)

Secondly, willing and reasoning are connected because,

freedom is the same as spontaneity with reason, and to will is to be brought to act through a reason perceived by the intellect. (ibid.: L.II.639)

Est enim liberum idem quod spontaneum cum ratione, et velle est ob rationem intellectu perceptam ad agendum ferri. (G.IV.362) (8)

Only rational beings can will. This amounts to the claim that a non-rational being cannot will. Since the will is always free, 'will' and 'free will' are one and the same thing. Thus, when Leibniz says that the will is rational appetite, he is, in effect, saying that the appetite of rational beings is free will.
A person is capable of will. Will is rational appetite. 
(Album Praetoris, P.107, Fo58)

Persona est capax voluntatis. Voluntas est appetitus rationalis. 
(Grua II.713 note 5)

Because it is rational appetite, will, on that account, is free, just as, on the other hand, because it is not rational, the appetite in beasts, on that account, is not free. Therefore, the cause of freedom is reason itself. 
(Extraits de Bellarmin, 1680-82?)

Voluntas ideo est libera, quia est appetitus rationalis, sicut e contrario appetitus in bestiis ideo non est liber, quia non est rationalis. Igitur causa libertatis est ipsa ratio. 
(Grua I.296)

Leibnizian commentators agree that will is the rational appetite, but they seldom give references. Rationality is always a property of a conscious being. Rescher, for example, (The Philosophy of Leibniz, p.119) defines will as 'conscious appetition'. We would rather go further than this and claim with Loemker that will is to be associated not with mere consciousness, but with self-consciousness.

Only through reflection can perception become apperception, and appetite will. 
(Introduction: L.I.68)

Russell agrees with Loemker, although that he says that appetition is 'conceived on the analogy of volition' 
(Critical Exposition, p.133), when in fact, volition is a kind of appetite. Russell does, however, make the point that only self-conscious monads can have volition (ibid.) and he notes the connection between volition and the idea of good, to
which we will come later.

If the relationship between will and rationality is stressed, it becomes obvious that only self-conscious beings can will, because only self-conscious beings can be rational. If the relationship is obscured, it becomes possible to claim with Rescher that conscious, not necessarily self-conscious beings, can will. However, Leibniz's conception of will so obviously includes the idea of rationality that it would be difficult to hold that will is merely 'conscious appetite' if we are being faithful to the Leibnizian texts.

Conscious appetite, on the other hand, seems closer to desire than it does to will. Conceiving will as self-conscious appetite makes a distinction between desire (le désir) and will (la volonté) possible. For Leibniz, a desire is an appetition whose effect is not so great as that of the will. Talking of a man who wants to relieve himself of the pain of gout, Leibniz comments that,

Such a desire is a kind of velleity, as contrasted with a complete volition: one would will, if a greater evil were not to be feared from obtaining what one wants, or perhaps a greater good to be hoped for by forgoing it. However, we could say that the man does will to be rid of his gout, with a certain intensity of volition but not one which ever rises to full strength. When a volition contains some imperfection or impotence, it is called 'velleity'.
(New Essays, Bk. 2, Chap. 21: R&B 183)

Rational appetite (the will) belongs to the self-conscious being. Self-consciousness is better than mere consciousness without any recognition of the self. Since desire is a lesser kind of will, i.e. one which does not attain its
full strength or potential, it is likely that desire, for Leibniz, is characteristic, not of the self-conscious being, but of that being which is conscious only, or of the self-conscious being during moments when it is not actually conscious of the self.

In his 1692 paper on the philosophy of Descartes, Leibniz wrote that,

We have a free will not in perceiving but in acting. (Critical Thoughts on the General Part of the Principles of Descartes, 1692: L.II.632)

Appetition is the action which carries the monad from one perception to the next, following, as it does so, the law of the sequence of changes, which law contains within it the nature of and the order of the perceptions which are the terms in the series. According to the passage quoted above, the monad is free only insofar as it acts in passing from one perception to the next. Presumably, it is not free either to decide which perception will follow the present perception, nor to decide how any perception will be. Leibniz admits this last point:

Whether honey will seem sweet or bitter to me does not lie with my will, but neither does it lie with my will whether a proposed theorem will seem true or false to me; it is the business of consciousness merely to examine what appears to it. (Ibid., 1692: L.II.632)

But does Leibniz want to admit the first point, namely, that we cannot decide which perception is to follow our present perception? Surely Leibniz does want to claim that we are free whether or not to taste the honey at all.
Unfortunately, under his account of the monad’s essence as the law of the series, Leibniz cannot even say we are free to choose whether or not to taste the honey, for whichever option we choose, i.e. to taste or not to taste, this option is already contained within the law of the series. The law of the series, insofar as it includes all the terms (modifications, perceptions) in the series, determines what any one monad’s perceptions will be, and in which order they occur. As he says, 'it is the business of consciousness merely to examine what appears to it'. The monad, it would seem, has no control over what it is which does appear to it. It is free only to examine that which does appear.

This one thing we recognize to be within the power of will - to command attention and exertion.

(ibid.: L.II.632)

Hence it can be said that, for Leibniz, we do not have free will whether or not to taste the honey, but we do have free will concerning how much attention to give to the honey when we do taste it. This accords with Leibniz’s assertion that the appetition strives towards attaining the full perception, even though it does not always reach the full perception. How much of the perception is attained will be dependent on how much attention is given by the monad to that which it perceives. The full perception is the perception as it would be if it were distinct. The fullest possible perception or expression of the world will be that had by God - the perception in which every monad is perceived distinctly. When a
created monad perceives the world, it perceives some monads distinctly, but all the rest confusedly. It may even represent all monads (including itself) confusedly (9).

But it can be questioned whether any monad is free to 'command attention and exertion', or whether monads are free to determine the distinctness or confusedness of their perceptions. It might be said that we cannot be free because the concept of the monad is already contained in the law of the monad, indeed that the concept of the monad is the law. In going through the series, one term (perception) follows another according to the law. But the law cannot be merely the series of perceptions without any account of the appetitions, for if this were the case, every monad would be the same, because all monads strive towards the same perception, namely, a distinct perception of all monads. The confusedness or distinctness of the perceptions is the only way by which to distinguish one monad from another - and appetite is the determining factor of this confusedness and distinctness. In other words, the appetite is that by which the law of one monad is different from the law belonging to any other monad. It is significant that Leibniz does not distinguish monads according to what they perceive confusedly and what distinctly. Rather, they are distinguished by the degrees of distinctness with which they perceive the whole world.

It will be interesting to consider the case of conceptual expression of the world. By the adoption of certain beliefs (distinctly perceived if they are true beliefs, confusedly
perceived if they are false?) a person's view of the world is
coloured to the extent that everything which happens to him or
her will be interpreted in the light of, or within the
framework of, those beliefs. It can be said that a person
interprets the world in accordance with his or her own point of
view. A more adequate point of view might be one which also
incorporates an understanding of other people's points of view.
This cannot be done in the case of sense perception, or if it
can be done, it can only be done to a limited extent (e.g. by
putting oneself in the spatial position which another person
occupied previously). Besides, we would not expect it to be
possible in the case of sense perception, for this is
inherently confused anyway (10). But in the case of
intellectual comprehension, it is surely the case that a person
who can adopt two points of view of a situation or event has a
more distinct and adequate knowledge of that situation than
someone who only interprets it according to their own point of
view. For instance, in any dispute, the protagonists each have
their own views and their own wishes and desires. Often,
neither can understand the view, wishes and desires of the
other side. A parent wishes his child to be safe, and so wants
him home before midnight. The child, on the other hand, wants
to meet his friends and assert his freedom and independence.
Neither parents nor child understand the other's point of view.
Yet were it possible for them to do so, such disputes could
often be easily solved. Surely the parent or child who can
understand both their own feelings and those of the other has a
more distinct and adequate perception of the situation than one who fails to understand the feelings of the other.

This has been somewhat of a digression. Nevertheless, we can see that the relation between the point of view and the confusedness or distinctness of a perception is such that to change one's point of view is also to change the confusedness or distinctness of one's perceptions, be these sensible or conceptual (11).

And, if the distinctness or confusedness of a monad's perceptions is contained within the series of perceptions as a whole, then it follows that, to change the distinctness or confusedness of any one perception is to change the whole series, and therefore to change the law of the series, and so to change the monad itself, so that it is no longer the same monad. The monad cannot say to itself, "I do not like the law which I am following during my life, therefore I will change my law", for this very determination to change would already be contained as a term within the series. Anything which follows from the law, and which the monad wants to change is found to be already in the law, and so the law is not, in the end, changed at all. This being so, we do not have a free will by which to command attention and exertion, i.e. to improve the distinctness of any perception, because this attention and exertion is already contained within the law of the series. We do not have a free will to determine the distinctness of any single perception we have, for it is already contained within the law just how distinct this perception will be. If the
perception were any less or more distinct, the monad would have or would be a different law, and would have a different essence. Leibniz, therefore, is not justified in holding that we have a free will to command attention or exertion, for this attention and exertion is dependent on the amount of primitive active force which the monad has at any one moment, which in turn determines the strength of the appetition (the action of this force), which, in its turn, is responsible for the confusedness or distinctness of the resultant perception, i.e. for how much of the next term of the series is attained.

The sense of freedom we are employing here denies that we are thus free to command attention or exertion if this is already contained in the law. But although Leibniz's account of the law of the individual series and of complete concepts cannot encompass the strong and possibly meaningless sense of freedom used above, Leibniz does have his own definition of freedom - a definition which is compatible with the doctrines of the law of the series and of complete concepts. And so, it is to Leibniz's own account of freedom that we now turn our attention.

Leibniz's route out of the above problem entails the incorporation of freedom into the individual law of any free monad:

I agree that the connexion between events, although certain, is not necessary, and that I am free to take this journey or not, for although it is contained in my concept that I shall take it, it is also contained therein that I shall take it freely. (Letter to Arnauld, 4/14 July 1686: Mason p.58)
The decision to take the journey is freely made only when the appetition which passes from one perception to another is the action of a strong primitive active force. We now attempt to show why this must be the case for Leibniz.

We have seen that not all appetitions are voluntary; that only the rational appetites are so. Rational appetites, or voluntary appetitions, are those, actions one can be aware of and can reflect upon when they arise from some consideration of good and bad.
(New Essays, Bk.2, Chap.21: R&B 173) (12)

I shall say that 'volition' (la volition) is the effort or endeavour (conatus) to move towards what one finds good and away from what one finds bad, the endeavour arising immediately out of one's awareness of those things.
(ibid.: R&B 173)

This endeavour is the rational appetite. Having reason enables us to determine, as far as we are able, what is good and what is bad. Leibniz also believed that God has made the will such that it 'shall always strive toward the apparent good' (Discourse on Metaphysics, §30, 1686: L.I.495) (13). We strive only towards apparent goods because often our reasoning powers are insufficient to enable us to know the true good, which Leibniz wants to say we would strive towards if we only knew what it was.

Cicero somewhere makes the good remark that if our eyes could see the beauty of virtue we would love it ardently.
(New Essays, Bk.2, Chap.21: R&B 186)

Even when someone strives towards evil, it is striven
towards because it is seen as good:

Even in our evil purposes we are moved by a certain perceived appearance of good or perfection, even though we miss the mark, or rather pay for a lesser good, ill sought, by throwing away a greater.
(Preface to the Mantissa Codicis Juris Gentium, 1700: L.II.696)

Our reason often informs us that it is better to satisfy the demands of the mind than the more immediate and more easily satisfied demands of the body. The former, for Leibniz, are greater goods than the latter. By deciding to strive towards the greater good, reason is influential in showing us what the greater good is (14). The decision is made to strive towards the greater good because it is in the nature of the will to strive towards what it sees or regards as good. Does it follow from these remarks that the truer the perception of what the good is, the freer will be the being which perceives it? 'No'. A perception can be true without the being which has the perception being conscious of its truth. This happens, for example, when we and the other animals instinctively know which plants to eat and which are poisonous. For Leibniz, reason is involved in freedom, not because of a connection between reason and truth, but because of a connection between reason and distinct perception. Freedom occurs when the truth is acted upon because it is distinctly, consciously perceived. If we compare the instinctive desire to eat when hungry with the rational will to eat because it has been perceived and understood why the body must have food in order to survive, then we can say that someone eats freely to the extent that he
does so with a conscious rational distinct perception of the reasons for his doing so. He is not free when desire alone compels him to eat.

What, then, are these goods or apparent goods to which the will strives? The true good, according to Leibniz, is 'whatever serves the perfection of intelligent substances' (Reflections on the Common Concept of Justice, 1702?: L.II.917) (15).

Perfection, for Leibniz, takes many forms, all of which are very closely associated with one another. At different times he equates perfection with some or all of the following - freedom, primitive active force, distinct perception, reason, pleasure, harmony, order, beauty, wisdom, love, happiness and joy. We will see how he connects all these together (16).

In An Introduction on the Value and Method of Natural Science, Leibniz writes:

Every thing is to be held as more perfect to the degree that it is freer by nature; that is, to the degree that its power is greater over the things that surround it, and its suffering from external things is less. Hence, since the power proper to the mind is understanding, it follows that we will be the happier the clearer our comprehension of things and the more we act in accordance with our proper nature, namely, reason. Only to the extent that our reasonings are right are we free, and exempt from the passions which are impressed upon us by surrounding bodies. Yet it is impossible to evade these passions entirely, since the mind is affected in various ways by its body, while our body, which is but a small part of the universe, can be helped and harmed by the bodies which surround it. The knowledge of bodies is therefore most important on two grounds - first, to perfect our mind through an understanding of the purposes and causes of things; second, to conserve and nurture our body, which is the organ of the soul, by furthering what is wholesome for it and reducing what is harmful. (c.1682-4: L.I.431-2)
If whatever increases the freedom of a being is a perfection (and hence a good), it follows that the will must strive to increase its freedom. It does this by cultivating its rational faculties, because free will is rational appetite. By using reason, a monad's perceptions become more distinct, and distinct perceptions are similarly a perfection. Hence, Leibniz writes many years later that the soul, 'has perfection in proportion to the distinctness of its perceptions' (Principles of Nature and of Grace, §13, 1714: L.II.1040).

The distinctness of a monad's perceptions is a direct result of a monad's primitive active force, just as its confused perceptions are a result of its primitive passive force (17).

We know that the monad itself cannot change the amount of primitive active force it contains at any one moment - for this would be to change its law (18). What we can now understand is how the amount of primitive active force at any one moment determines whether or not the action which results from this is free (19). Leibniz's decision to take the journey is a free decision (and the journey a free act) if the decision to take the journey follows from a conscious knowledge of whether or not the journey is good for him, and for the world as a whole. The rationality of the decision depends on the distinctness of the perceptions used as a basis for the decision (i.e. the distinctness of the perception of the facts on which the decision is made), and these, in turn, depend on
the monad's, or Leibniz's, primitive active force.

Hence, under Leibniz's account of freedom, the fact that the monad cannot change its law is irrelevant. The monad is its law, and as such, some of its actions are free, and others are not free. Freedom is located within the nature of the law, or within the nature of the monad itself.

We have said that Leibniz could not claim that the will had the power to command attention and exertion (20). We still believe this to be true and interpret Leibniz's claim as being that it is only when the monad does command attention and exertion that it is in the act of willing. This interpretation is compatible with the interpretation of Leibniz's freedom given above.

But we now find ourselves confronted with a problem. Distinct perceptions are modifications of primitive active force (21). But appetitions are also modifications (22) and the only likely candidate for them to be modifications of is, again, primitive active force.

We could perhaps conclude from this that distinct perceptions and appetitions are one and the same thing. But there are a number of considerations preventing us from attributing this view to Leibniz, not least being the fact that perceptions are defined as 'present states' and appetitions as the 'action which takes the monad from one present state to the next'. Only if it were argued that the present state were
itself also the action which would lead to the next present state could an identity be maintained between perceptions and appetitions. We do not deny that such an argument could be constructed, but we do deny that such an argument was ever constructed by Leibniz.

We should remark that under the account of freedom we have given, the monad cannot be said to have chosen its own law. Because it is its law, or the actualization or its law (of the series of its perceptions), there is nothing separate from or independent of the law which could then be said to make such a choice. The monad's choices can only be contained in the law itself. This does not prevent God from being able to choose which laws (as monads) to create) (23).

The law of the series of perceptions which is the monad's essence is not to be confused with what have been called moral laws. Moral laws, as for instance, Kant's categorical imperative, are rather the laws which any one monad will follow if it bases its choice of actions on rational grounds. Leibniz does admit such laws into his metaphysical framework, but they are not substances, as are the created laws of the monads. Leibniz's God, for instance, follows a law which states that good actions will always be rewarded and evil actions always punished. But this kind of moral law should be contrasted, not with the monadic laws of the series, but rather with the natural physical laws which govern the movements of bodies. In saying this, we do not deny that any one rational monad will act both in accordance with its own law of the
series and with any moral laws regarding what is good and what is bad. One such moral law governing rational beings is that they shall always choose that which they perceive to be good. Compare this to the law governing bodies such that in travelling from A to B they will always travel by the shortest, or easiest, path. Nevertheless, moral and physical laws are also different in kind from each other, and should not be confused (24).

There is more to be said concerning perfection and freedom. A large part of Leibniz's paper, On Wisdom, which Wiener dates at around 1693, is devoted to the consideration of perfection. It will be illuminating to quote much of it in full, as it illustrates nicely the connections between Leibniz's ideas:

perfection shows itself in great freedom and power of action, since all being consists in a kind of power; and, the greater the power, the higher and freer the being.

The greater any power is, moreover, the more there is found in it the many revealed through the one and in the one, in that the one rules many outside of itself and represents them in itself. Now unity in plurality is nothing but harmony [Uebereinstimmung], and, since any particular being agrees with one rather than another being, there flows from this harmony the order from which beauty arises, and beauty awakens love.

Thus we see that happiness, pleasure, love, perfection, being, power, freedom, harmony, order, and beauty are all tied to each other, a truth which is rightly perceived by few.

Now when the soul feels within itself a great harmony, order, freedom, power, or perfection, and hence feels pleasure in this, the result is joy, as these explanations show. Such joy is permanent and cannot deceive, nor can it cause a future unhappiness if it arises from knowledge and is accompanied by a light which kindles an inclination to the good in the will, that is, virtue.

(On Wisdom, c.1693: L.II.699)

Thus,
the pleasure which the soul finds in itself through understanding is a present joy such as can conserve our joy for the future as well.
It follows from this that nothing serves our happiness better than the illumination of our understanding and the exercise of our will to act always according to our understanding . . . For there springs from such knowledge an enduring progress in wisdom and virtue, and therefore also in perfection and joy. (ibid., c.1693: L.II.699-700)

We have already seen the relationship between freedom and power in our discussion of the relationship between freedom and primitive active force. We could add here that the connection between primitive active force and distinct perception is also evident from the fact that that which has a more distinct perception of something than that thing has of it, is said to be the cause of the latter, and that which has the less distinct perception is said to be the effect. The cause is considered to be freer than that which is only an effect (25).

There is also a connection between causes and reasons, because reasons are associated with distinct perception. Hence, in response to Locke, Leibniz wrote that,

A reason is a known truth whose connection with some less well-known truth leads us to give our assent to the latter. But it is called a 'reason', especially and par excellence, if it is the cause not only of our judgment but also of the truth itself - which makes it what is known as an 'a priori reason'. A cause in the realm of things corresponds to a reason in the realm of truths, which is why causes themselves - and especially final ones - are often called 'reasons'. (New Essays, Bk.4, Chap.17, 1704: R&B 475)

The second paragraph in the quotation from On Wisdom explains the connection between freedom and expression or
The greater any power is, moreover, the more there is found in it the many revealed through the one and in the one, in that the one rules many outside of itself and represents them in itself.

Elsewhere, Leibniz says that every monad, regardless of the greatness or otherwise of its power, reveals the many in the one, or represents the many in itself (26). Greater power leads to an increase, not in the number of things represented, but in the distinctness of the representation of those same things. To be consistent with the rest of his philosophy, the *On Wisdom* passage should read:

The greater any power is, moreover, the more there is found in it the many revealed distinctly through the one.

Leibniz goes on to say that such representation of the many in the one is harmony. The harmony arises out of the mutual representation of all in each monad. There would be no harmony if only one monad represented all the others while none of these others represented any of the others. So in this sense even the following passage is misleading. Only when we add that the representation must be reciprocal, we can see why this is, according to Leibniz, the most perfect world. It is so because each and every monad making it up represents each and every other monad.

This harmony is the reason, or one reason, why Leibniz took the journey (27) rather than not. Leibniz must take the journey if his future perceptions are to be in harmony with the
perceptions which the other monads in the world have. That is to say, by taking the journey rather than not taking it, Leibniz sees other monads from his own point of view, which point of view corresponds to the points of view belonging to the other monads, in such a way that Leibniz will be included in the perceptions which any person whom he meets on that journey has, and similarly, those people will be included in the perceptions which Leibniz has while he is travelling. This means that Leibniz's taking of the journey fits in with the general harmony of the world. Whether or not he takes the journey freely depends on the strength of Leibniz's own appetitions in taking him from one perception to another. But regardless of whether or not Leibniz takes the journey freely (i.e. rationally, self-consciously, etc.) he is always acting towards the perfection (in the sense of harmony) of the world as a whole.

We have seen (28) that the will always tends towards what it sees as good. This can be interpreted as meaning that the will always tends towards what it sees as its own good, or towards what it sees to be for the good of the world as a whole. Ultimately these two goods should coincide, that is to say, a perfectly rational being would realize that that which is good for itself is also always good for the rest of the world, and vice versa, that that which is good for the rest of the world is also good for itself. Since the world is perfect, every monad's appetitions, whether that monad be unconscious, conscious or self-conscious, will strive towards the good or
perfection of the world as a whole. Whether or not any one monad is conscious of the fact that this is what it is striving towards, depends on the freedom, and hence on the primitive active force, of the monad concerned (29).

Latta attributes this fact about the monads' appetitions to the principle of sufficient reason:

Again, the appetite of the Monads is due entirely to the principle of sufficient reason. A substance which is real in virtue of its mere possibility can have no tendency to a change of state. If it were really to change it would cease to be itself. But the appetite of the Monads is ruled not by the principle of realizing the self-consistent or the abstractly possible, but by the principle of realizing the best or the full harmony of a system. The pre-established harmony of the universe as a system of 'compossible' substances is the ground or reason of the appetite in each, the principle of its changes. But this, as we have seen, is a consequence of admitting the principle of sufficient reason. (Leibniz: Monadology, Introduction, p.71)

Latta is correct in saying that every monad's appetitions are ruled by the 'principle of realizing the best or the full harmony of a system', and that the pre-established harmony of the universe is the 'ground or reason' of these appetitions. What Latta has not made clear is that some of these monads know and some do not know the principle of the pre-established harmony (30).

Indeed, Leibniz's view of the world as one in which there are an infinite number of monads, each of which represents the whole world according to its own point of view (31), and where these points of view are distinguished from each other according to the degrees of distinctness and confusedness of
each monad's perceptions, leads to the consequence that some monads must have appetitions which are not free, self-conscious, or rational. According to Leibniz, every possible point of view of this world is the point of view of one and only one monad. It follows that there is a continuous scale ranging from a very confused perception of the world through to a very distinct perception of the world, with all possible values in that scale occupied by one and only one monad at any one point in time (32). The degree of distinct perception had by any one monad at any particular point in time does not remain constant for the whole series of perceptions. Any one monad will at one time perceive the world more distinctly than it will at some other point in time (33). Some monads will always perceive the world with varying degrees of confusedness, and will never attain a distinct perception of even a small part of the world. According to the account of freedom we have given above, such confusedly-perceiving monads will not be free. Later, we shall see that there is indeed a harmony between these non-free monads and the distinctly-perceiving monads which possess free-will (34).

It is important that Leibniz establish a place for compassion and love in his rationalist ethic. People might be rational and yet not also compassionate and loving. Without this, people will never act for the good of others, no matter how rational such action may be. Leibniz believed that love can arise from knowledge of the pre-established harmony. In On Wisdom he wrote that 'there flows from this harmony the order
from which beauty arises, and beauty awakens love'. Love, he says (Preface to the Codex Gentium Diplomaticus, 1693: L.II.691), arises when beauty is perceived in a being which is capable of happiness.

Those monads which can distinctly perceive the harmony of the world (and presumably also thereby see the good of the whole world as the object of their rational appetites) can experience a joy, which arises out of this very perception. The contents of the following paragraph make it clear that this joy is no mere appreciation of the order and beauty present in the world as something external to us, but a feeling which a self-conscious monad feels within itself. He writes:

Now when the soul feels within itself a great harmony, order, freedom, power, or perfection, and hence feels pleasure in this, the result is joy.

We could take this to mean that the soul feels itself to be in harmony with itself, but when we remember that this soul represents the many in the one, we realize that it must also feel itself to be in harmony with the rest of the world (35).

It follows from what has been said above that,

The good is that 'which is apt to cause or increase pleasure, or diminish [or cut short] pain in us. [Evil] is apt to produce or increase any pain, or diminish any pleasure in us'. (New Essays, Bk.2, Chap.20: R&B 162) (36)

where pleasure is,

the feeling of a perfection or an excellence, whether in ourselves or in something else. (On Wisdom, c.1693: L.II.697)
In *Does the World Increase in Perfection?*, Leibniz writes:

> [Pleasure] happiness does not consist in some highest level, but in the perpetual increase of joys. That highest being is not increased in perfection, because it is beyond time and change, and embraces present and future things equally.

(my translation)

> [Voluptas] beatitudo non consistit in summo quodam gradu, sed in perpetuo gaudiorum incrementa. Summum illud Ens perfectione non augetur, quia est extra tempora et mutationes, et praesentia futuraque aeque complectitur.

(Grua 1.95)

Any being which is increasing in perfection, i.e. which is becoming more free, more rational, whose perceptions are becoming more distinct, will feel pleasure. And because all of the above are the result of the monad’s primitive active force, Leibniz’s hypothesis that if activity is a move towards perfection and passivity, a move towards imperfection, then, in substances which are capable of pleasure and pain, every action is a move towards pleasure, every passion a move towards pain.

(New Essays, Bk.2, Chap.21: R&B 210)

becomes more than a hypothesis, and is seen to be a statement of Leibniz’s own conviction (37).

Perhaps it will be said that this connection between pleasure and that which is good absolves us of the need to use our rational faculties in the moral sphere. But this need not be so. Leibniz has defined pleasure in terms of distinct perception, and hence in terms of reason. For non-rational animals, sensual pleasure will be the criterion used when their
appetitions are making the passage from one perception to the next. An animal will turn from what it expects to give pain, and run towards what it expects will give pleasure. Rational beings can also experience intellectual pleasure. As a rationalist, Leibniz values this more highly than sensual pleasure.

Our interpretation of Leibniz on the subject of freedom is not often encountered among Leibnizian scholars. In the main, commentators on this subject direct their attention towards subjects which we have omitted to mention. Much of the work has centred on the relationship between contingent events and necessary events; on the difference between hypothetical truths and necessary truths; on freedom and possible worlds; and on contingency in relation to the infinite analysis of complete concepts of individuals.

Thus, Blumenfeld (38) applies David Lewis' counterpart theory to Leibniz's monads in order to see if Leibniz's monads can be free if they have counterparts in other possible worlds. He concludes that counterpart theory is of no help, and that monads are not free.

Ishiguro (39) argues that there is no necessary connection between the subject and the predicate in a concept which has an infinite analysis. It is suggested that contingent truths might depend on the free choice of God.

Similarly, Curley (40) draws a distinction between necessary and contingent truths in the grounds that contingent
truths depend upon the existence of things, which existence is dependent upon the free choice of God.

Patrick Maher (41), who rejects accounts of contingency which appeal to the contingency of existence or to the analysis of complete concepts, comes close to our interpretation because he is aware of the connection between the freedom of human actions and the principle of perfection. Unfortunately, he does not go far enough, for he fails to investigate the concept of perfection, and so fails to find its relation to the concepts of primitive active force, reason and distinct perception.

C.D. Broad (42), observing that contingent events can be considered as non-free acts, concentrates his discussion of human freedom around Leibniz's distinction between physical and metaphysical necessity. Free acts are those which are neither metaphysically not physically necessary. He notes, however, that free acts are always, nevertheless, determined. Broad makes no reference to reason and other related concepts in this discussion.

Parkinson (43) observes the connection between freedom and the principle of sufficient reason, and relates this to the fact that, although all events are determined, not all events are also necessary. However, the discussion, though promising, is brief.

To be fair, we must point out that both Russell and
Rescher perceive the connection in Leibniz's thought between freedom and active force. Rescher, however, does not investigate the concept of action deeply enough, for he writes only that,

A substance acts, according to Leibniz, when it initiates a change of subsequent modifications. It acts "freely" when the substance at issue is a spirit. Its action is the result of inner spontaneity, of a course of rational deliberation as to the eligibility of alternatives, i.e. a deliberate choice among alternates in a manner that includes comparative assessment of their respective goodness.

(The Philosophy of Leibniz, p.146)

Rescher acknowledges, then, the role of the concepts of action, reason and goodness in the concept of freedom. Only on a couple of points is his discussion misleading. He implies that spirits are always free, and we know this need not be true, and he implies that their freedom arises from an inner spontaneity, which is also not strictly true because all monads have inner spontaneity (appetites) and yet not all monads are free.

Russell distinguishes between the freedom which is due to the action of the soul and the freedom which is the opposite of necessity. He says of the former that it,

corresponds to the distinction of activity and passivity. The will is free in so far as we are active, i.e. determined by distinct ideas; God alone, who has only distinct ideas, is perfectly free. And thus this sense is connected with the understanding.

(Critical Exposition, p.192)

Russell cites Leibniz (New Essays, Bk.2, Chap.21: R&B 175), saying that only the freedom which is contrasted with
necessity is relevant to the 'free-will controversy'. This may in fact be the case, in light of the fact that the account of freedom which we have given above encounters difficulties if it is used in explaining the notion of choice (44). Nevertheless, it must also be said that Leibniz refers to both kinds of will as 'free' - 'la liberte de vouloir' and 'le franc arbitre' - and there is no reason to believe, as Russell contends, that Leibniz did not consider both kinds of will to be relevant to the 'free-will controversy'. Russell does recognise the connections between perfection and goodness, reason, pleasure and joy (45). But he also suggests (ibid., p.193) that human freedom is distinguished from animal freedom because animal freedom is not determined by knowledge of the good. This would seem to contradict his earlier assertion that the freedom which concerns the understanding is not relevant to the free-will debate.

We do not deny the value and interest of any of the above investigations. But we will point out that our own interpretation of human freedom has this advantage over the others, namely, that by it man's freedom of will becomes analogous to that of God in that both are founded upon the exercise of reason and the presence of primitive active force. It follows that, if God is free, man will also be free, though to a lesser extent. Our interpretation also shows us the means whereby we can improve or increase our own freedom, namely, by increasing the distinctness of our perceptions. We allow the concept of a monad to be complete, but define freedom so that
it is contained in this complete concept. As far as our actions and deliberations are concerned, it should not matter to us that God already knows how much freedom is contained in each individual concept, because from our limited point of view, it will always be possible for us to increase the distinctness of our perceptions, and it is this which we should always strive to do. That God already knows how well our goal will be achieved (because He knows the complete concept) raises interesting theological questions. But the answers to any such questions are academic. For even if God does know each individual concept, the fact remains that we ourselves do not know our own individual concepts completely (46). Because we do not know how far our goals will be achieved, we have no excuse for not striving always both to increase our own perfection and to be in harmony with the rest of the world (47). Our interpretation of freedom in terms of reason, then, has more practical bearing on our actions than does any account which manages to reconcile the conflict between human freedom and the knowledge which God possesses.
CHAPTER TEN
DISTINCT PERCEPTIONS

In chapter 5, we established that confused perception was perception of the sensible qualities of material bodies which exist in space and time. It follows that distinct perception is not perception of sensible qualities. What, then, is the object of distinct perception? We argue here that distinct perception is thought, and its object is a form or an essence (1).

Perception is often used by Leibniz to cover all types of expression or representation (including thought) of the world by a monad (2). It is in this sense that he says of monads that they have only perceptions and appetitions:

Furthermore, this is the only thing - namely, perceptions and their changes - that can be found in simple substance. (Monadology, §17, 1714: L.II.1046)

At other times, however, perception is used only to mean 'sense perception', and thought is reserved for the activities of our mind when we represent abstract things. In the New Essays (Bk.2. Chap.9: R&B 133-4), making a distinction between perception (as sense perception) and thought, Leibniz writes that whereas in perception, the mind is passive, in the case of thought, the mind is active. Sense perception is passive because it is a modification of primitive passive force. Thinking is active, and must, therefore, be a modification of primitive active force. In other words, thinking is distinct perception. This is clear also from the fact that even though our account of freedom was given in terms
of distinct perception, in the same passage from the New Essays, the qualities of activity and voluntary attention, are applied to thoughts.

Moreover, Leibniz is aware of the connection between thought and reason, and this again points in the direction of distinct perception being thought:

Besides the lowest degree of perception, which also occurs in those who are stunned, and the intermediate degree, which we call sense . . . there is a certain higher degree which we call thought. Now thought is perception combined with reason. (De Anima Brutorum, 1710: G.VII 330-331, Latta's transl. p.51n.) (3)

In addition to this, it is implied that distinct perception is thought when Leibniz says that,

whatever follows from the laws of body must necessarily be represented in order by the soul to itself, some of it distinctly but some confusedly (that, namely, in which a multitude of bodies is involved). In the former case, the soul understands; in the latter, it senses. (Letter to de Volder, 24 March/3 April 1699: L.II.841)

We can therefore take it as proven that, for Leibniz, that which is distinctly perceived is not the sensible quality of a material body extended in space and time (i.e. that in which a multitude of bodies is involved). Rather, what is distinctly perceived (thought of) are forms or essences:

our soul always does have within it the disposition to represent to itself any nature or form whatever, when an occasion arises for thinking of it. I believe that this disposition of our soul, insofar as it expresses some nature, form, or essence, is properly the idea of the thing, which is in us and is always in us whether we think of it or not. For our soul expresses God and the universe, and all the essences as well as all the existences.
Presumably, such forms, essences and natures can also be sense perceived, but will not be so distinctly perceived when this is the case. An example may make the point clearer. We can see a square, i.e. we can sense perceive a square object, and our perception of it will be confused, but we can also think of a square mathematically, in which case our perception (or expression) of it will be distinct. If we remember that Leibniz sometimes refers to sense perception as distinct, it will be clear that when our sense perception of a square object is distinct, this is because in this sense perception there is also an intellectual recognition of that object as an instance of a geometric square. The reverse is the case when Leibniz speaks of confused thoughts (les pensees confuses). In the Reply to the Thoughts on the System of Pre-established Harmony, he says that,

it is believed that confused thoughts are entirely different in kind from distinct ones, whereas they are merely less distinguishable and less developed because of their multiplicity.

(1702: L.II.944)

In what follows, it becomes clear that confused thoughts are thoughts of 'colors, odors, tastes, heat, cold, etc.'(ibid.: L.II.944). Our concepts of these colours, odours and tastes are composite (4), but unless we can enumerate elements in these concepts which make them different from one another, our thinking about them will be confused, rather than distinct (5). It can be said that distinct thought is thinking
using distinct concepts, i.e. concepts which we can analyse, and which can, therefore, be shown to be different from other concepts. It will in general be true, however, that all thought, even confused thought, is more distinct than even the distinctest sense perception. Thought expression is inherently distinct; sense expression is inherently confused (6).

We believe that the difficulties which have arisen in our interpretation of Leibniz's thought arise because of the limitations of language for the ideas which Leibniz was trying to express. There are not sufficient terms by which to distinguish a perception which is so confused that it is not even conscious to the organism which is perceiving, from a perception which is conscious to the perceiver, and to distinguish these from the distinct thought had by a self-conscious rational being. It is not surprising that Leibniz says of sense perceptions that they are confused, and also that they are distinct, for this depends upon what they are being compared to. Our interpretive difficulties are increased because Leibniz uses perception both in a general sense to cover all types of expression and also in a more specific sense to mean only sense perception. We hope, however, that it is by now clear that Leibniz does, at least sometimes, think of a distinct perception as a perception had by a rational being, i.e. as a perception possessed by a being which thinks (7). Non-thinking monads will have a kind of distinct perception, but these perceptions will be distinct only in comparison with other more confused perceptions which they have. Distinct
perceptions belonging to humans, or other rational beings, will be those which occur when the being is thinking. Non-thinking beings are unable to have distinct perceptions (thoughts) because, not being able to think, and, therefore, being unable to analyse, these beings are unable to enumerate the elements of any one thing, and so are unable to explain why it is different from any other thing.

We now have at hand the elements of an explanation of the relation between immaterial monads and material bodies. The relation between the dominant monad and its aggregate body can be regarded as a relation, within the dominant monad itself, between the dominant monad's distinct perceptions and its confused perceptions. When the dominant monad conceives of its body, this body is regarded as an aggregate of immaterial monads, but when the dominant monad sense perceives its body, the body is regarded as a material extended physical object. Hence, the relation between the immaterial monads which compose the extended body and the extended material body itself can be seen as a relation within the dominant monad between two different ways in which it can express its body, i.e. by thought or by sense.

The two different ways of expressing the body are those which we distinguished in chapter 3 (8). To use Heidegger's distinction (9), when the body is sense perceived, it is a phenomenon which is an appearance of the body as something which it is not, and when the body is conceived, it is again a phenomenon, but this time it shows itself as something which it
actually is, i.e. as an aggregate of monads.

Moreover, because of the relations we have found between confused perception and primitive passive force, and between distinct perception and primitive active force, it is possible to explain the above as a relation between the dominant monad's primitive passive force and the same monad's primitive active force.

Primitive active force and the distinct perceptions a monad has are connected in such a way that the greater a monad's active force, the distincter will be its perceptions. We saw how this could be accomplished via the monad’s appetite. But we also saw that primitive active force was responsible (via the medium of derivative active force) for the phenomenal motion of aggregate bodies.

It is necessary to reconcile these two consequences of primitive active force. Early in our investigation of substantial forms, it transpired that the form was both a principle of action and a principle of motion. We observed a distinction between the motion of bodies and the action of monads, the form being the principle behind both. We intend here to use this distinction in order to provide an account of the relation between derivative active force and distinct perception which is compatible with the account given in chapter 5 of the relation between derivative passive force and confused perception.
Derivative forces and perceptions are modifications. Just as both derivative passive force and confused perceptions are modifications of primitive passive force, so too, derivative active force and distinct perceptions are modifications of primitive active force, with the added complication that appetition is also a modification of primitive active force. Even if we disregard appetitions, it is still clear that derivative active force and distinct perception are not the same. The reasons for this are similar to those we gave to explain why confused perception and derivative passive force are not modifications of the same primitive passive force (10). Accordingly, we propose a similar solution to Leibniz's dilemma. This entails that we interpret derivative active force as a modification of the aggregated primitive active forces of the subordinate monads in the aggregate, extended, moving body. Derivative active force will be a modification, not of any one particular individual monad, but only a modification of an aggregate of monads.

In the New Essays, Leibniz writes:

It is essential to substances to act, to created substances to be acted upon, to minds to think, to bodies to have extension and motion.
(Bk.3, Chap.6: R&B 305)

Extension is the diffusion or repetition of primitive force, and motion is the result of derivative active force. It is, therefore, reasonable to attribute derivative active force to the aggregate body, rather than to the individual monads, because it is the aggregate body which actually moves - the
monads cannot move because they are immaterial and non-spatial.

Distinct perception, on the other hand, we interpret as a modification of the primitive active force of the dominant monad, in the same way as we interpreted confused perception as a modification of the primitive passive force of the dominant monad.

It follows from what we have said that derivative forces and perceptions are both modifications, but modifications of different aspects of the world - the one a modification of an individual substance, the other a modification of a set of such substances.

With regard to primitive active force, the solution solves a number of potential difficulties. For example, if derivative active force and distinct perception were both modifications of the primitive active force of the dominant monad, then because derivative active force is responsible for the movement of the dominant monad's body, and distinct perceptions are the dominant monad's thoughts, whenever there was primitive active force in the dominant monad, it would either be modified in both ways simultaneously, or we would have to find a reason why, in any particular case, it was modified in one way rather than the other. The first alternative is contrary to our everyday experience. It is not the case that whenever we think clearly or perceive distinctly, our body also moves, nor is it the case that whenever our body moves, we think or perceive distinctly (11). We can think when
our bodies are seemingly at rest (12). It would appear, then, that the movement of the body and the distinct perception by the mind are not connected in the way entailed by derivative active force and distinct perception being simultaneous modifications of the same monad's primitive active force. Nor is the second alternative any more acceptable. If the primitive active force of a dominant monad could be modified either as derivative active force (and hence as the movement of the monad's body) or as distinct perception (and hence as the 'movement' of the dominant monad's mind), there would have to be a reason given to explain why it was modified as one at one time and as the other at a different time. It would hardly be reasonable to say that the choice was determined by the law of the series belonging to the monad, since this, for Leibniz, is the primitive active force, i.e. the very thing which is being modified. For the law of the series to be able to determine how the primitive active force was to be modified, there would have to be something in it (i.e. in the primitive active force) determining the manner in which it was to be modified. And if this were the case, we would be as well to make a distinction between two types of primitive active force, and say that derivative active force was the modification of the one kind of primitive active force, and distinct perception a modification of the other kind (and especially because we also want to leave open the possibility that the primitive active force could sometimes be modified as both derivative active force and as distinct perception, so that we could allow that people do
sometimes think clearly while they are moving).

But if we were going to allow derivative active force and distinct perception to be modifications of different kinds of primitive active force in the dominant monad, we would be as well to accept the distinction which we made above, whereby derivative active force is a modification of the primitive active forces of the subordinate monads taken as an aggregate, and distinct perception is a modification of the primitive active force of the dominant monad.

Also, if derivative active force is a modification of the primitive active forces of an aggregate of monads taken as a group, we can explain why an inanimate object (i.e. one without a dominant monad) is able to move. If derivative active force was a modification of the dominant monad's primitive active force, we would have to explain the movement of the whole inanimate body only by the movement of its animated parts (i.e. by the movement of those parts which had dominant monads) and deal with each individual monad in the aggregate inanimate object separately. But if we allow derivative active force to be a modification of all the primitive active forces of these aggregate monads taken together, we can ascribe one force to the body as a whole, giving us one derivative active force for the whole inanimate body, rather than an infinite number of derivative active forces, viz. one for each individual monad in the aggregate. (Observe that there will still be an infinite number of derivative active forces in any body because there will be a derivative active force for each subordinate monad's
Unfortunately, this method of reconciling distinct perception and derivative active force is not so straightforward as it was when used to reconcile derivative passive force and confused perception. The reason for this is that Leibniz speaks as if derivative active force is a term in a monad's law of the series, i.e. as a modification of one monad's primitive active force:

Primitive active force is the law of the series, as it were, while derivative force is the determinate value which distinguishes some term in the series. (Letter to de Volder, 21 Jan. 1704: L.II.869)

Our interpretation entails that we see derivative active force as a modification, not of any one individual primitive active force (i.e. as a modification of a law of the series), but as a modification of an aggregate of primitive active forces. Such an aggregate is not itself a law of the series, although the individual monads in the aggregate will each have their own laws (13). Our interpretation, then, entails that we regard derivative active force as a modification of an aggregate of laws of series, and not as a modification of any one particular law. This, or a similar, interpretation is necessary if derivative active force is to be distinguished from distinct perception, and if the difficulties which arise if derivative active force and distinct perception are not distinguished from each other are to be avoided. Fortunately, it is possible to interpret the above passage from Leibniz's correspondence with
de Volder in such a way that derivative active force is not a modification of a monad's law of the series of perceptions (14).

We now want to present some evidence suggesting that Leibniz could have adopted this idea of derivative active force as arising out of the aggregate of primitive active forces of the subordinate monads in a body, i.e. that Leibniz had at his disposal the means to incorporate our explanation of derivative active force into his metaphysical system.

Firstly, we can observe that derivative active force and derivative passive force are always concerned with bodies, i.e. with aggregates of monads. Derivative forces are those forces 'by which bodies actually act and are acted upon by each other' (Specimen Dynamicum, Pt.1, 1695: L.II.715). Both derivative active and derivative passive forces, then, although they are modifications of primitive forces, only occur when there is an aggregate of primitive forces, or monads.

Secondly, Leibniz's analysis of what happens when a body moves involves considering the impetus of a body as arising from a succession of an infinite number of impacts on the same moving body; so it too contains a certain element from which it can arise only through infinite repetitions. (Specimen Dynamicum, Pt.1, 1695: L.II.716)

The impetus of a moving body is, for Leibniz, a momentaneous quantity of motion. It is measured by multiplying the mass (molis) of a body (that is, its primary matter) by its velocity (that is, by the distance the body travels in a
certain period of time). Impetus was what Descartes called 'quantity of motion'. Leibniz, on the other hand, prefers to measure quantity of motion by integrating all the impetuses of the moving body in a given period of time (ibid.: L.II.715), because the quantity of motion of a body takes place in time, whereas the impetus is an instantaneous value. The velocity of a body is also an instantaneous value, even though it is calculated using the distance a body travels through in a certain period of time.

The impetus of a body belongs to the body as a whole. This impetus shows the presence of derivative active force in the body. Derivative active force will also belong, then, to the whole body. It is the force which is present at any given instant, being, as it is, the present state of a corporeal substance (15). It follows that, if the impetus arises 'only through infinite repetitions', then the derivative active force will likely also arise through an infinite number of repetitions. It is not improbable that that which is repeated is the primitive active force of the monads which compose the aggregate moving body (16).

That which is repeated to make up the impetus is a number of 'elementary impulsions' (ibid.: L.II.716). Leibniz's argument is that a ball rotating in a tube will build up a complete centrifugal impetus formed out of the individual centrifugal impulsions which occur each time the tube is rotated. Now, presumably, behind each of these impulsions lies
a derivative active force (17), and behind each derivative active force, an aggregate of primitive active forces. Hence, the complete centrifugal impetus, which shows the presence of the derivative active force of the body as a whole, has at its foundation, an infinite number of primitive active forces - the forces of the monads which are the 'parts' or foundations of the secondary matter body. And hence, it is not unreasonable to assume that the derivative active force of a body arises out of the primitive active forces, taken together, of the monads which make up the aggregate body.

In chapter 5, we interpreted the relation between the dominant monad's primitive passive force (and confused perception) and the subordinate monads' primitive passive forces (and the resistance of the aggregate body) in such a way as to entail that although the confused perception of its body by the dominant monad was necessary in order that the body be perceived to resist, the actual resistance of the body was not said to be due to its being confusedly perceived by the dominant monad, but instead to be due to the primitive passive force and confused perceptions had by the subordinate monads which compose the dominant monad's body.

Are there any parallels with the primitive active force in relation to both the dominant and subordinate monads? Certainly, in the case of primitive passive force, the dominant monad's confused perception is necessary for its perception of its resisting body in a way in which distinct perception is not necessary for the perception of the moving
body. Confused perception (and therefore the dominant monad’s primitive passive force) is necessary for the perception of a body both as resisting and as moving. This will become clearer in chapter 12. For the moment it suffices to point out that moving bodies are sense perceived, because only when it is extended can a body move.

Nevertheless, there is a similarity between what was said of primitive passive force in chapter 5 and what we now want to say about primitive active force. Just as the primitive passive force of the subordinate monads is aggregatively modified as derivative passive force, such that the aggregate body resists, so too, the primitive active force of the subordinate monads can be said to be aggregatively modified as derivative active force, such that the aggregate body moves. This would enable us to explain why the primitive active force (as substantial form) can be a principle of motion while also being responsible for the dominant monad’s distinct perception. But we must remember that although this explanation can explicate Leibniz from difficulties he encounters if the same primitive active force is modified both as derivative active force and distinct perception, it cannot be said that Leibniz consciously endorsed this view, although some of his statements do tend towards such a conclusion.

One further point remains to be stated. When we explained the relationship between the subordinate monads’ primitive passive force and the aggregate body’s derivative passive
force, we explained that the subordinate monads' primitive passive force would be modified as confused perception when these monads were regarded as individuals rather than as part of an aggregate, i.e. when they are regarded in their capacity as dominant monads. From what we have said of the relationship between the subordinate monads' primitive active force and the aggregate body's derivative active force, it should be the case that the subordinate monads' primitive active force is modified as distinct perception when these monads are similarly regarded as individual dominant monads, rather than as parts of the aggregate. But this is a conclusion which Leibniz would not have endorsed. There is no evidence that Leibniz would have allowed the subordinate monads which compose the body of a rational being are themselves rational (or have distinct perceptions or thoughts). If our interpretation of the relation between derivative active force and distinct perception is to 'be acceptable to Leibniz, we must appeal to Leibniz's use of the expression 'distinct perception' to characterise confused perceptions which are less confused than others (18). This will allow it to be claimed that when a body moves, the subordinate monads composing it perceive confusedly, but nevertheless with sufficient distinctness to enable their confused perceptions to amount to sensations (19).
CHAPTER ELEVEN

EXPRESSION AND RELATIONS

In the context of Leibniz's philosophy, the most perfect world is that in which variety and order are combined in such a way that the greatest possible amount of each, when taken together with the other, is achieved (1). Variety is attained through the creation of an infinite number of monads, all independent of, and distinct from, each other. This variety has already been discussed. Order is present because all these monads express the same things.

It follows also from the perfection of the supreme Author, not only that the order of the entire universe is the most perfect possible, but also that each living mirror which represents the universe according to its own point of view, that is, each monad or each substantial center, must have its perceptions and its appetites regulated in the best way compatible with all the rest.

(Principles of Nature and of Grace, §12, 1714: L.II.1040)

Indeed, the order of the entire universe can, in the end, arise only out of the correspondence between all the different representations belonging to the monads. The relations which hold between any one monad and all other monads - including God, if He is to be considered as a monad - are such that these monads all thereby belong to the same world, or rather that they all together compose that world.

there would be no order among these simple substances . . . unless they . . . corresponded to each other mutually. Hence it is necessary that there is between them a certain relation of perceptions or phenomena, through which it can be discerned how much their modifications differ from each other in space or time; for in these two - time and place - there consists the order of things which exist either successively or simultaneously.
Our plan for this third and final part is to investigate first, Leibniz’s concept of expression or representation, and his concept of relations. This will be followed by a more detailed look at how this expression works 1. between the soul and its own body; 2. between the soul and bodies which are not its own; 3. between bodies themselves; and 4. between the monads themselves. We end with a discussion of final and efficient causes, and of the harmony Leibniz supposes there to be between them. In effect, this third part can be said to be a study of Leibniz’s doctrine of pre-established harmony. We will assume, in what follows, that Leibniz’s terms ‘expression’ and ‘representation’ are synonymous.

All monads express something. What they express, Leibniz usually explains to be the universe, thus inviting questions regarding what the universe is.

For as God turns the universal system of phenomena which he has seen fit to produce in order to manifest his glory, to all sides and in all ways, so to speak, and examines every aspect of the world in every possible manner, there is no relation which escapes his omniscience, and there thus results from each perspective of the universe, as it is seen from a certain position, a substance which expresses the universe in conformity with that perspective.

(BDiscourse on Metaphysics, §14, 1686: L.I.478-9) (2)

Because the monad represents the whole universe, it also represents all changes which occur in the universe, and represents these in the correct order:

since it is the nature of the soul to represent the universe in
a very exact way, though with relative degrees of distinctness, the sequence of representations which the soul produces will correspond naturally to the sequence of changes in the universe itself.

(A New System of the Nature and the Communication of Substances, §15, 27 June 1695: L.II.748) (3)

Monads not only express the universe or the world. They also express God, the creator of the world, because, in fact, monads express everything (4).

All individual created substances, indeed, are different expressions of the same universe and of the same universal cause, God.

(First Truths, c.1680-84: L.I.414-5)

In addition, monads express bodies:

Even if the soul does not consist of parts, yet in its perceptions it expresses a thing consisting of parts, namely, the body.

(Letter to John Bernoulli, 21 Feb.1699: L.II.833-4)

when you ascribe an adequate idea of the corporeal mechanism to the soul; this is just what I mean when I say that it is the nature of the soul to represent the body.

(Letter to de Volder, 24 March/3 April 1699: L.II.841)

Indeed, because they represent everything, monads are not limited only to representing existences, for they can also represent essences, and therefore presumably represent possible but non-actual notions which are present in the mind of God:

I believe that this disposition of our soul, insofar as it expresses some nature, form, or essence, is properly the idea of the thing, which is in us and is always in us whether we think of it or not. For our soul expresses God and the universe, and all the essences as well as all the existences.

(Discourse on Metaphysics, §26, 1686: L.I.492)
And the soul not only expresses essences other than its own, for it also represents itself to itself:

at every moment the mind expresses all its future thought and already thinks confusedly of everything of which it will ever think distinctly. (ibid.: L.I.492-3)

This ability to represent itself to itself is also an expression of God:

But in the mind there is found, besides the expression of objects, consciousness or reflexion; this constitutes a certain expression or image of God himself. (A Specimen of Discoveries About Marvellous Secrets, c.1686: Park. p.85)

The nature of the expressive relation entails that it be reciprocal. Thus, we find that not only does the soul represent God, but also that God represents the soul, or represents all monads, i.e. the universe:

the cause which leads all minds to have intercourse with each other or to express the same nature, and therefore to exist, is that cause which perfectly expresses the universe, namely, God. (On the Method of Distinguishing Real from Imaginary Phenomena, n.d.: L.II.606)

Nor is all representation confined to immaterial beings as the expressors, for every body itself represents the same thing as the monads do, namely, the universe:

this body expresses the whole universe by the connection between all matter in the plenum. (Monadology, §62, 1714: L.II.1055) (5)

Although monads all express or represent everything, they do not do so with the same degree of distinctness as each
other, nor does each monad express each thing with the same
degree of distinctness:

The nature of each monad being to represent, nothing can keep
it from representing only a part of things, though it is true
that its representation is merely confused as to the details of
the whole universe and can be distinct for a small part of
things only, that is, for those which are nearest or the
greatest in relation to each individual monad. Otherwise each
monad would be a divinity.
(Monadology, §60, 1714: L.II.1054)

Our discussions of confusedness and distinctness in chapters 5
and 10 respectively were conducted in terms of perceptions.
Perception, for Leibniz, is always either 1. synonymous with
representation or expression (as when he says that all monads
perceive (6) or 2. it is a kind or sub-class of expression:

Expression is common to all forms, and it is a genus of which
natural perception, animal sensation and intellectual knowledge
are species.
(Letter to Arnauld, 9 Oct.1687: Mason p.144)

If we take perception in the first sense it is easy to see that
monads are to be distinguished from one another by the degrees
of confusedness or distinctness of their expressions of the
universe. Such confusedness or distinctness is determined by
the amount of primitive passive or primitive active force
possessed by the monad in question. If everything were to be
perceived or expressed distinctly by every monad, not only
would every monad be identical with every other monad, but
every monad would be a God, for every monad would have only
primitive active force, and no primitive passive force (7). The
variety of the world would then be lost.
Before embarking on our analysis of expression proper, it remains only to point out that Leibniz believed it to be the case that the fact that every monad expresses the universe from its own point of view is entailed by the fact that every monad has a complete concept. In the Correspondence with Arnauld he writes that,

the proposition which has occasioned all this discussion is very important and merits a firm proof, for it follows that every individual substance is an expression of the entire universe after its own manner and according to a certain relationship, or, so to speak, according to the point of view from which it looks at the universe.

(Letter to Arnauld, 4/14 July 1686: Mason p.64)

It is unfortunate that Leibniz does not go on to give this 'firm proof' of the proposition. Nor does he explain how it leads to this consequence. Actually, it is even unclear what Leibniz thought this proposition to be. The only likely candidate is the proposition introduced at the very beginning of the letter. This is the proposition,

'that the individual concept of each person contains once for all everything that will ever happen to him'.

(ibid.: Mason p.53)

We know (8) that a monad is an instance of its concept and that every monad has a concept unique to it and it alone, i.e. that there is only one instance of each complete concept. But it does not follow from this fact alone that each and every monad expresses the whole universe. Of course, it is true that, if it is the case that one monad does express the whole universe, then that expression and the means by which it is
carried out, will be included in the complete concept belonging to that monad. But the fact that a monad has a complete concept does not seem capable of providing a justification of the assertion that each and every monad expresses the entire universe from its own point of view, for it would be equally true to say that if any one monad did not express the entire universe, then such expression would not be included in its complete concept. There seems to be no reason for saying that if any monad does not express the entire universe, then it does not have a complete concept, unless, of course, being complete means that the monad expresses everything, but then the argument is circular.

Nevertheless, although the grounds for Leibniz's belief that all monads express the universe are unstable, it is a plausible hypothesis. By explicating expression in terms of relations and explaining how everything in the universe is related to everything else, Leibniz gives credibility to the idea that every monad expresses the whole universe. Chapters 12 to 14 deal with these expressive relations between things.

Leibniz defines expression precisely in terms of relations. In *What is an Idea?*, he writes:

That is said to express a thing in which there are relations [habitumines] which correspond to the relations of the thing expressed. But there are various kinds of expression: for example, the model of a machine expresses the machine itself, the projective delineation on a plane expresses a solid, speech expresses thoughts and truths, characters express numbers, and an algebraic equation expresses a circle or some other figure. What is common to all these expressions is that we can pass from a consideration of the relations in the expression to a knowledge of the corresponding properties of
the thing expressed. Hence it is clearly not necessary for that which expresses to be similar to the thing expressed, if only a certain analogy is maintained between the relations.
(1678: L.I.318)

Exprimere aliquam rem dicitur illud, in quo habentur habitudines, quae habitudinibus rei exprimendae respondent. Sed eae expressiones variae sunt; exempli causa, modulus Machinae exprimit machinam ipsam . . . et quod expressionibus ists commune est, ex sola contemplatione habitudinum exprimentis possumus venire in cognitionem proprietatum respondentium rei exprimendae. Unde patet non esse necessarium, ut id quod exprimit simile sit rei expressae, modo habitundinum quaedam analogia servetur.
(G.VII.263-4) (9)

From this, it is clear that expression is not confined to the monads, although it is in relation to the monads that we are interested in the concept.

Leibniz has some other slightly different definitions of expression, or of what it means for one thing to express another. In a letter to Arnauld, he provides the following definition:

One thing expresses another (in my terminology) when there exists a constant and fixed relationship between what can be said of one and of the other. This is the way that a perspectival projection expresses its ground-plan.
(Letter to Arnauld, 9 Oct.1687: Mason p.144)

Une chose exprime une autre (dans mon langage) lorsqu'il y a un rapport constant et regle entre ce qui se peut dire de l'une et de l'autre. C'est ainsi qu'une projection de perspective exprime son geometral.
(G.II.112)

A third definition can be found in the Metaphysical Consequences of the Principle of Reason:

For it is sufficient for the expression of one thing in another that there should be a certain constant relational law, by
which particulars in the one can be referred to corresponding particulars in the other.
($11$, c.1712: Park. pp.175-7)

Sufficit enim ad expressionem unius in alio, ut constans quaedam sit lex relationem, qua singula in uno ad singula respondentia in alio referri possint.
(Couturat, Opuscules et Fragments Inedits, p.15)

All three definitions refer to relations as in some way integral to the act of expression, but here the similarity ends. In the second, i.e. in the letter to Arnauld, the relations hold between statements or sentences, i.e. between what can be said both of the expressing thing and the expressed thing. In the first, the relations are in the things themselves, which relations are then said to 'correspond' to one another. What these relations which are 'in' the thing can be, has still to be determined, but it is possible that they are relational properties, particularly because, in What is an Idea?, Leibniz says that we can pass from a 'consideration of the relations in the expression to a knowledge of the corresponding properties of the thing expressed.' In the third, there are particulars (singulars) in the expressing thing which are then related to particulars (singulars) in the expressed thing. This third definition lies somewhere between the other two, for the relation here is external to both things, as in the second definition, but it is a relation between 'things' in the expressor and expressed, as in the first definition, rather than a relation between what can be said of them, as in the second definition.

Mark Kulstad (10), one of the few English-speaking
commentators on Leibniz to discuss his concept of expression, finds these same three definitions of expression in Leibniz, and makes essentially the same points concerning their similarities. Kulstad takes Leibniz's third definition as basic - that in which singulars are related to singulars - saying that it is the most general definition, and therefore also the most useful, in that it will cover all kinds of expression. We, however, will not make this assumption, preferring instead to try to find some way in which all three definitions can be related to each other, and therefore trying to see all three as being useful in their own ways. To give a taste of what is to come, if the 'relations' in the first definition are seen as relational properties, and these relational properties are considered as the singulars, or at least as some of the singulars, of definition 3, then definitions 1 and 3 become almost identical (11).

Common to the first and third definitions is the idea of a correspondence between things in the expressor and things in the expressed, i.e. a correspondence between relations (in 1) or singulars (in 3) in the expressor and relations or singulars in what is expressed. In the second definition, there is a 'constant and fixed relationship' between what can be said of the expressor and what can be said of the expressed. If correspondence is a 'constant and fixed relationship', then the three definitions can be brought closer in line with one another.
And indeed, it would be difficult to deny that correspondence involves some kind of relation holding between the corresponding things. As a mathematician, Leibniz was likely to think of correspondences between monads or substances as analogous to mathematical kinds of correspondence, and it cannot be denied that mathematical correspondences assert relations between the things which correspond to each other. In mathematics, a one-to-one correspondence between two sets is one where each member of one set is mapped onto one and only one member of the other set. The function determines what is to be mapped onto what. In other words, the function determines the relation between each member of one set and each member of the other. Thus from the function, \( f(x) : f \rightarrow 1/x \), we can determine that, in a line from the centre of a circle out, each point on the line inside the circle will correspond to one and only one point on the line outside the circle, as follows, where '0' is the centre of the circle and '1' is the point where the line meets the circumference:

Any number greater than '1' will correspond to a point outside the circle, and no matter how far the line extends outside the circle, there will be one and only one corresponding point on the finite (but infinitely divisible) line, from '0' to '1', inside the circle.

A one-to-one correspondence in this mathematical sense asserts a relation between a point on the line inside the
circle and a point on the line outside the circle. If mathematical correspondences are concerned with relations, then presumably for Leibniz other correspondences assert relations between the corresponding things too, and Leibniz's second definition of expression is thereby brought into line with the other two. Additional reasons for the view that Leibniz saw correspondences between substances as analogous to correspondences in mathematics are available from the fact that when Leibniz explains the correspondence between the soul and its body (Letter to Arnauld, 9 Oct.1687: Mason p.146), he sets out the correspondence in diagram form as follows:

State of the bodies at moment A  State of the soul at moment A
State of the bodies at following moment B (prick) (pain)
State of the soul at moment B

This is exactly the same way as we would express a mathematical function, i.e. as 1 → 1/1
2 → 1/2
3 → 1/3

Of course, this is not to say that all correspondences between substances must be analogous to one-to-one correspondences in mathematics. Indeed, the contrary would seem to be the case when the soul corresponds to its body since the soul perceives the whole world, while the body is only a small part of that world. We have here only argued that correspondence is a particular type of relation between things, and that hence Leibniz's three definitions of expression are not as diverse as
they first appear to be (12).

In each of the three definitions, something in the
expressor is said to be related, or to correspond, to similar
things in the expressed things, be these things singulars,
relations or what can be said of the things concerned. So let
us look at these relations which hold between these things in
the expressing thing and the expressed thing.

The first remark to be made about Leibniz's relations is
that they are mind-dependent, which is to say, they would not
be real if there were not a mind to perceive or, in effect, to
invent them. Gottfried Martin (13) notes that Leibniz could not
accept the absolute reality of relations because he agreed with
the Aristotelian view that only individuals (substances) are
real. Relations are not individuals. They are rather the
connectors of individuals in specific ways. If relations were
individuals we would end up with an infinite regress, as
happens in the case of numbers. For example, if the number two
is seen as a real relation distinct from the things it
connects, or if it is regarded as an individual connecting two
individuals A and B, there will be three individuals, A, B, and
2. These three can then be seen as a set connected by the
individual relation, three, giving us four individuals, A, B, 2
and 3, and so on ad infinitum (14). Leibniz himself argues in
the oft-quoted passage from his correspondence with Clarke
(Leibniz's Fifth Paper, §47, 18 Aug. 1716: Alex. p. 71) that, if
relations were real, they would have two subjects. The ratio
between two lines, L and M, would be an accident with a foot in both subjects, L and M, and this, he says there, is 'contrary to the notion of accidents'. Thus, relations cannot be substances (because this leads to an infinite regress), nor can they be accidents (because relations hold between two or more objects). Leibniz concludes that a relation must, therefore, be a 'mere ideal thing'.

Relations, in Leibniz's view, are somehow created by the understanding (l'entendement). The understanding sees the ratio between the lines L and M, and only because the understanding can so compare the lines does it make sense to talk of 'the' ratio at all. This mind-dependence of relations is not, for Leibniz, a dependence on human minds. Rather, it is a dependence on the mind of God:

The reality of relations is dependent on mind, as is that of truths; but they do not depend on the human mind, as there is a supreme intelligence which determines all of them from all time.
(New Essays, Bk.2, Chap.30: R&B 265)

In the same book, he says:

However, although relations are of the understanding, they are not without foundation and reality. For the primordial understanding is the origin of things; and even the reality of everything, except the simple substances, only consists in the foundation of the perceptions of phenomena of the simple substances.
(New Essays, Book 2. Chap.12: my translation)

Cependant quoique les relations soyent de l'entendement, elles ne sont pas sans fondement et realite. Car le premier entendement est l'origine des choses; et meme la realite de toutes choses, excepte les substances simples, ne consiste que dans le fondement des perceptions des phenomenes des substances simples.
The foundation of the perceptions of phenomena of the simple substances is God. God is the foundation (as creator) of the simple substances, and, therefore, also the foundation of the perceptions of phenomena had by the simple substances. God is also, therefore, the foundation of any relations found between the phenomena perceived (taking phenomena here to be physical objects), as well as being the foundation of any relations simple substances may have to other simple substances. Because He is the foundation of the simple substances, God will also be the foundation of any relations which occur between the simple substance and the phenomena it experiences. Using Russell’s distinction regarding different kinds of space, we can make a distinction between the public phenomena experienced by all individual substances from their own points of view and the private phenomena experienced by each individual, windowless substance alone, and claim that God will be the foundation both of the relations which occur between the individual substance and the public phenomenal world, and of the relations which occur between the simple substance and its own phenomena (as perceptions) (15). Finally, God must be the foundation of any relations occurring between Himself and the world He is said to have created.

Relations, then, are external to both the expressing thing and to the expressed thing. They are dependent on the mind of God, i.e. dependent on the fact that God sees the relation. Moreover, if these external, mind-dependent
relations are those used in Leibniz's definitions of expression, then this suggests that things could not express each other if God were not able to understand all the individuals and the relations which hold between them. We have so far said nothing about what these relations can be.

Kulstad (16) attempts to prove that the relations which hold in each case of expression are not necessarily the same relations as hold in all cases of expression. That is to say, the relations which hold between the expressor and the expressed in one case may not be the same as the relations which hold between another expressor and expressed, although with regard to any one particular case of expression, the same relation must hold throughout. Since Leibniz admits there are many different kinds of relation, it is unlikely that only one of these relations would be capable of maintaining an expressive relation between any two things. Hence, we will accept Kulstad's conclusion as proven. On the different kinds of relations available, Leibniz writes,

I take relation to be more general than comparison. Relations divide into those of comparison and those of concurrence. The former concern agreement and disagreement (using these terms in a narrower sense), and include resemblance, equality, inequality, etc. The latter involve some connection, such as that of cause and effect, whole and parts, position and order, etc.

(New Essays, Bk.2, Chap.11: R&B 141-2)

Later in the same book, he says,

Relations of comparison yield identity and diversity, in all respects or in some only, which makes things the same or different, like or unlike. Concurrence includes what you call
coexistence, i.e. connectedness of existence.
(New Essays, Bk.4, Chap.1: R&B 358)

In A New Method for Learning and Teaching Jurisprudence,
Leibniz stated that relations of comparison arise from co-imaginability or co-essence; concurrent relations from consensibility or co-existence:

Qualities taken together at the same time (or imaginability) constitute essence; sensibility constitutes existence. From the thought of many beings taken together there arise relations or the affections of being. For the following kinds of comparison arise from co-imaginability or co-essence: the same, different, similar, dissimilar, contrary, genus, species, universal, singular. But from consensibility or coexistence there arise the following forms of connection: whole, part, order, one, many, necessary, contingent, togetherness, cause, etc.
(1667: L.I.141)

Comparative relations, then, arise from co-imaginability and concurrent relations from co-existence, or comparative relations from 'co-essence' and concurrent relations from 'consensibility'. In a revision note referring to the beginning of this quotation, Leibniz wrote,

So it can be said that the essence of a thing is its distinct conceivability (or imaginability) by us; its existence is its distinct perceptibility (or sensibility). For the composite of its qualities taken together constitutes the essence of a thing; its perceptibility proves its existence; that is, if a thing is not actually sensed, there is no thing.
(ibid., Revision Note, 1697-1700: L.I.556 n.35)

In saying that the existence of a thing is its distinct perceptibility or sensibility, Leibniz is limiting existence to bodies alone, for we know that in sense perception a monad perceives material bodies. (We said that this was because in sense perception the monad perceived confusedly, and explained
how Leibniz could still speak of distinct sense perception (17)). If all that exists is that which can be sense perceived, then only bodies exist. It follows also that concurrent relations, those which arise out of consensibility or co-existence, can only occur between material bodies. This is only to be expected, since monads are not related to each other as wholes to parts, or as causes to their effects (18).

To deny existence of the monads (because they are not sense-perceived) is not to deny their reality (19). We can still say that the monads have being. But it does mean that we deny concurrent relations between monads. The monads can still be related comparatively, for these relations arise out of co-imaginability or co-essence. Monads can be distinctly conceived by us. The essence of a monad is its law or its substantial form. Comparative relations, then, will hold between the monads' substantial forms. (Observe that comparative relations can also hold between bodies, for bodies also have forms, or essences, and can be distinctly conceived.)

It might be said that the concurrent relations of one and many apply to the monads because they perceive the many in the one. But actually in revising this passage, Leibniz made 'one' and 'many' comparative relations, and added 'duration' and 'change' to his list of concurrent relations (20).
CHAPTER TWELVE

RELATIONS BETWEEN BODY AND SOUL

We have said that in cases of expression, things in the expressing thing (be these singulars, relations, or what can be said) are related to things in the expressed thing (again these things are singulars, relations or what can be said). These things must be related by one of the above instances of relations, whether these be comparative or concurrent. We must discover, in each of the cases of expression with which we propose to deal, both what things are related, and also by what kinds of relation they are related.

We begin with a consideration of the expression of its body by the soul. We propose to consider this as the expression by a dominant monad of its organic body (either as extended or as an aggregate of subordinate monads).

Leaving aside for the moment the vexatious question concerning what the 'singulars', 'relations' or 'what can be said' can be, let us first determine what is the correspondence between them. We have already said (1) that correspondence is a kind of relation - but is it a relation of comparison or of concurrence? With regard to the expression of the body by the soul, it must surely be a relation of comparison. Concurrent relations are unlikely candidates for this role. The relation between the soul and its body is not one of cause and effect:

Thus one must not be worried, in my opinion, as to how the soul can impart some movement or new determination to animal spirits, since in fact it never does.
Nor can it be said to be a relation of whole and part, for the body is not a part of the soul, nor the soul of the body. Nor are they related by position since the soul, being immaterial, has no position bar what it receives through its body, and the relation between the soul and the body is not one of order, for they do not follow each other temporally, nor is one conceptually prior to the other. The relation which holds between the singulars, relations or 'what can be said' of the soul and of the body, must therefore be comparative relations. Again, though, the relation cannot be one of resemblance, for the soul does not 'resemble' its body. Nor is it a relation of equality, or of inequality, for in this sense, the body and the soul are truly incommensurable. The relation of agreement, does, however, seem a likely candidate for the relation between the soul and its body, and especially so, since it is in terms of 'agreement' (rapport or consensus) that Leibniz explains the connection between them.

It is this mutual agreement, regulated in advance in every substance of the universe, which produces what we call their communication and which alone constitutes the union of soul and body.

(Letter to Arnauld, 30 Apr.1687: Mason p.117) (2)

but the soul and the body correspond to one another most, and their intimate union consists in the most perfect agreement.


It being established that the relation between the singulars, etc. in the soul and those in the body is a
comparative relation of agreement, we can now move on to the question regarding the nature of these 'singulars', 'relations' or 'what can be said' which are related in this way.

An investigation of Leibniz's texts makes it clear that in the case of the expression of the body by the soul, the soul's perceptions are related to motions in the body. That is to say, the dominant monad's perceptions are related, by the comparative relation of agreement, to the motions of the bodies of the subordinate monads which compose the dominant monad's aggregate body.

I think that there is always a perfect correspondence (une correspondance) between the body and the soul, and since I use bodily impressions of which one is not aware, whether in sleep or waking states, to prove that there are similar impressions in the soul. I even maintain that something happens in the soul corresponding (repond) to the circulation of the blood and to every internal movement of the viscera, although one is unaware of such happenings, just as those who live near a water-mill are unaware of the noise it makes.

(New Essays, Bk.2, Chap.1: R&B 116)

Without these petites, insensible perceptions of which we are unaware, Leibniz could not adhere to the doctrine that each and every perception in the soul is related to a movement in the body, for it is obvious that there are many movements in our bodies of which we are unaware, i.e. which we do not consciously perceive. If there is to be a relation of correspondence between perceptions and motions, we must perceive at least some of these motions unconsciously:

It is also through insensible perceptions that I account for that marvellous pre-established harmony between the soul and the body . . . They are also the insensible parts of our sensible perceptions, which bring it about that those
perceptions of colours, warmth and other sensible qualities are related to the motions in bodies which correspond to them.
(New Essays, Preface: R&B 55-6)

At the other extreme, our most abstract thoughts have corresponding bodily movements. This should not surprise us, since we have already argued that thoughts (pensees) are distinct perceptions (5).

certain movements, rightly called involuntary, have been ascribed to the body in such a way that nothing is believed to correspond to them in the soul; and, reciprocally, it is believed that certain abstract thoughts are not represented at all in the body. But there is an error in both of these views . . . The most abstract thoughts are in need of some sense perception (imagination). And when we consider what these confused thoughts are which are never absent from even the most distinct thoughts which we can have - as, for example, those of colors, odors, tastes, heat, cold, etc. - we recognise that they always involve the infinite and not only that which takes place in our body but also, by means of it, that which happens outside of it.
(Reply to the Thoughts on the System of Pre-established Harmony, 1702: L.II.944) (6)

It is common in Leibniz's works to find that thoughts as well as sense perceptions correspond (repondre) to bodily motions. There are numerous references like the following:

certain thoughts occur to us when there are certain bodily movements, and certain bodily movements occur when we have certain thoughts.
(Draft of letter to Arnauld of 28 Nov./8 Dec.1686: Mason p.84)

to all the movements of our body there correspond certain more or less confused perceptions or thoughts of our soul.
(Letter to Arnauld, 9 Oct.1687: Mason p.144)

In the New Essays, he explains this confusedness in such a way that it entails that,

The perceptions of the soul always correspond naturally to the
state of the body; and when there are many confused and indistinct motions in the brain, as happens with those who have had little experience, it naturally follows that the thoughts of the soul cannot be distinct either.
(New Essays, Bk.2, Chap.1: R&B 117)

Sometimes it is not the thoughts themselves which are said to correspond to bodily motions, but rather the succession of thoughts to the succession of motions:

it is the nature of the soul to express (exprimer) what happens in bodies, since it was created in the first place in such a way that the succession of its thoughts may harmonize (s'accorde) with the succession of movements.
(Draft of letter to Arnauld, 28 Nov./8 Dec.1686: Mason p.87)

On occasion, Leibniz says that appetites, rather than perceptions, correspond to bodily motions:

For just as in animated bodies what is organic corresponds to what is vital, motions to appetites, so also in the whole of nature efficient causes correspond to final causes.
(Metaphysical Consequences of the Principle of Reason, c.1712: Park. p.174)

The body is made in such a way that the soul never makes any resolutions to which the movements of the body do not correspond (s'accordent).
(Reply to the Thoughts on the System of Pre-established Harmony, 1702: L.II.939)

Leibniz follows this remark by a reference to abstract reasoning. Insofar as abstract reasoning involves a movement from distinctly perceived premises to a distinctly perceived conclusion, reasoning is an activity undertaken by the rational appetite (7). The greater the distinctness of a monad's perceptions, the freer its will; the freer its will, the more distinct its perceptions. Reason, we explained (8) plays its part by showing the monad the true good, which good is then
striven for by the appetite (i.e. by the action of its primitive active force).

The issue is confusing because both distinct perception and the rational appetite are modifications of the monad's primitive active force. This makes it difficult to distinguish the two. We can distinguish them, however, if we claim that distinct perception is a modification of primitive active force, and the appetite is the action of the force which brings about the modification.

Instead of connecting the resolutions of the soul to the movements of the body (taking resolutions to be desires or willings), it would more in keeping with the rest of Leibniz's philosophy if he retained the connection between thoughts or perceptions and bodily motions, and connected appetitions (as that which brings about the change of perceptions in the monad) to whatever is the cause of the change of position in bodies. This is perhaps what he was suggesting, in the Principles of Nature and of Grace, when he wrote that,

The perceptions in the monad arise from each other according to the laws of the appetites or of the final causes of good and of evil, which consist in observable perceptions, whether regulated or unregulated, in the same way that bodily changes and external phenomena arise from each other according to the laws of efficient causality, that is, of motions. Thus there is a perfect harmony between the perceptions of the monad and the motions of the body, pre-established from the beginning between the system of efficient causes and that of final causes.

(Principles of Nature and of Grace, §3, 1714: L.II.1035)

We leave this subject here, for the moment, since the
relation between final and efficient causes is the subject of our penultimate chapter.

We can take Leibniz's most usual view to be that the perceptions / thoughts of the soul correspond to the motions of the body, where soul is a dominant monad composed of primitive active and passive forces and body is an aggregate of similar monads. We have interpreted Leibniz's account of the relation between the soul and the body in such a way that the soul's perceptions are related by way of agreement or correspondence to the motions of the bodies of the subordinate monads which make up the aggregate body. But are the soul's perceptions only related to the motions of the bodies of the subordinate monads, or are they also related to the motion of the soul's body itself taken as a whole? From the quotations given in the past few pages Leibniz seems to mean that the soul's perceptions are related only to the movements of the bodies of the subordinate monads. He says nothing of a relation between the soul's perceptions and the motion of its own aggregate body. Such is also the way he speaks in A New System of the Nature and the Communication of Substances:

Furthermore, the organised mass in which the point of view of the soul is found is itself expressed more immediately by the soul and is in turn ready to act by itself following the laws of the corporeal mechanism, at the moment at which the soul wills but without either disturbing the laws of the other, the animal spirits and the blood taking on, at exactly the right moment, the motions required to correspond to the passions and the perceptions of the soul. ($14, 27 June 1695: L.II.747)

On the other hand, we cannot deny that the body as a
whole moves, and if there is such a movement, and since the soul expresses all movements, there must surely also be a perception in the soul which corresponds to the motion of the whole aggregate body, and not merely perceptions which correspond to the motions of the bodies belonging to the subordinate monads.

In the *Clarification of the Difficulties which Mr. Bayle has found in the New System of the Union of Soul and Body*, Leibniz asserts that,

the soul, however simple it may be, always has a feeling [sentiment] composed of many perceptions at once. (July, 1698: L.II.805) (9)

adding that this fact, 'serves our purpose as well as if it were composed of parts like a machine' (ibid.: L.II.805).

The movement of a body as a whole is composed of the movement of all the parts of that body. Taking this into consideration, it is likely that Leibniz believed that the 'many perceptions' in the above quotation individually correspond to the motions of the bodies of the subordinate monads, while the 'feeling' which is composed of these perceptions corresponds to the motion of the whole aggregate body which belongs to the dominant monad, for the motion of this aggregate body is itself composed of the motions of the bodies of the subordinate monads in the aggregate. If this is a correct interpretation of Leibniz's view, we can claim that according to Leibniz, the dominant monad's perceptions correspond to both the motions of the subordinate monads'
bodies, and to the motion of its own body, and that this is because its own body is an aggregate of the subordinate monads, and its perception/feeling of its body as a whole is an aggregate of the soul's perceptions of the motions of the subordinate monad's bodies. The same analysis could be given of the subordinate monads' perceptions of the motions of their own bodies and of the motions of the smaller bodies in these subordinate monads' bodies.

Does the above interpretation of the correspondence between the dominant monad's perceptions and the motions of bodies agree with our interpretation of primitive forces in relation to the confusedness and distinctness of the monads' perceptions which we gave in chapters 5 and 10 and with the corresponding interpretation of derivative force in relation to the resistance and motion of the aggregate body (again see chapters 5 and 10)?

In those chapters, it was argued that the primitive passive force of the dominant monad resulted in its having confused perceptions and that the presence of primitive active force in the dominant monad resulted in distinct perceptions, and it was suggested that derivative force was a modification, not of the dominant monad, but of the aggregate body, and that derivative active force in the aggregate body resulted in the motion of that body, and derivative passive force brought about resistance in that body. Derivative force was interpreted as a modification of the aggregate of primitive forces, these
primitive forces being subordinate monads.

This interpretation of primitive and derivative forces is indeed in line with the above interpretation of the relation between the soul (dominant monad) and the body. Our interpretation entails that the relation between perceptions and motions is similar to the relation between perceptions and derivative forces. What the dominant monad perceives is the motion of bodies, which motion is the result of derivative active force. We can assume that Leibniz also believed that the dominant monad perceives the resistance of bodies. Thus, when the dominant monad perceives the motion of its own body, it perceives a motion which arises from a derivative active force, which is in turn a modification of the primitive active forces of the subordinate monads in the body taken collectively. When the dominant monad perceives the motions of the subordinate monads' bodies rather than the motion of its own body, it perceives motions which are the result of derivative active forces which are modifications of the even more subordinate monads' primitive active forces, again taken collectively. That is to say, in this case the dominant monad perceives the movements of the bodies which the subordinate monads themselves perceive (in their capacity as dominant monads (10)) as their own bodies.

Let us look at this relation more closely. When a dominant monad sense perceives, its perceptions are confused and the monad has primitive passive force. It follows that any sense perception of bodies is confused, regardless of whether
the perceived bodies are moving or resisting. What this means is that the dominant monad may have primitive passive force, and thus perceive confusedly, even though the perceived body is composed of many monads which have primitive active force (which they will do if the perceived body is moving). Contrary to what we might at first suppose, this is not damaging to Leibniz's doctrine of the relation between the soul and the body. Indeed, it is even advantageous to Leibniz, for it enables him to answer the problem posed in chapter 10 concerning how the dominant monad can have a large amount of primitive passive force and yet its body be moving, where the movement of the body implies the presence of primitive active force. Under our interpretation, the movement of the dominant monad's own body is an aggregate of the individual motions of the bodies of the subordinate monads, and is not actually influenced by the relative amounts of primitive active and passive forces in the dominant monad. The dominant monad's body can therefore move even though the dominant monad itself may have little primitive active force, since the movement of the body is a result of the primitive active forces of the subordinate monads. What the correspondence between the soul and the body does entail is that when the subordinate monads have a large total amount of primitive active force and the body moves, then the dominant monad perceives its own body to move.

Does this analysis help us to explain the fact that although the derivative passive force of the body is not
proportional to the primary matter of the dominant monad, yet the body's derivative active force is in proportion to the dominant monad's primary matter (or primitive passive force) (11).

It can only so help to explain this if we modify the interpretation above by denying that a distinctly perceiving monad will perceive moving bodies. This may well be the truth of the matter since a moving body is extended (due to the fact that it is a body) and as such it can only be confusedly perceived. Distinct perception of the aggregate body is a conceptual perception of the body as an aggregate of extensionless monads. These monads can be conceived as having primitive active force, but they cannot be conceived as moving, for the monads do not move.

We have to say, therefore, that if the dominant monad is to perceive moving bodies it must have primitive passive force and so perceive confusedly (12). This could be the reason why Leibniz states that primary matter and confused perceptions are necessary to the doctrine of the pre-established harmony.

If sensible traces were not required, the pre-established harmony between body and soul . . . would not obtain. (New Essays, Bk.1, Chap.1: R&8 77)

If this is so, then perhaps when Leibniz claims that the derivative active force (of the body) is proportional to the primitive passive force (of the soul or dominant monad), he may be saying only this, namely, that the soul must have some
primitive passive force if it is to be able to perceive (sensibly i.e. confusedly) the motions of the body which arise from the presence of derivative active force in the body. This suggestion, however, is merely tentative. It is suggested only as a possible exit for Leibniz from a difficult position. We do not think it is an acceptable position for him to hold in the light of his many pronouncements to the effect that thoughts (as distinct perceptions) correspond to the motions of bodies. Moreover, this solution solves one problem, but raises another, since if derivative active force is said to be proportional to the dominant monad's primitive passive force because of the fact that the dominant monad can only confusedly perceive moving bodies, then the body's derivative passive force should also be proportional to the dominant monad's primitive passive force, since presumably the dominant monad can also only confusedly perceive resisting bodies. Leibniz, as we know, denied this.

This consideration brings us to another puzzling aspect of Leibniz's account of the soul's expression of its body. Why, it may be asked, are perceptions said to be related to the body's motions, but not also said to be related to the body's resistances? The soul certainly perceives its body resisting just as it perceives its body moving.

We here suggest some possible answers. The most probable reason is that Leibniz was influenced by the idea that resistance is merely a limitation of motion, and that he believed that every body moves, no matter how much it may also
resist. For this reason, Leibniz may have considered it simpler to claim that (confused ?) perceptions are related only to the motion of bodies.

Another reason may lie in the fact that Leibniz's analysis of matter led him to postulate indivisible unities in matter and to postulate active forces in bodies. The unities and active forces are substantial forms, i.e. principles of motion. It is possible that these considerations were uppermost in his mind when he came to consider the relations between the soul and its body. Had he been considering the body principally as an extended mass of monads which consist of both primitive active and passive forces (and of extension as a repetition of these monads [13], he might have come to explain the relation between the soul and its body as one in which there was a correspondence between perceptions and motions and resistances (because resistance in a body shows the presence of primitive passive force).

The 'singles', 'relations' and 'what can be said' which are related when the soul expresses the body are, in the case of the soul, its thoughts and perceptions; in the case of the body, the motions of the subordinate monads' bodies and the motions of the body as a whole.

It is not difficult to understand these related things as singles. Perceptions (and thoughts) are modifications of the soul (or of the monad), and as such are 'present states'. They are the individual terms in the series of which the primitive
active force is the law. These individual terms can, therefore, be called 'singulars'. Motions, on the other hand, are the results of derivative active forces and so it cannot be said that they are present states of the laws of series in the monads (14). Nevertheless, it could be said that motions are in some way the present states of bodies, and this would entitles them to be called 'singulars'.

It is not quite so easy to understand how perceptions or thoughts and motions are 'relations' or 'what can be said'. We will start by looking at how, if at all, perceptions can be said to be relations. On this subject Leibniz himself says that,

everyone who recognizes immaterial and indivisible substances also attributes to them a multitude of simultaneous perceptions and a spontaneity in their reasoning and their voluntary acts. Thus I am only extending this spontaneity to confused and involuntary thoughts too and showing that it is their nature to include relations to everything outside of them. (Reply to the Thoughts on the System of Pre-established Harmony, 1702: L.II.945)

And similarly, in the same paper,

confused perceptions include all external things and contain an infinity of relations. (ibid.: L.II.946)

These remarks should not surprise us since we have already seen that 'natural perception' is a kind of expression, and we have seen how Leibniz's concept of expression is explicated in terms of relations. However, there are two points in these remarks which should surprise us. The first is that in
both passages Leibniz seems to be referring only to confused perceptions, saying that only these contain relations to things outside. We gave one reason why only confused perceptions should correspond to the motions of the body when we claimed that perceptions will only correspond to motions when the body is considered as an extended, material object. In the quotations we gave at the beginning of this chapter, Leibniz does claim that thoughts (i.e. distinct perceptions) correspond to the body's motions, but we can see the difficulty involved in holding this. (Observe that distinct thoughts can be said to correspond to subordinate monads regarded individually - we only here see difficulty for Leibniz when he claims that they correspond to these subordinate monads as aggregates, i.e. as secondary extended, moving and resisting matter).

The situation is more complex because although Leibniz says that confused perceptions include relations to all external things, he would surely not want to deny that distinct perceptions include an 'infinity of relations', especially in light of the fact that intellectual knowledge is also a kind or species of expression. Perhaps it could be said that distinct perceptions do include an infinity of relations, yet are not related to external things. Distinct perceptions can be related to other monads (as we observed in the parenthesis above) and these monads to which they are related need not be considered as external things - i.e. Leibniz may reserve the term 'external' only for that which is spatial and temporal, i.e. for bodies. All the same, this does not fully absolve Leibniz
because he certainly does sometimes claim that thoughts correspond to the body’s motions.

The second point is also complex. From what we know about Leibnizian relations, we have determined that a relation is something ideal, and that it holds between two particular things. Perceptions, in this sense of 'relation', cannot contain relations for there is only one thing, viz. the perception itself. There is nothing for the perception to be related to. It would be possible to claim that the perception is complex, and that there are relations between the perceptions which compose the larger perceptions. This would entitle Leibniz to claim that the perception contained relations. Notice that if this were so, the smaller perceptions could contain relations in the same sense, only if they too were composed of other perceptions, ad infinitum.

However, Leibniz does have another sense of the term 'relation' - one which is more amenable to being included in a perception. In the oft-quoted passage from his fifth letter to Clarke, he writes of how,

The ratio or proportion between two lines L and M, may be conceived three several ways; as a ratio of the greater L, to the lesser M; as a ratio of the lesser M, to the greater L; and lastly, as something abstracted from both, that is, as the ratio between L and M, without considering which is the antecedent, or which the consequent; which the subject, and which the object.

($47, 18 Aug. 1716: Alex. p.71)

The relations which we discussed in chapter 11 (15) were considered in this third way - that is, as external to the
related things. But in the first and second ways of conceiving relations, they are accidents which belong to particular subjects (ibid.: Alex. p.71). It is possible that when Leibniz says of perceptions that they 'include relations to everything outside of them', he is considering perceptions as subjects to which the relations are accidents. Indeed, he may even be equating perceptions and relations, in which case the subject will be the perceiving monad itself.

Nowadays, we do not call 'relations' in these first and second ways of considering them, 'relations' at all. We call them relational properties. Some relational properties are, for example, 'being a father to' or 'being taller than'. These differ from non-relational properties like 'being red' or 'being square' in that, for the property to truly belong to the thing, some other thing must also exist as the thing to which the being with the relational property is related, i.e. there has to be something else for the thing which is taller to be taller than. Unlike Leibniz's ideal relations, relational properties do not hold between things. A property belongs to only one thing, and for all that a relational property is a property of being in a certain relation to another thing, it is still only a property of one thing. Now, if Leibniz allows souls (or rather here, the dominant monad) to have relational properties, then we can say that these relational properties are the relations which Leibniz referred to in the first definition of expression (16).

The relational property can be specific, in that it
stipulates what the other thing is, e.g. the property of 'being the father of Paul' or general, in that it does not so stipulate that to which the thing is related. If monads have relational properties, will these be specific or general? In view of the fact that monads are compossible or incompossible, it is more likely, but not necessary, that the relational properties are specific. Hence, monad A will have the property of, 'being the father of Paul', and not only the property of 'being a father' (17).

The question whether Leibniz did allow monads to have relational properties, or instead thought that all relational properties belonged only to the aggregates, these being then reducible in some way to non-relational monadic properties, has invoked the interest of nearly all Leibnizian commentators. Russell (18), Rescher (19), Parkinson (20), and Couturat (21) believe that Leibniz wanted to reduce relational propositions to subject-predicate, non-relational propositions. Hintikka (22) argues against the Russellian interpretation. D’Agostino (23) examines evidence against Hintikka’s view that Leibniz allowed monads’ concepts to contain relational predicates, but finds all objections unfounded. Kulstad (24) and Ishiguro (25) also believe that Leibniz permitted the attribution of irreducible relational properties to the monads. Ishiguro goes so far as to claim that all monadic predicates are relational (26). Most of the commentators who find a denial of relational predicates in Leibniz’s philosophy argue from the fact that Leibniz believed all propositions to be expressible in subject-
predicate form. But all forms of this argument assume, rather than prove, that Leibniz did not admit relational predicates, because they assume that all predicates in subject-predicate propositions are non-relational. Yet, if Leibniz does allow relational predicates, then any argument for the denial of relational propositions from the fact that all propositions are expressible in subject-predicate form fails, since some propositions could be expressible in subject-predicate form and still be relational because they contain relational predicates.

We here follow the argument, or at least one of the arguments, put forward by Mark Kulstad (27). Kulstad's aim in his paper is negative. That is to say, he does not argue positively for the presence of relational properties in monads. Instead, he prefers to argue negatively against those who have denied such properties in the monads. Kulstad argues first against Russell, who uses the above argument from the fact that Leibniz had a subject-predicate logic. Kulstad's reply is the same as ours, viz. that Leibniz may have used relational predicates, thus allowing monads to have relational properties while at the same time retaining his subject-predicate logic. Kulstad (28) distinguishes between subject-predicate logic in a narrow sense which does not admit relational subject-predicate propositions, and subject-predicate logic in a wide sense which does admit relational propositions. As evidence for his view that Leibniz employed the wide sense of subject-predicate logic, Kulstad cites numerous references in which Leibniz actually attributes relational predicates to individual
Kulstad's next attack is on the arguments (again put forward by Russell) which rely on the fact that Leibniz's relations are ideal. He asserts (and we agree) that not all relations are ideal for Leibniz, but only those considered in the third way (29). There follows a brief argument against Rescher whose argument for the reducibility of relations assumes that Leibniz did not admit relational predicates. Parkinson, however, warrants more detailed refutation. One of Parkinson's arguments relies on the fact that Leibniz denied that monads have extrinsic denominations. Parkinson states that such extrinsic denominations, in the scholastic tradition which Leibniz usually follows, are relations. Kulstad argues that these extrinsic denominations are the ideal relations which hold between things, but are not the relations which hold when we consider the subjects which possess the relations, i.e. when we consider the relational properties of a subject. Although all denominations are intrinsic for Leibniz, this does not rule out the possibility that some intrinsic denominations are relational predicates. We might add that when Leibniz denies extrinsic denominations, he adds that there must be a 'real change' in a man from husband to widower when his wife dies:

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 a subject. (On the Method of Distinguishing Real from Imaginary Phenomena, n.d.: L:II:606)

This supports Kulstad's reading of extrinsic denominations as
ideal. If the widower were only ideally related to his wife there would be no change in him on her death. But there will be a real change in him if his relation to his wife belongs to him intrinsically as a relational property.

Parkinson's second argument which Kulstad examines is that which relies on Leibniz's attempted reduction of relational sentences like 'Paris is the lover of Helen' to the combination of subject-predicate propositions expressed by sentences like, 'Paris loves' and 'Helen is loved' joined by the conjunction 'eo ipso' (by that very fact) or 'quatenus' (insofar as) (30). But for all that this reduction is here a reduction to non-relational propositions, sometimes the subject-predicate propositions to which the relational proposition is reduced are themselves relational (31), as in the reduction of the relationship between David and Solomon which we explain below. We need only say here that the reduction of a relational proposition of the form 'Paris loves Helen' to the subject-predicate propositions 'Paris loves' (eo ipso) 'Helen is loved' does not tell us that monads cannot have relational predicates. It could be argued that Leibniz's aim in trying to achieve such reductions was to find rules governing the logical treatment of such propositions. What the reduction actually tells us is that when the (relational) predicate 'loves Helen' is attributed to Paris (or indeed even to Menelaus), then Helen must have the corresponding predicate 'is loved by Paris' (or 'by Menelaus').

Besides, it is probable that Leibniz's reduction did not
aim to produce any reduction of relational predicates to non-relational predicates, but was rather an attempt to reduce non-subject-predicate propositions to subject-predicate ones (32), in order to support his doctrine of complete concepts.

Kulstad's paper is well-structured, well-argued and very persuasive, and so we unhesitatingly accept his conclusion that we should not adopt the interpretation of Leibniz under which 'all relational propositions are reducible to non-relational subject-predicate propositions' (Kulstad, p.429).

In accepting Kulstad's conclusion, we allow Leibniz the opportunity of ascribing relational properties to his monads. This entails that when Leibniz asserts that David is the father of Solomon and that Solomon is the son of David, he is attributing the relational property of 'being a father' to David and the relational property of 'being a son' to Solomon.

My judgment about relations is that paternity in David is one thing, sonship in Solomon another, but that the relation common to both is a merely mental thing whose basis is the modifications of the individuals.
(Letter to des Bosses, 21 Apr.1714: L.II.992)

The common relation of kinship is an 'accident that is in two subjects at the same time' (ibid.: L.II.992). But a comparison between this passage and that quoted above from §47 of the fifth letter to Clarke (33), shows clearly that the relation which holds between Solomon and David is the same as the ratio between lines L and M, where we do not consider which is the subject and which is the predicate. We maintain here,
that when we do consider the subjects and the predicates, we see that, just as the predicate of 'being greater than M' can be attributed to L, and the predicate of being 'less than L' can be attributed to M, so too, to say that David is the father of Solomon is to attribute a property to David, and to say that Solomon is the son of David is to attribute a property to Solomon. Such properties are relational. One cannot be a father or a son without being a father or son of someone else.

The above discussion of relational predicates was necessary because we wanted to determine whether or not the relation between the soul and its body could fall under the description of expression which Leibniz gave in What is an Idea?. There he said that relations in the expressing thing (the dominant monad) are related to relations in the expressed thing (the motions of the body) (34). The expression of the body by the soul can fall under such a description only if perceptions can be regarded as relational predicates. Due to the fact that Leibniz could, and probably did, allow relational predicates to be ascribed to monads, and due to the fact that if someone perceives, then they always perceive something (i.e. perceptions are themselves relational (35)), we believe that perceptions can indeed be regarded as the relations referred to in the description of expression given in What is an Idea?.

But there is another condition which must be fulfilled if the expression of the body by the soul is to fit with the description of expression in What is an Idea?. This is that the motions of the body must also be relations.
We already know that, for Leibniz, motion is relative (36). His analysis of motion involves a consideration of spatial relations which obtain between bodies. According to Leibniz, when a body, changes its relation to a multitude of others, which do not change their relation among themselves; and that another thing, newly come, acquires the same relation to the others, as the former had; we then say, it is come into the place of the former; and this change, we call a motion in that body, wherein is the immediate cause of the change.

(Leibniz's Fifth Paper to Clarke, §47, 18 Aug. 1716: Alex. p. 69)

Later in the same section, he defines place as,

that, which we say is the same to A and, to B, when the relation of the co-existence of B, with C, E, F, G, etc. agrees perfectly with the relation of the co-existence, which A had with the same C, E, F, G, etc. supposing there has been no cause of change in C, E, F, G, etc.

(ibid.: Alex. p. 70)

C, E, F, and G are said to have remained stationary, while A and B are said to have moved, because, although their relations to A and B have changed, their relations to each other have remained the same.

And fixed existents are those, in which there has been no cause of any change of the order of their co-existence with others; or (which is the same thing,) in which there has been no motion.

(ibid.: Alex. p. 70)

But (and this is important if perceptions are to correspond to motions), Leibniz's assertions regarding non-moving bodies must be qualified. For in actual fact, Leibniz believed that all bodies move. There is never any body which is
ever absolutely at rest (38).

'Tis true that, exactly speaking, there is not any one body, that is perfectly and entirely at rest. (Fifth letter to Clarke, §53, 18 Aug. 1716: Alex. p. 74)

Thus, we must say that C, E, F and G are only considered to be at rest because their relations to each other do not change. These bodies will still move, but they move in such a way that the relations between them do not change. (We have already discussed the criteria Leibniz uses to determine which bodies are moving and which are "at rest" (39)).

Can we now say that motions are the 'relations' in the body which is expressed? Strictly speaking we cannot, because motions are not relational properties (relations) of a body in the same way in which perceptions can be said to be the relational properties of the soul (as dominant monad). Motion is a change of relation rather than a relation itself. A body at rest has relational properties insofar as it is spatially related to all other bodies just as much as a moving body has relational properties. All bodies are in spatial relations with regard to all other bodies. All bodies, whether moving or at rest, have relational properties, and it is unlikely that the soul would perceive only moving bodies. If bodies can both move and be at rest, we cannot say that the soul's perceptions are in agreement only with the motions of bodies, for they should also be in agreement with the state of rest of non-moving bodies.
It is because of such an objection as this one that it is important to observe that Leibniz believed all bodies to be in motion. For if this is so, we can without much difficulty equate relational properties and changes of relational properties (i.e. motions). If all bodies are in motion, there will never be a relational property which is not also a change of relational properties. It follows from this that if the soul's relational properties (its perceptions) are in agreement with the body's relational properties, then the soul's perceptions will be in agreement with the motions of the body. For although, strictly speaking, the body's relational properties arise from the fact that the body is spatially related to other bodies, since every body moves, it is permissible (albeit, as we have seen, misleading) to say that the body's relational properties arise out of the fact that the body is moving. Since the body is never at rest, it will never actually have a spatial relation to another body which is a spatial relation in the process of change to another different spatial relation. In other words, all the spatial relational properties of the body will be changes of spatial relational properties, that is, motions. Hence we can say that the spatial relations which hold between any two bodies (and it is these relations which are ideal for Leibniz), do so hold because each body has relational properties (i.e. motions or changes of spatial relations) (40). We can now state that in the expression by the soul (as dominant monad) of the body, the relational properties of the soul (its perceptions) are related, by way of agreement, to the relational properties of
bodies (their motions). We note, finally, that not only will the subordinate monads' bodies have such relational properties, but also that the body of the dominant monad will possess relational properties, and that the soul's perceptions will be related to both (41).

We have now discussed the expression of the body by the soul with regard to the first and the third definitions of expression given in chapter 11 (42), and have found both of them to be capable of giving definitions which apply to the expression of the body by the soul. It remains only to investigate the second definition with regard to this case of expression. We can afford to be brief. In the definition of expression now under consideration, Leibniz had claimed that expression occurs when there is a 'constant and fixed relationship between what can be said of one and of the other'. We have interpreted the perceptions and motions involved in the expression of the body by the soul as relational properties. Let us now interpret 'what can be said' as a proposition, and state that such a proposition can be expressed by a sentence. This being so, any proposition in which relational properties are attributed to the soul or to the body will be capable of being expressed in a sentence in which the subject stands for the soul and the predicate stands for the relational property. We here agree with Kulstad in allowing relational predicates to be predicates in subject-predicate sentences (43). (Note that in doing so we also implicitly allow that Leibniz's aim of reducing all sentences to subject-predicate form is
fulfillable.) It follows that, for any relational property belonging to the soul, there will be a proposition capable of being expressed by a sentence in which there is a subject (corresponding to the soul) and a relational predicate (corresponding to the soul's relational property). Similar statements could be made about the body and its relational properties. It can be seen from this, that, so long as perceptions and motions are considered as relational properties of the soul and the body respectively, there will be a 'constant and fixed relationship' between what can be said of the soul and what can be said of the body.

We have now completed our investigations into the expression of the body by the soul, and conclude that Leibniz's three definitions of expression are each equally capable of describing the situation.
CHAPTER THIRTEEN

SOUL’S RELATION TO EXTERNAL BODIES

We have seen how Leibniz conceived of the harmony which exists between the soul and its own body, and we have tried to see how the details of the theory could work in practice. But what about the harmony between the soul (as dominant monad) and bodies which are not its own? How does Leibniz account for the pre-established harmony between any one monad and the phenomenal bodies (or aggregates of monads) in the world?

Because a monad cannot be influenced by anything bar itself, and any movement of its own body or movement of any body within its own body cannot influence the soul’s perceptions and appetitions, it might be expected that Leibniz would explain the relationship between the soul’s perceptions and motions of bodies external to it, in the same way as he explains the relationship between the soul’s perceptions and movements which occur in its own body. Certain passages from Leibniz’s texts can indeed be interpreted in ways which support this view. For instance, in the New Essays, he tells Locke that,

each of these souls expresses in its own manner what occurs outside itself, and it cannot do so through any influence of other particular beings (or, to put it a better way, it has to draw up this expression from the depths of its own nature).

(New Essays, Bk.4, Chap.10: R&B 440)

Because of this, just as the expression of its own body is a result of the internal nature of the soul, so too, it would be expected, is the expression of bodies which are not its own.
In addition, we have seen that Leibniz talks of a relation between perceptions of colour, heat and other sensible qualities, and the motions in the bodies which correspond to them (1). Bodies which are not our own also have such qualities, so we could again conclude that the relationship between external bodies and the soul is the same as the relationship between the soul and its own body. Similarly, in saying that confused perceptions include all external things and contain an infinity of relations (2), he suggests that these perceptions express, not only the soul's own body, but other bodies as well. Moreover, in a letter to Arnauld, Leibniz compares a person's hand to a mountain, saying that neither can be willed to move, because all that happens when someone willed to move his hand is that the motions of his body correspond to (they are not influenced by, nor caused by) the desire in his soul to move his hand.

Besides, my hand moves not because I will it to do so (for it is useless for me to will a mountain to move; if I do not have a miraculous faith, nothing will happen) but because I could not will it with success, except at the precise moment that the elasticity in my hand is about to slacken in the requisite way to achieve this result; which happens all the more because my feelings harmonize with the movements of my body. (Letter to Arnauld, 9 Oct. 1687: Mason p. 149)

The implication here is that if there was a similar harmony between Leibniz's will and the movement of a mountain, then he could be said to will the mountain to move in the same way as it can be said that he wills to move his hand. The passage also implies that such a correspondence is possible.
But the relation between the soul and bodies other than its own is not so simple as this view would have it to be, or at least it is not so for Leibniz. Leibniz draws a distinction between the soul's expression of its own body and its expression of bodies which are not its own. Often he implies not that there is any essential difference in kind between the expression by the soul of its own body and its expression of other bodies, but that the difference is only one of degree - the soul's expression of its own body being more distinct:

states of the soul are naturally and essentially expressions of the corresponding states of the world, and particularly of the bodies which then belong to them.

(Letter to Arnauld, 9 Oct. 1687: Mason p.146)

For each individual substance, which expresses the same universe in its own measure according to the laws of its own nature, is such that its changes and states correspond perfectly to the changes and states of other substances, but the soul and the body correspond to one another most, and their intimate union consists in the most perfect agreement.

(A Specimen of Discoveries, c.1687: Park. p.80)

Further, having posited the diversity of soul and body, we can explain their union from the above without the common hypothesis of an influx, which is unintelligible, and without the hypothesis of an occasional cause, which calls in a Deus ex machina. For God has from the beginning fashioned soul and body alike with such wisdom and such skill that, from the very first constitution or notion of each of these, all the things that happen in the one correspond perfectly of themselves to all the things that happen in the other, just as if they had passed from the one into the other. I call this the 'hypothesis of concomitance' (Hypothesin Concomitantiae). This is true of all substances in the whole universe, but it is not to be perceived in all of them, as it is in the soul and the body.

(Primary Truths, c.1688: Park. pp.90-91)

But, even acknowledging that the soul's expression of its own body is more distinct than its expression of other bodies,
this is still not a full explanation or description of Leibniz's views concerning the soul's expression of bodies other than its own. Leibniz wants to be able to account for the fact that most of our contact with the external world takes place via the operations of our bodies. Thus, we hear because we have ears, see because we have eyes, and feel because we have nerve endings in our skin. A defect in any one of these organs prevents the person from seeing, hearing, or feeling respectively. Moreover, Leibniz also claims that the greater the contact between my body and another body, the distincter the perceptions of that other body.

this expression occurs everywhere, because every substance is in harmony (sympathisent) with every other and undergoes some proportionate change which corresponds to the smallest change occurring in the whole universe, although this change is more or less noticeable to the extent that other bodies or their actions have more or less connexion (rapport) with ours. (Letter to Arnauld, 9 Oct. 1687: Mason p.144) (3)

In the indispensibility of the body for sense perception, Leibniz finds a reason for the soul's distincter perception of its own body:

Now, since we perceive other bodies only through their relationship to ours, I was right to say that the soul expresses better what pertains to our body; therefore, the satellites of Saturn or Jupiter are known only in consequence of a movement which occurs in our eyes. (Ibid., 9 Oct. 1687: Mason p.145)

This passage can be interpreted in two ways. Firstly, it can be interpreted mechanistically, and taken to mean that the movement in our eyes causes a movement in our brain, which in turn causes the perception of Jupiter or of Saturn. The
mechanistic interpretation implies that we interact causally with the world, and that a movement in our brain is directly responsible for our perceptions. But this, as we know, is not Leibniz's view. According to Leibniz, the workings of the body do not cause, or in any way influence, our perceptions:

the soul feels that its body is indisposed not through an influence of the body upon the soul nor through a particular warning operation by God, but because it is the nature of the soul to express what happens in bodies . . . souls effect no change in bodily order, nor bodies in that of souls. (Draft of letter to Arnauld of 28 Nov./8 Dec. 1686: Mason p. 87)

How, then, are we to interpret Leibniz's statement that the satellites of Jupiter and Saturn are known only 'in consequence' of a movement which occurs in our eyes?

We propose that the only intelligible way in which to interpret Leibniz's statement in the light of his other metaphysical views, is to understand it as claiming that the correspondence which occurs between perceiving monads is such that, in the best possible world (4) the correspondence can only take place if each dominant monad (5) perceives its subordinate monads as an extended organic body. This organic body then provides the 'point of reference' from which the dominant monad's relations to all other organic bodies are determined. The dominant monad's body is perceived to enter into physical (e.g. spatial) and causal relations with the organic bodies which the other dominant monads perceive themselves to have. It is not the case that the monad's body, or movements in its body, cause the monad's perceptions, but rather that the monad's perception of its own body provides it
with a fairly constant reference point from which it can then be said to stand in certain spatial relations to other organic bodies. But it must be remembered that the monad itself, being immaterial and, hence, non-extended, cannot enter into spatial relations with other monads, or with other bodies.

I consider the explanation of all phenomena solely through the perceptions of monads functioning in harmony with each other, with corporeal substances rejected, to be useful for a fundamental investigation of things. In this way of explaining things, space is the order of co-existing phenomena, as time is the order of successive phenomena, and there is no spatial or absolute nearness or distance between monads. And to say that they are crowded together in a point or disseminated in space is to use certain fictions of our mind when we seek to visualize freely what can only be understood. (Letter to des Bosses, 16 June 1712: L.II.983)

It is the body, as extended, which enters into spatial relations with other bodies. But in perceiving itself to have an organic body with spatial relations to other bodies, the dominant monad can, so to speak, establish a foothold in the spatio-temporal realm:

although monads are not extended, they nevertheless have a certain kind of situation [situs] in extension, that is, they have a certain ordered relation of co-existence with others, namely, through the machine which they control. I do not think that any finite substances exist apart from a body and that they (6) therefore lack a position or an order in relation to the other things co-existing in the universe. (Letter to de Volder, 20 June 1703: L.II.865)

It is because of this that,

Creatures free or freed from matter would at the same time be separated from the universal connexion of things, and, as it were, deserters from the general order. (Considerations sur les Principes de Vie, 1705: Latta Fn. p.259)
Mais les creatures franches ou affranchies de la matiere, seroient detachees en meme temps de la liaison universelle, et comme des deserteurs de l'ordre general.

(G.VI.546)

Monads freed from matter would be unable to take part in the system of mutually perceiving substances. Here lies the importance of primary matter as an element of the monad, for without primary matter or primitive passive force the monad would have no sense perception of its subordinate monads as an extended organic body. Leibniz’s claim, then, would seem to be that, if a monad is to be able to express bodies other than its own, it must first express its own body. But there is even more to the matter than this, for Leibniz’s claim also involves the fact that we only perceive bodies other than our own because of the relations which hold between those other bodies and our own body. Let us now return to the passage from the correspondence with Arnauld (8).

There Leibniz says we perceive other bodies only through their relationship to ours. This would seem to imply that the monad perceives its own body, directly, so to speak, but perceives other bodies indirectly, i.e. only through the fact that the body it perceives as its own is in certain spatial and causal relationships with other bodies. This may be what Leibniz had in mind when he said that, every simple substance represents an aggregate of external things, and that in those external things, represented in diverse ways, there consists both the diversity and the harmony of souls. Each soul will represent proximately the phenomena of its own organic body, but remotely those of others which act on its own body.
(Metaphysical Consequences of the Principle of Reason, §9, c.1712: Park. p.175) (9)

(Unde etiam sequitur), omnem substantiam simplicem aggregatum externorum repraesentare et in iisdem externis, sed diversimode repraesentandis, simul et diversitatem et harmoniam animarum consistere. Unaquaeque autem anima repraesentabit proxime sui organici corporis phaenomena, remote vero etiam caeterorum in corpus ipsius agentium. (Couturat, Opuscules et Fragments Inedits, p.14)

For all that this view enables Leibniz to account for the fact that we believe our interaction with the world to take place via the mediacy of our bodies, it is not a view which we would have expected Leibniz to adopt. It will be advisable to state our reasons for our hesitation in ascribing this view to Leibniz.

1. In the light of the fact that there is no causal interaction between our body and our soul, it may be difficult for Leibniz to explain why any connection our body has with other bodies should entail that our soul perceives or corresponds to other bodies. The view that our body interacts with other bodies fits more naturally with the view that the soul also interacts with its own body than it fits with Leibniz's view that there is no such interaction between the soul and its own body.

2. The view that the soul corresponds to bodies other than its own only because it perceives its own body and because its own body is related to other bodies makes it seem as if Leibniz is claiming that the soul perceives other bodies almost by default. If our body had no connection with other
bodies, our soul could not express these other bodies. But yet, we can think of (and so express) other bodies which are not in close spatial, or other, connection with our own body.

3. In expressing its own body, the soul is in harmony with the subordinate monads which compose that body. These monads are individuals in their own rights, and as such, are on a par with the subordinate monads which compose the bodies of other monads, i.e. bodies which are not parts of the soul’s own body. Leibniz’s explanation of the soul’s expression of bodies which are not its own is in danger of destroying his account of the monad’s expression of its own body. When the soul expresses its own body, its perceptions correspond to the motions of the bodies of the subordinate monads. We have said that these subordinate monads (together with their bodies) are individuals, and as such are similar to other monads (and their bodies) which are not parts of the soul’s own body. It would therefore be expected that the expression by the soul of bodies which are not its own, would be similar to the expression of bodies which are parts of its own body. Yet, Leibniz denies that this is the case. And if the soul cannot directly express bodies which are not parts of its own body, we are tempted to say it cannot either directly express bodies which are parts of its own body.

4. Finally, we do not intuitively think that when we perceive bodies which are not our own, we are, in fact, only perceiving our own body, yet Leibniz’s explanation of our perception of bodies which are not our own makes it possible
for someone to claim that this is actually the case.

Before investigating the merits and demerits of these four points, we must present Leibniz’s claim as plausibly as possible. This entails that we take a closer look at the connections which he believes occur between bodies.

What, then, is to be said of these connections between material bodies which are of such importance with regard to the soul’s perception of bodies other than its own?

In the Clarification of the Difficulties which Mr. Bayle has found in the New System of the Union of Soul and Body, Leibniz writes that the soul,

must express what happens, and even what will happen in its body and in some way in all other bodies, through the connection or correspondence between all the parts of the world.

(July 1698: L.II.806)

In another reply to Bayle’s objections, Leibniz explains that,

since bodies are not atoms but are divisible, and are indeed divided to infinity, and everything is full of them, it follows that the very smallest body receives some impression from the slightest change in all the others, however distant and small they may be, and must thus be an exact mirror of the universe.

(Reply to the Thoughts on the System of Pre-established Harmony, 1702: L.II.937) (10)

Leibniz goes on here to explain that,

a sufficiently penetrating spirit could, in the measure of his penetration, see and foresee in each corpuscle everything which has happened and will happen in that corpuscle and everything which has happened and will happen everywhere both within and outside of the corpuscle. So nothing happens to it, not even by the impact of surrounding bodies, which does not follow from
what is already internal to it and which can disturb its order.
(ibid.: L.II.937)

Nonetheless, when bodies are considered as phenomena rather than as aggregates of monads, we can speak of physical influence and constraint by one body on another.

there is no constraint in substances, except externally and in appearance.
(ibid.: L.II.938)

The points which Leibniz wants us to grasp are that every body (or rather every monad composing a body) has a law which determines what it will do (and what it has already done) and that its actions will be in accordance with the actions of another substance without that second substance in any way being able to influence the former, or change its law. We can still speak of causes and effects, of influence and hindrance, but when we do so we must remember that these are only ways of speaking and that the situation, metaphysically, is as Leibniz has described it.

The slightest changes which occur in bodies are represented or expressed in all other bodies, no matter how distant they are from the body which has changed, because every body represents the entire universe. The reason Leibniz gives to explain why every body receives an impression of all changes occurring in all other bodies, is that matter is both continuous and infinitely divided.

because of the continuity and divisibility of all matter the smallest movement extends its effect over neighbouring bodies
and consequently from neighbour to neighbour ad infinitum, but proportionately decreased; thus our body must be affected in a way by the changes of all the others. (Letter to Arnauld, 9 Oct. 1687: Mason p.144) (11)

It is our belief that unless Leibniz allows physical influence by one body over another, he cannot explain why the continuity and divisibility of matter should result in all bodies being affected by changes in any or all of the others. Indeed, Leibniz also argues to the divisibility of matter from the fact that every part of matter acts on every other part of matter when any one part of matter moves:

every body, however small, has parts which are actually infinite, and in every particle there is a world of innumerable creatures. This is established in many ways, one of which is the fact that every portion of matter is agitated by the motions of the entire universe, and is acted upon in some way by all other parts of matter, however distant, in proportion to their distance. Now since every case of being acted on has some effect, it is necessary that the particles of this mass which are exposed in a different way to the actions of others are agitated differently, and that consequently the mass is subdivided. (A Specimen of Discoveries, c.1686: Park. p.82)

In chapter 3 (12), we argued that Leibniz could claim both 1. that bodies react causally to each other and 2. that they would move in the way they do even if no other bodies existed, if he distinguished between bodies as phenomena and bodies as aggregates of monads. As phenomena, bodies can influence each other, but as aggregates they cannot, because the monads themselves are not influenced by, nor influence, any other thing. Leibniz makes this distinction himself in the Reply to the Thoughts on the System of Pre-established Harmony, quoted above, and also in Primary Truths when he
writes that,

*Every created individual substance exercises physical action on, and is acted on by all others.*

(Primary Truths, c.1686: Park. p.90)

*omnis substantia singularis <creata> in omnes alias physicam actionem et passionem exercet.*

(Couturat, Opuscules et Fragments Inedits, p.521)

but that,

*Strictly, it can be said that no created substance exercises on another a metaphysical action or influx.*

(ibid.: Park. p.90)

*In rigore [Metaphysico] dico potest nullam substantiam creatam in aliam exercere actionem metaphysicam seu influxum.*

(Couturat, Opuscules et Fragments Inedits, p.521)

Because we are here concerned with physical connections between bodies, we are concerned with bodies when these are considered as phenomena. Metaphysically, bodies are aggregates and have no physical influence on each other.

We have already suggested that the concurrent relations of cause and effect, position, order, etc. can only hold between bodies, and we have explained why these cannot hold between monads (13). So too, they will not hold between bodies when these are considered as aggregates of monads. But as phenomena, bodies can act upon and be acted upon by other bodies. They can thus be related as cause to effect. So too, by having extension, bodies can be in spatial relations to other bodies, i.e. the concurrent relation of position can hold between them and they can be related as whole to part, or as
part to whole, because for Leibniz there are bodies within bodies ad infinitum. So too, they can be related by 'togetherness' if this is taken to be co-existence in space and time. Also bodies (as phenomena) are ordered (14). These are all concurrent relations.

It follows that concurrent relations must hold between bodies if one body (as a phenomenon) is to extend its influence over the rest of the universe, for the way in which material, phenomenal bodies are related to one another is through physical interactions, or at least through what appear to be physical interactions. One body hits another and the second body moves in a direction and at a speed which can be determined prior to the collision, provided we know certain facts (e.g. the direction, mass, speed) about the first body. To all intents and purposes, it does not matter that ultimate reality consists of non-interacting, immaterial monads or that the monads composing these bodies act in a pre-determined way such that the body could move even if no other body hit it, for, in fact, it will never happen that a body will move when no physical cause for its movement can be found. Bodies always act 'as if' they are impelled to such action by the action of another external body (15). Phenomenally, i.e. as bodies appear to us, or rather as other monads are represented to us as bodies, bodies always act according to a set of natural laws, which laws never vary. Under these laws, the direction and derivative force of bodies is always conserved (16).

Phenomenally, bodies act as if this force were transferred from
one body to another. In reality, or metaphysically, each body
moves by its own derivative force, which derivative force is a
modification of the primitive forces of the monads making up
the aggregate body.

Concurrent relations between bodies are the basis of
Leibniz's claim that one body expresses another:

this body expresses the whole universe by the connection
between all matter in the plenum.
(Monadology, §62, 1714: L.II.1055)

One body can be physically connected to another body, and
because the other body is physically connected to other
bodies, and these in turn to other bodies, the effect of any
one body on another will cause a chain reaction of effects on
all other bodies. Because of this, Leibniz claims that any one
body is actually connected in some way to all other bodies.
These concurrent relations provide the basis for any one body's
expression of all other bodies.

Let us see if this account of the expression by one body
of another body agrees with Leibniz's general definitions of
expression (17).

If we again take the 'relations' referred to in 'What is
an Idea?' to be relational properties, and if we take the
relational properties of bodies to be things like 'being a
cause of x' or 'being to the left of x', then these
relational properties will correspond to bodies which have
relational properties like 'being an effect of y' or 'being to
the right of y'. Comparative relations can also be employed here, as for instance, in the relational property of 'being similar to x'.

Similarly, if we again take relational properties to be expressible by predicates in sentences, then the expressive relation between bodies can also fall under the description of expression which Leibniz gave in the letter to Arnauld of 9 Oct. 1687, for there will be a 'constant and fixed relation' between what can be said of one body and what can be said of another, as for instance, if we say that 'x is the cause of y', it will always be true to say also that 'y is an effect of x'.

So too, if we take these relational properties and predicates of bodies to be 'singulars', then Leibniz's third definition of expression will hold true of the expression of one body by another. They cannot, however, be singulars in the sense of being terms in a law of a series because bodies do not have individual laws of their series of motions. But they will be similar to this kind of singular in so far as they are relational properties of bodies.

We said above that bodies always act 'as if' there were interaction between them. Because of this, Leibniz often asserts that,

however much I agree with the Scholastics in this general and, so to speak, metaphysical explanation of the principles of bodies, I am as corpuscular (18) as one can be in the explanation of particular phenomena, and it is saying nothing to allege that they have forms or qualities. One must always explain nature along mathematical and mechanical lines, provided one knows that the very principles or laws of
mechanics or of force do not depend upon mathematical extension alone but upon certain metaphysical reasons.
(Letter to Arnauld, 4/14 July 1685: Mason p.66)

It is not our concern at the moment to discuss the metaphysical reasons for the presence of certain mechanical laws rather than others. We wish here only to stress the fact that bodies act in accordance with these mechanical laws, and that, armed with a knowledge of these laws, we can explain the nature and workings of the phenomenal world of material bodies in space and time.

I fully agree that all the particular phenomena of nature can be explained mechanically if we explore them enough and that we cannot understand the causes of material things on any other basis.
(Critical Thoughts on the General Part of the Principles of Descartes, 1692: L.II.674)

Whatever is performed in the body of man, and of every animal, is no less mechanical, than what is performed in a watch. The difference is only such, as ought to be between a machine of divine invention, and the workmanship of such a limited artist as man is.
(Leibniz’s Fifth Letter to Clarke, $116, 18 Aug.1716: Alex. p.93) (19)

We can now return to the vexatious question regarding the soul’s expression of bodies which are not its own. The question is that of whether Leibniz should explain this expression by the fact that the soul’s own body expresses other bodies, or whether he should, so to speak, by-pass the body’s expression of other bodies and allow the soul’s expression of other bodies to be explained in the same way as the soul’s expression of its own body, viz. by asserting a correspondence between the soul’s perceptions and the motions
of the perceived body. We can illustrate the alternatives mathematically. Let there be a series of numbers $A$, which runs, 1, 2, 3, 4, 5, 6, 7 . . . , and another series of numbers, $B$, which runs, 2, 3, 4, 5, 6, 7, 8 . . . , and a series of numbers, $C$, which runs, 4, 5, 6, 7, 8, 9, 10 . . . . $A$ can be mapped onto $B$ by the function $f(x): x\to x+1$, and $B$ can be mapped onto $C$ by the function $f(x): x\to x+2$.

Now, let $A$ be the series of perceptions in the dominant monad, $B$, the series of motions in the dominant monad's body, and $C$, the series of motions of bodies which do not belong to the dominant monad.

Under the description of the soul's expression of bodies which are not its own which allows such expression only via the soul's expression of its own body, $A$ cannot be mapped directly onto $C$. It can only be mapped onto $C$ if $A$ is first mapped onto $B$. But under the alternative description of the expression by the soul of bodies other than its own, $A$ can, in fact, be mapped directly onto $C$, namely, by the function $f(x): x\to x+3$. If this can be done mathematically, there seems to be no reason why it should not happen also in the case of perceptions and motions.

On the other hand, Leibniz's explanation of the expression by the soul of bodies which are not its own has the advantage of retaining the empirical fact that we do interact with the world because of, or via, our own bodies. We would not see if we did not have eyes, nor hear if we did not have ears.
An explanation of the soul's expression of bodies other than its own which by-passed the soul's own body's expression of other bodies, cannot easily account for these facts.

Instead of using a mathematical analogy, let us look at a more concrete example. Take sound. This can be given a physical explanation or description ('physical' in the sense of 'physics') in terms of sound waves, vibrations, ear drums, molecules, electricity, and so forth. It can also be explained, or rather described, in terms of what is actually heard. There is a significant difference in kind between the motions of the bodies involved in the physical explanation and the sound which is actually heard. We do not believe that physical, material bodies hear sounds, even though they are affected physically by sound waves (our ear drums are, of course, here being considered as physical objects). The actual sound is heard in the soul. The motions take place in the body and in the world. But what is heard depends on which motions are taking place in the world. This is where correspondence becomes relevant. There is a correspondence between what is heard and the state of the world at the time that the sound is heard. For example, if we listen to music from a record player in a room which has no soft furnishings, the high frequency sound waves are not absorbed (because there is nothing to absorb them) and the sound we hear is very 'tinny'. At the other extreme, in a room full of soft furnishings, all or most of these high frequency waves will be absorbed and the sounds heard by a living being will be deep, heavy and muffled. Conversely, in a room devoid
of large, hard objects, there is nothing to break up the long, low frequency waves, and the sound heard echoes as the waves hit the walls and bounce back. In this way, everything in the room affects the sound which is heard, even though, metaphysically, there is no causal connection between what happens in the body and what happens in the soul. There is a correspondence as different sounds are heard according as the state of the world is different. The sound is not different only depending on the state of the ear drum (i.e. on the state of the soul’s own body), but also depending on the state of things outside the soul’s own body, e.g. on the state of the room, or on the conditions of the record being played.

Leibniz’s theory that the soul’s perceptions of the world take place only because the soul perceives the motions of its own body and these motions are in harmony with the motions of bodies external to the soul can be fitted onto the description of sound given above. Leibniz can say that the state of the ear differs from one state to another because the state of the room (e.g. whether it has soft furnishings or not) will physically alter the kinds of vibrations entering the ear drum, which vibrations will then alter the ear itself. He can then say that the soul’s perceptions of its body are such that when certain vibrations are occurring in the ear, the sound heard is ‘tinny’, and when certain other vibrations occur, the sound heard is deep, heavy and muffled, and he can say that this is so because the state of the ear, which the soul perceives, is different depending on the state of the external world.
explanation enables Leibniz to account for the empirical fact that our sensory perception of the world takes place through our organic body.

But the alternative explanation of what happens when we hear sounds can also be fitted onto the above description of sound. Leibniz could admit that the state of the world affects the state of the ear, i.e. he could allow that the physical, extended, material body interacts causally with other bodies, but also say that the soul perceives bodies external to itself in a similar way to the way in which it perceives its own body (i.e. by direct correspondence).

Since both views are in accord with both the mathematical description and with the more concrete, physical example, we will make our decision regarding whether or not Leibniz is entitled to his explanation of the soul's expression of bodies other than its own dependent on whether he can counter the four difficulties raised above (20). If he can successfully reject these difficulties, we will adopt Leibniz's explanation because it has the advantage of involving the soul's own body in the soul's expression of other bodies.

1. To counter the first point made against Leibniz's view of the relation between the soul and bodies other than its own, it is required that we find some reason as to why the soul's perception of its own body should be different from its perception of other bodies, and some reason why the soul's perceptions of its subordinate monads' bodies should be
different from its perception of the bodies which belong to monads which are not subordinate to the perceiving soul.

By way of providing such a reason, Leibniz could appeal to his doctrine that the soul, together with its own organic, secondary matter body, comprises a complete individual organism. Under this doctrine, the parts of the soul's body (i.e. the subordinate monads and their bodies) are integral parts of the whole organism - although not so integral to the organism that loss of some of these parts would change the essential nature of the organism. In chapter 8, we found that the soul (or dominant monad) has a unifying effect on the subordinate monads composing its body. With this in mind, it becomes possible for Leibniz to claim that the soul performs this unifying effect through the act of perceiving these subordinate monads and their bodies directly (21), and in a way which is different, because it is direct, from the way in which the soul perceives bodies which are not its own. Bodies which are not its own are, according to Leibniz, perceived only indirectly, via the fact that the parts of its own body and its own body as a whole are in physical contact with other bodies. Such physical contact causes changes in the body which belongs to the soul. The soul, in representing its own body, represents the changes which occur in its body, and in doing so represents also, albeit indirectly, the bodies which have caused those changes in its own body.

Remember, also, that the primary matter of the dominant monad is related only to the mass of the monad's organic body
(22). We have argued that primary matter is responsible for the fact that the dominant monad perceives confusedly. We assumed that this confused perception was a perception of bodies external to the soul itself as well as being confused perception of its own body. But, if the primary matter is related only to the mass which is the soul's own body, it makes sense to claim that the dominant monad (or soul) perceives only its own body confusedly, and that it perceives other bodies only because it represents, albeit confusedly, the changes these other bodies have caused in its own body.

2. With regard to the second point, Leibniz might remind us that he has stated that thoughts also correspond to the motions of bodies within the soul's own body, and to the motion of the soul's body as a whole (23). Thus, if we think of, say, Australia, then, according to Leibniz, there will be a motion occurring in our bodies, say in our brains, which this thought of Australia corresponds to. (It is not, however, at all clear what kinds of motions would be necessary on the part of bodies external to us in order for them to cause a motion in our body which corresponded to the thought of Australia in the soul.) (24).

It could also be stressed here that Leibniz's explanation of the expression by the soul of bodies other than its own, does not entail that the soul does not perceive other bodies - but on this point, see our reply to no.4.

3. The reply to this point is the same as that given in
reply to no.1., for again the difficulty disappears if a reason can be given for making a distinction between any one monad's subordinate monads and monads which are not subordinate to that same monad. We could add that the reason why some monads are subordinate to other monads lies in the fact that the dominant monad perceives the subordinate monads more distinctly than they (i.e. the subordinate monads) perceive the dominant monad. Because the soul is said to perceive its own body more distinctly than it perceives other bodies (25), those monads which are perceived distinctly will be parts of the dominant monad's body (26). Those which are not perceived so distinctly, will not be parts of that body. This reasoning, however, is somewhat circular: the subordinate monads are parts of the soul's body because they are perceived distinctly, and they are perceived distinctly because they are parts of the soul's body.

4. Two remarks can be made in reply to the fourth point. Firstly, we note that intuition, or rather, lack of intuition is not a reason for the falsity of any one particular view. Secondly, we can stress that Leibniz does not deny that the soul perceives bodies other than its own. He is merely claiming that the perceptions of these bodies are, as it were, once removed. There are two sets of relations involved when the soul perceives bodies which are not its own. The first set of relations maps the soul's perceptions onto the motions of its body, as was explained in chapter 12, while the second set of relations maps the motions of the body onto the motions of other bodies, as explained earlier in this chapter. There is
still a relation between, and hence a perception by, the soul and bodies which are not its own, but the relation involves two stages (as was also the case in the mathematical mappings described earlier in this chapter).

We conclude this chapter, having found reason to believe that Leibniz's account of the relation between the soul and bodies which do not belong to it, is, in fact, a true description of the world. It is a complicated view, but it does have the merit of enabling Leibniz to retain the scientific viewpoint which maintains that our contact with the external world occurs via the body and it achieves this without Leibniz having to violate his doctrine of the independence of the monad. Physical and causal connections are admitted into the universe, but are kept strictly within limits, restricted to the realm of material, phenomenal bodies. Leibniz does not, therefore, find himself having to suppose any physical connection between the soul and the body - a connection which he could not even begin to wonder how it could occur.

And if it happens constantly that certain thoughts are joined to certain movements, the reason is that God first created all substances so that subsequently all their phenomena might correspond, without the need of a mutual physical influence, which does not appear even to be explicable. (Draft of letter to Arnauld of 28 Nov./8 Dec.1686: Mason p.86)

We might add that, contrary to what we said earlier (27) it can now be said to be the case that all the perceptions which the soul has, will be mapped onto or correspond to motions in the soul's body. We had said that only some of the
soul's perceptions would correspond to the body's motions because the rest of the soul's perceptions would have to correspond, not to the motions of its own body, but to the motions of bodies which are not its own. However, if the soul is related to other bodies only because of its own body's connections with these bodies, and because its own perceptions are in harmony with the motions of its own body, and since, therefore, the soul only perceives bodies which are not its own indirectly, then it can be said that each and every perception had by the soul will correspond to one and only one motion in, or of, its body.
CHAPTER FOURTEEN

RELATIONS BETWEEN MONADS

Our next topic for elucidation is the expression by one monad of another. As in all other cases of expression, there must again be 'singulars', 'relations', and 'what can be said' in or of one monad which correspond to 'singulars', 'relations' and 'what can be said' in or of the expressed monad. When the soul expresses its body, the soul's perceptions correspond to the body's motions, so it is only to be expected that when one monad expresses another monad, its perceptions will correspond to the other monad's perceptions. We need not repeat how it is that perceptions can be regarded as 'singulars', 'relations', or 'what can be said' (1). It is clear that Leibniz regarded this case of expression as a correspondence of perceptions. It is also, however, a correspondence of appetitions (2).

It follows also from the perfection of the supreme Author, not only that the order of the entire universe is the most perfect possible, but also that each living mirror which represents the universe according to its own point of view, that is, each monad or each substantial center, must have its perceptions and its appetites regulated in the best way compatible with all the rest.

(Principles of Nature and of Grace, §12, 1714: L.II.1040)

It is only to be expected that if the monads' perceptions correspond, then so too, one monad's appetitions - the actions of the primitive active force which brings about the passage from one perception to another - will correspond to other monads' appetitions. It should also follow that the laws of the series belonging to any one monad will correspond to other monads' laws, for the law determines the nature and the order
of the monad's perceptions, and it is this law which any one monad's appetitions follow. Since if monads' perceptions correspond, their appetitions and their laws of the series of perceptions also correspond, we are justified in continuing the present discussion in terms of perceptions alone.

Leibniz writes of how, even though each monad 'has no windows' through which it can have direct contact with the external world,

Nevertheless it is true that the perceptions or expressions of all substances intercorrespond, so that each one, following with care the established reasons or laws which it has observed, meets with others who have done this also. When a number of people have agreed to meet together in some place on a previously determined day, they can do this successfully if they wish. (Discourse on Metaphysics, §14, 1686: L.I.479)

Leibniz could have said that the expression of one monad by another results from the facts that all bodies correspond to each other and all bodies are composed of monads. The expression of one monad by another would then be twice-removed, rather than only once-removed, as it is in the case of the expression by the soul of bodies other than its own. The expression of one monad by another would then involve three sets of relations: one joining the soul to its own body; one joining the soul's body to other bodies; and one joining the other bodies to their respective dominant monads. But he prefers, understandably, to by-pass bodies altogether, and say that the soul's perception of another soul is due to the fact that there is one kind of relation (a relation of
correspondence (3)) by which the perceptions belonging to one monad can be mapped onto the perceptions belonging to another monad. Since each monad represents the entire universe, all the perceptions belonging to one monad will have corresponding perceptions in the expressed monad (4). In each perception, the monad perceives every other monad. This is true of all monads and of all perceptions. Hence, every monad’s perceptions will be related by a one-to-one correspondence with every other monad’s perceptions, although this may depend on every monad being able to perceive itself (5). The only difference between one monad’s perceptions and that of another will be in what one monad perceives distinctly and what it perceives confusedly. What is perceived is the same for each monad.

In actual fact, it would have been difficult for Leibniz to explain the expression by one monad of another via the fact that the bodies of these monads correspond because he believed that it is only because of the fact that the monads’ perceptions do correspond, that bodies are real enough for us to be able to claim that these bodies are expressible.

So only God, also, constitutes the link or communication between the substances, and it is through him that the phenomena of the one meet with and agree with those of the others and that consequently there is reality in our perceptions.

(Discourse on Metaphysics, §32, 1686: L.I.499-500)

Leibniz’s views on this subject did not change as he aged. In 1704, he wrote to de Volder of how,

Matter and motion, however, are not so much substances or things as they are the phenomena of percipient beings, whose
reality is located in the harmony of the percipient with himself (at different times) and with other percipient beings. (Letter to de Volder, 30 June 1704: L.II.876) (6)

If the perceptions of the monads did not correspond, there would not be a material, spatio-temporal world at all, for in such a case there would be 'as many systems as substances' (Letter to Arnauld, 9 Oct. 1687: Mason p.148).

All the same, the relations between bodies are important in respect of the expression by one monad of another. The harmony or correspondence between monads' perceptions is enhanced by the fact that the phenomena perceived by one monad exert physical and causal influences on the phenomena perceived by another monad. For instance, the body perceived by any one monad as its own exerts physical influence over, and is influenced by, the bodies which belong to other monads. It follows from this, that each monad, in representing its own body, also represents the bodies of other monads because of the fact that it represents the changes in its own body brought about by its being affected by the other monads' bodies. It also follows that the perception by the monads of their own bodies cannot fail to correspond to the perceptions which another monad has of those monads' bodies. (That is to say, even though the expression between monads is a correspondence of their perceptions, the relation could be explained as a 'twice-removed' relation in the sense explained above.) In this way, there is a correspondence between the perceptions one monad has, and the perceptions another monad has, and because of this correspondence, each monad represents the other. That
something like this situation was forming as an idea in Leibniz’s mind is clear from the fact that he tells Arnauld that,

a movement as a phenomenon is in my mind. the immediate consequence or effect of another phenomenon, and likewise in the minds of others.

(Letter to Arnauld, 30 Apr. 1687: Mason p. 115)

But more than this, a consideration of the passage quoted above from the Discourse ($14, 1686: L.I.179) is sufficient to remind us that the people referred to there could not meet together did their bodies not move, and did they not have perceptions of their own bodies being in certain places at certain times.

We interpreted the soul’s expression of its own body as a correspondence between the soul’s perceptions and the movements of its body as a whole and the movements of the bodies belonging to the subordinate monads which compose the aggregate body. There must also, however, be another correspondence between the dominant monad’s perceptions and the subordinate monads’ perceptions, and this correspondence is presumably of the same kind as the correspondence between the dominant monad’s perceptions and the perceptions had by monads which are not subordinate to that dominant monad, or, in other words, with the perceptions had by monads which are not elements in the dominant monad’s body. This, it must be stressed, is a relationship between monads, and not a relationship between one monad and its phenomenal body, even though the monads involved
in the relationship are those which compose the aggregate body, and which are, when sense perceived, perceived as the soul's material, extended body. In other words, the distinction has to be made between the aggregate body and the individual subordinate monads. Only when these individual subordinate monads are perceived simultaneously, and as an aggregate, is the dominant monad said to perceive its body.

Because monads are active and passive primitive forces, it should be possible to explain the correspondence between monads perceptions in terms of forces. In $15$ of the Discourse on Metaphysics, Leibniz writes that:

The action of one finite substance upon another consists only in the increase in the degrees of the expression of the first combined with a decrease in that of the second, in so far as God has in advance fashioned them so that they shall act in accord. (1686: Wiener, p.311)

We know from our discussions in chapters 5 and 10 that primitive passive force in a monad causes confused expression and primitive active force, distinct expression. It follows from this that if there is an increase in the distinctness of one monad's expression of another, then there is an increase in the primitive active force of that monad, and also that the corresponding decrease in the distinctness of the other monad's expression is the result of an increase in that monad's primitive passive force (7). The Discourse passage suggests that this relationship between the primitive active force of one monad and the primitive passive force of another only occurs when one substance acts or is acted upon by another.
This is also suggested in the following quotation from the correspondence with Arnauld:

and when one says that one substance acts upon the other, the distinct expression of the passive one decreases, and increases in the active one in conformity with the succession of thoughts embraced by its concept.
(Remarks upon M. Arnauld’s Letter, 1686: Mason p.52)

It is probable that the primitive active force of any one monad is continually increasing and decreasing, never remaining the same for even a moment (even though the total amount of primitive active force belonging to the monad during its whole life will not change). Leibniz tells Arnauld that the monad, perceives (s’appercoit) other things, because it expresses them naturally, having been originally created in such a way that it can subsequently do so and adapt itself to it as necessary, and it is in this obligation imposed from the beginning that there consists what is called the action of one substance upon another.
(Letter to Arnauld, 9 Oct.1687: Mason p.161)

Since everything in the phenomenal world is in a continual state of change, this adaptation must always be taking place, and so no monad will keep the same amount of force from one moment to the next. It can, therefore, be said that there never will be a case of two monads expressing each other in which one cannot be said to act upon the other. The same conclusion can be drawn for different reasons. Primitive active force (the substantial form) is the reason for the distinctness or individuality of the monads (8). This means that no two monads can have the same amount of primitive active force. Also, there is a plenum of forms (active forces), as well as a plenum of
matter (9). This means that for every possible amount of primitive active force, there will be a monad which is, or has, that amount of force. It follows from this, that if any monad increases its own primitive active force, then for the diversity of forces to be maintained, some other monad's primitive active force must also be either increased or decreased. This will continue ad infinitum. Only, however, when an increase in activity is matched by an increase in passivity in another monad will the one be said to act on the other. But, for any one monad, it will always be the case that it is acting on, and being acted on by, some others. There will never be a case of a monad neither acting on nor being acted upon by another monad, because if this were the case, then two monads would either have the same amount of primitive active and passive force, which Leibniz does not allow, or their primitive active and passive forces would remain unchanged, which Leibniz cannot allow either.

This concludes our attempt to explain the correspondence between the perceptions which the monads have in terms of a correspondence or harmony between the monads' primitive active and passive forces.

We might expect a subset of the expression by one monad of another to be the expression of one monad by itself. However, there is one important difference: in each of Leibniz's definitions of expression, there are both an expressing thing and an expressed thing and some kind of relation between the two. In the case of the monad which
expresses itself, the expressing thing and the expressed thing are one and the same entity. This does not necessarily exclude a monadic self-expression from falling under Leibniz’s general definitions of expression (since these definitions do not specify that the expressor and the expressed must be distinct), but it may nevertheless be worthwhile to consider whether it is possible to regard self-expression as consisting in an expressive relation occurring between two things.

One possibility is that when a monad perceives, its perceptions correspond to (or are related to) the individual terms of the series of perceptions as they are (or were) when the series was a mere uncreated notion in the mind of God. This would provide us with two distinct things (i.e. the created monad and its notion or concept), while at the same time allowing us to retain the idea that the monad expresses itself, through the fact that the elements of the actual monad (i.e. its perceptions) are related to elements in its own nature, notion or concept.

Leibniz may even have thought it possible for each individual perception to be related, not merely to one element in the series when it is a notion, but for each individual perception to be related at any one time to every element in the notion. We say that this is possible because Leibniz believed that,

every substance contains in its present state all its states past and future.
(Letter to Arnauld, 9 Oct. 1687: Mason p.181)
The reason why this is the case is similar to the reason why any body expresses all other bodies, namely, because, each preceding perception influences those which follow in conformity with a law of order which is found in perceptions as well as in movements. (Clarification of the Difficulties which Mr. Bayle has found in the New System of the Union of Soul and Body, July 1698: L.II.805)

Hence, if each perception is related to all the other perceptions had by the same monad, it can be said that any one perception expresses each element of the notion of the monad which was in God's mind. There is, however, a noticeable lack of textual evidence in support of any thesis which asserts that such was Leibniz's actual view. So, let us now turn to Leibniz's own texts in an attempt to find an alternative explanation.

In a passage already quoted in a different context (10), Leibniz speaks of a harmony 'of the percipient with himself (at different times)'. Our suggested explanation of a monad's self-expression entailed expression by the monad, not strictly speaking of itself, but of the notion of itself which is in God's mind. Unlike Leibniz's own text, our explanation makes no reference to the idea of the monad at one time being related to, or expressing itself, at another time, except insofar as we used this idea to argue that the monad could, at every instant, express its complete notion. In the passage from the correspondence with de Volder, however, it is suggested that this relatedness of present perceptions to future perceptions
is itself the very reason why the monad expresses itself, because the 'harmony of the percipient with himself' arises from the fact that all his perceptions are related in such a way that they form a series of perceptions which is expressible in the form of a law. That this is at least a close approximation to Leibniz's beliefs, we can see from the fact that, in the Discourse, Leibniz says that,

at every moment the mind expresses all its future thought and already thinks confusedly of everything of which it will ever think distinctly.
(Discourse on Metaphysics, §26, 1686: L.I.492-3),

for if it expresses its future thoughts, it must at the same time be expressing itself which is to have these thoughts. In explaining the matter in this way, Leibniz, though he makes no distinction between the expressor and what is expressed, does make distinctions between the elements in the expressing thing whose relations provide the basis for the expression. That is to say, one perception is not said to be related to itself (even though the identity relation does hold of it), but rather one perception is related to another different perception, albeit that both perceptions are had by the same monad.

Let us, therefore, assume that when the monad expresses itself, its present perceptions are related to both its past and future perceptions. (This differs from the above quotation in that here we are speaking of the expression by the monad of itself, whereas in the Discourse passage, Leibniz is speaking of the monad's expression of its own thoughts.) The present
perceptions are related by a law of order to the past and future perceptions. We can see, from the Discourse passage, that a confused perception or thought in the present will be related to what will be a distinct expression (by the same monad) in the future. Hence, this explanation has the beauty of being similar to Leibniz's explanation of the expression by one monad of another in that once again distinct expressions are related to confused expressions. We can, presumably, also claim that in this case too, an increase in the degree of distinctness of the one thought will be accompanied by a decrease in the distinctness of another thought. As the future gradually becomes the present, and the present recedes into the past, those perceptions of future thoughts which were confused will be becoming more distinct (until eventually they are so distinct that they are present) and correspondingly, those perceptions which were present (and therefore also distinct) will be becoming less distinct, i.e. more confused, as they gradually become, not present, but past.

Perhaps Leibniz could use this explanation as a means of distinguishing the past, present and future of any one monad - but it would take us too far afield to discuss how the details of the theory could work.

We have said that every monad perceives the same things as every other monad perceives, and that the perceptions are distinguished only by how these things are perceived. The same should be true of the perceptions which belong to the same monad. One monad's present perceptions will express all the
monads in the world, and its future perceptions will do so too.

It is worth noting that this explanation of the expression by one monad of itself uses the notion that, at any one instant, the monad has not one perception, but an infinity of perceptions, some of which are more distinct than others (11).

With regard to the self-expression by minds or spirits, Leibniz's concept of 'l'apperception' comes to the fore. Leibnizian commentators usually translate the noun by the specially-coined English word, 'apperception'. Remnant and Bennett however translate it as 'awareness'. The corresponding verb, 's'appercevoir' is often merely translated as 'to perceive', or 'to be perceived', but Remnant and Bennett translate it as 'to be aware'. Mason uses the English verb 'to apperceive'. Mason's practice is perhaps the least confusing for English readers of Leibniz, but the others are not unjustified in translating Leibniz's texts as they do, for French dictionaries give the English of 'apercevoir' as 'to perceive' or 'to see', and the English form of 's'apercevoir de' as again 'to perceive' but also as 'to be conscious of' and 'to be aware of' (12). These difficulties with regard to translation make it necessary for us to use Leibniz's original texts in addition to their English equivalents.

In the Principles of Nature and of Grace, Leibniz wrote that,

So it is well to make a distinction between perception, which
is the inner state of the monad representing external things, and \textit{apperception}, which is consciousness or the reflective knowledge of this inner state itself and which is not given to all souls or to any soul all the time. 
(Principles of Nature and of Grace, §4, 1714: L.II.1036) (13)

Ainsi it est bon de faire distinction entre la Perception qui est l'état interieur de la Monade representant les choses externes, et l'Apperception qui est la Conscience, ou la connaissance reflexive de cet etat interieur, laquelle n'est point donnee a toutes les Ames, ny tousjours a la meme Ame. 
(G.VI.600)

Apperception, then, for Leibniz, is consciousness of, or reflective knowledge of, the inner states of the monad, i.e. of the self. It can, therefore, be said to be 'self-consciousness'.

Again, Leibnizian commentators are not in agreement. Most of them do say that apperception is self-consciousness, as, for instance, do Carr (14), Rescher (15), and Russell (16). Loemker calls it 'inward perception' (17). Others disagree. Latta says that it is 'conscious perception' (18) and even that it is 'the perception of eternal and necessary truths' (19), which certainly contrasts with our interpretation of it as a conscious perception of the self by the self (20). Rescher, for all that he calls apperception 'self-consciousness' also argues for the presence in the monad of 'unconscious apperceptions', meaning by these, perceptions of the self of which the self is not aware or conscious (21). Rescher bases his arguement on an assumption that all apperceptions must themselves be apperceived. Later in this chapter, we will argue against this view.
It could be argued that the self must be aware of itself during all its experiences if it is to be able to remember its experiences at a future date. It has even been argued that the self must be aware of itself during its experiences if these are to be experienced at all. For example, Kant's 'I think' ensures the unification of a rational being's experiences so that they can be regarded as expressions which belong to the same being, and it also ensures the unification of the manifold aspects of any one experience so that it becomes an experience which belongs to, and can be known to belong to, one being.

The thought that the representations given in intuition one and all belong to me, is therefore equivalent to the thought that I unite them in one self-consciousness, or can at least so unite them; and although this thought is not itself the consciousness of the synthesis of the representations, it presupposes the possibility of that synthesis. In other words, only in so far as I can grasp the manifold of the representations in one consciousness, do I call them one and all mine. . . Synthetic unity of the manifold of intuitions, as generated a priori, is thus the ground of the identity of apperception itself, which precedes a priori all my determinate thought . . . understanding . . . is . . . the faculty of combining a priori, and of bringing the manifold of given representations under the unity of apperception. The principle of apperception is the highest principle in the whole sphere of human knowledge. (Critique of Pure Reason, B.134-5: Kemp Smith p.154)

Leibniz may need unconscious apperceptions if he requires something like Kant's 'I think'. It is true that Leibniz does need a Kantian 'I think', but we believe that this role is fulfilled, not by apperception, but by the monad's complete concept, and by the law of the series of its perceptions. A monad's perceptions (or representations) belong to it, and to it alone, because they are individual terms in the series, and the perceptions are related to each other because they do so
form a series which can be expressed in the form of a law. Leibniz does not, therefore, have to introduce unconscious apperceptions.

As regards memory, we see no reason why the same should not apply in this case. A remembered perception will be remembered by the monad which experienced it simply because it forms part of that monad’s series of perceptions. Of course, not all experiences are remembered later, and so there must be something lacking in those which are not remembered. This, however, can be accounted for by the distinctness of the perception or experience when it happened. Something which made a great impression on the mind when it occurred will almost inevitably be remembered later. There seems to be no necessity to claim also that remembered perceptions were, at the time, unconsciously apperceived.

But let us return for a closer look at Leibniz’s own assertions. From his texts, we can be sure that apperception is, for Leibniz, perception when it is directed towards the self, i.e. when it is directed towards the perceiving being, and when the perceiver and the perceived are one and the same thing (22). But this perception of its own perceptions is more than the relation between the monad’s perceptions which we outlined above (23). Not all monads apperceive. This is clear from the passage already quoted from the Principles of Nature and of Grace (24), in which it is also made clear that even those monads which can apperceive do not do so all the time.
Hence, there must be something more to apperception than a mere relatedness of perceptions to each other which make it possible to say that the perceiving monad perceives or expresses its past and future perceptions. The difference must lie in the fact that the perceiving monad, when it apperceives, is conscious of the fact that it is perceiving its own perceptions. Apperception is not merely the perception by the monad of its own inner states. Rather, it must be the conscious perception of these inner states. It is the conscious perception of perception.

Clearly, then, we cannot accept Rescher's claim that there are unconscious apperceptions. Rescher's argument rests on a passage in which Leibniz states why it is impossible for the mind to apperceive all the time:

"it is impossible that we should always reflect explicitly on all our thoughts; for if we did, the mind would reflect on each reflection, ad infinitum, without ever being able to move on to a new thought."

(New Essays, Bk.2, Chap.1: R&B 118) (25)

But it should be obvious that this statement gives us no evidence whatsoever for postulating the existence of unconscious apperceptions. What Leibniz in fact seems to be saying is that there cannot be an apperception of every perception. He makes no mention here, nor in what follows, of the notion that every perception is apperceived, nor that some of these perceptions must be apperceived unconsciously.

This is not to deny that all perceptions can be, and
perhaps, are, perceived. Indeed Leibniz himself says that this is so.

perception of perception goes on perpetually in the mind to infinity.
(Paris Notes, April 1676: L.I.251)

What we are denying is that a mere perception of a perception is an apperception, for we maintain that all apperception is conscious, indeed that it is self-conscious. With regard to the Paris Notes quotation, we can say that even if perception of perception does proceed to infinity, conscious perception of perception (apperception) does not. Of course, this unconscious perception of perception to infinity could not be proven empirically.

Also of interest here is the idea that the apperception of a perception cannot be an apperception of itself. What we mean is this: in expression, there is both an expressing thing and an expressed thing. We are allowing that one perception may express another different perception, albeit one which still belongs to the sequence of perceptions in the same monad. What cannot be admitted is that one perception may express the same perception, or, more accurately, that when a monad perceives, it cannot perceive itself perceiving unless this second perception is different from the first, i.e. unless two perceptions are involved. Leibniz himself makes this very same point when he says that,

This thought of myself, who perceive sensible objects, and of my own action which results from it, adds something to the objects of sense. To think of some color and to consider that
I think of it - these two thoughts are very different, just as much as color itself differs from the ego who thinks of it. (On What is Independent of Sense and of Matter, 1702: L.II.891) (26)

Cette pensee de moy, qui m'appercois des objets sensibles, et de ma propre action qui en resulte, adjoute quelque chose aux objets des sens. Penser a quelque couleur et considerer qu'on y pense, ce sont deux pensees tres differentes, autant que la couleur meme differe de moy qui y pense. (G.VI.502)

Similarly, to think of the consideration that I think of the colour is again another perception (or apperception). This should make it clear that the apperception and the perception itself must be distinct, even when the perception is indeed an apperception. One perception cannot be an apperception of itself. The consequence of this is that a monad can never have complete self-knowledge if self-knowledge is defined as a distinct perception of all its inner states, i.e. a distinct perception of all the individual terms in the series of perceptions which the monad is. The reason for this is that this apperception of all its own perceptions is another perception, and as such belongs to the series, and so, for complete apperception of the series, another apperception, this time of the first apperception, would be required, and so on, ad infinitum. In order to allow for the possibility that every perception is apperceived, Rescher claims that Leibniz admitted unconscious apperceptions. But we have seen that apperception is always conscious for Leibniz, and have given textual evidence for this. We therefore deny that, for Leibniz, every perception and every apperception is itself apperceived.
To summarize, we allow that every perception might be perceived by one and the same monad which is doing the perceiving, since we allow the monad to have unconscious perceptions of its own perceptions (and apperceptions). We do not, however, think that Leibniz believed the monad to have unconscious apperceptions of these perceptions, for he seems to have regarded consciousness as a necessary feature of apperception.

If this is so, however, apperception is not a complete account of one monad's expression of itself. It can, at most, be an account of one monad's conscious expression of itself. Such conscious expression can never be complete, for reasons given above. It follows from this, that to obtain an account of the complete expression by one monad of itself, we have to return to the account given earlier (27).

It might be helpful here to note that there is in fact no difficulty for Leibniz in the idea that every monad perceives (either consciously, i.e. by apperception, or unconsciously) its own perceptions, and that it also perceives its own perceptions of these perceptions, for although this entails that there is indeed an infinite number of perceptions in any one monad, this is not a conclusion which Leibniz would reject since it accords nicely with his belief that the concept of an individual substance would require an infinite analysis.

Not only can one apperception never be an apperception of itself, but also, an apperception and the perception which is
apperceived cannot occur simultaneously. Leibniz himself hinted this when he described apperception as the reflective knowledge of the monad's inner state, for reflection is usually reflection on something which is past. It may be instructive to consider more fully why the apperception and the perception cannot occur at the same time.

From our own experience it would seem to be the case that we cannot direct our full attention onto something if part of us is aware of the fact that we are directing our attention to something. For example, if someone is reading a book or watching a film, and it suddenly occurs to him that he is reading a book or watching a film, he misses that part of the book or film which was read or watched while the thought that he was reading or watching occurred to him. In other words, he was not actually consciously reading the book or watching the film while he perceived or thought that he was reading or watching. While the thought or apperception was occurring, his eyes perhaps continued to regard the film or to read the words on the page, but afterwards, if he was asked to recall the events of the film, or the meaning of the words in the book, we believe that he would be unable to say what had happened while he had been thinking that he was reading or watching. If this is an accurate account of our own experiences of such matters, it follows that apperception is always a perception of past inner states, and never of present ones (though the past inner state may have occurred only a second before it was apperceived).
It might be objected that since the person can still be said to be watching the film or reading the book whilst he is having the apperception, it can still be said that the perception of the film and the perception of perceiving the film can occur simultaneously. But a closer analysis of our experiences should reveal that this is not the case. Even if we do allow that the reading of the book or the watching of the film continues while these perceptions are being apperceived, it is still a fact that our full attention, when the apperception occurs, is no longer directed towards the book or the film, even though some attention may still be being given to them. Some attention must be being given to the apperception itself, or, more accurately, the apperception has directed some of the monad's perception from the film itself onto the perceiver of the film, i.e. the monad itself. Yet the apperception is a perception of an inner state in which full attention was being given to the film or the book. It must, therefore, be a perception of a state which occurred prior to the apperception. It again follows from this that a perception and the apperception of that perception cannot occur simultaneously (28).

In saying this, we again conflict with Rescher's interpretation of apperception. Rescher writes:

in apperception, a (highest-grade) monad reflects the contemporary state of itself; with memory the higher-grade monads (souls and spirits) reflect states of their own past. (The Philosophy of Leibniz, p.135)
If we are correct, apperception will always be a case of memory.

For to perceive perception, or to sense that I have sensed, is to remember. (Paris Notes, April 1676: L.I.251) (29)

In the passage which we quoted from the Principles of Nature and of Grace (30), Leibniz defines apperception, not only as the consciousness of our own inner state, but also as the reflective knowledge of this inner state. In what we have already said, we have concentrated on apperception as the monad's consciousness of its own inner states, i.e. of its own perceptions. In considering apperception as the reflective knowledge of these perceptions, the idea that the apperception is a perception of the monad's own past perceptions is brought into sharper focus, for the idea of reflection brings with it the idea of reflection on something which has already happened, i.e. we reflect on something which has happened in the past.

Now, just as we can be conscious of something which is not ourselves, so too, we can reflect on something which has not happened to us. Reflection may always be a perception of past states, but we can reflect on either our own past states, or on the past states of other people, or on past states of the world. But only when the reflection is a reflection on our own past inner states is it to be called apperception. Similarly, only when consciousness is consciousness of our own states, or perceptions, is it to be called apperception.

There is reason to believe, however, that, for Leibniz,
reflection always signifies a reflection on oneself, i.e. that reflection is always self-reflection. In the *Monadology*, he writes that,

It is also by the knowledge of necessary truths and by their abstractions that we rise to reflective acts, which enable us to think of what is called I and to consider this or that to be in us; it is thus, as we think of ourselves, that we think of being, of substance, whether simple or compound, of the immaterial, and of God himself, conceiving of that which is limited in us as being without limits in him. These reflective acts provide us with the principal objects of our reasonings. ($30, 1714: L.II.1049) (31)

In this passage, reflective acts are those acts in which we think about ourselves. A similar connection is made between acts of reflection and thoughts about ourselves in the *Principles of Nature and of Grace*, where it is again suggested that reflection is always reflection upon the self:

These souls are capable of performing acts of reflection and of considering what is called "I", "substance", "soul", "spirit" - in a word, things and truths which are immaterial. ($5, 1714: L.II.1037)

Moreover, most of the concepts mentioned in these last two quotations are said by Leibniz to be within us:

Yet the seeds of the things we learn are within us - the ideas and the eternal truths which arise from them. Since we discover being, the one, substance, action, and the like within ourselves, and since we are conscious of ourselves, we need not wonder that their ideas are within us. (Letter to Hansch, 25 July 1707: L.II.963-4)

Coupled with the fact that Leibniz has also said that these concepts arise out of acts of reflection, it is reasonable to hold that Leibniz's reflections are always reflections upon the self. Compare what he says in the Preface to the *New Essays*: 
But reflection is nothing but attention to what is within us. (R&B 51)

But, even though all reflection is self-reflection, we are still not entitled to claim that all reflection is apperception. Apperception is the reflective knowledge of inner states, and these inner states are the monad’s perceptions. But it is not necessarily the case that reflection upon the self or these considerations of what is called ‘I’ are reflections upon past perceptions. In apperception, the monad is conscious of, or has reflective knowledge of, its own perceptions. But it would also appear to be the case that there is another kind of reflection - one which is capable of going further than merely having knowledge of past perceptions, to considering the qualities which this self-perceiving being must have, e.g. that it is one, simple, that it is active and has a force or power, and that there must be a law or series which connects all of its perceptions together. This kind of reflection is not a reflection on past perceptions. Rather, it is a more abstract, general reflection which has as its object, not particular perceptions, but the monad itself as a whole. It is a reflection which is a knowledge of the qualities which belong to the monad, a knowledge of properties rather than of modifications (32). Reflection which is knowledge of past perceptions could only provide knowledge of the individual terms which make up the series of perceptions which constitute the monad. Indeed, it can only be a knowledge of this series up to the point in time when the reflection took place. This
reflective knowledge is apperception. But the other kind of reflection - that which is a reflection on what it means to be a 'self' can be a knowledge of the whole self, but only in general terms. Just as it is impossible to have conscious perception of all our perceptions (33), so too, it is impossible to have reflective knowledge of all our perceptions. Neither kind of reflection can provide us with a knowledge of all the individual perceptions in the series. However, the reflection which is here being contrasted with apperceptive reflection, can give us knowledge of the fact that there is a law of the series, even though it cannot tell us what the law is, nor what all its terms are.

For the monad to have complete self-knowledge, it would be required to have both knowledge or consciousness of all its perceptions, past present, and future, in addition to the reflective knowledge of its properties, e.g. that it is a unit, etc. Through apperception and reflection the monad can approximate towards this knowledge, but only God will be able to have knowledge of the complete monad. It also follows from what has been argued that apperception is insufficient as an explanation of the mind's expression of itself.

This is not to say that the mind cannot express itself, but only that it cannot express itself consciously, except in the general and abstract sense of reflection. It will still be able to express itself unconsciously because of the fact that all its perceptions are related to each other. All that is
required for the mind to be said to express itself is that there be singulars, relations, or 'what can be said' which are related to corresponding singulars, etc. in the same monad. These singulars must be the monad's perceptions. These cannot fail to be related to one another provided that it is true that there is a law of the series which determines both the nature of the perceptions and their order or relations to one another, as we have already explained (34).

With respect to apperception, we can say that it is a more conscious appreciation of these perceptions themselves. Every monad, when it perceives, will express itself through that perception's relations to its other perceptions. It does not matter here whether that perception is a perception of something external to the monad or internal. Apperceptions, on the other hand, are particular kinds of perception, namely, where there is a conscious perception of a previous perception belonging to the same monad. It almost seems as if Leibniz is saying that, in this case, we are aware of our perception's relation to other perceptions. Apperception differs from other kinds of perception both in the degree of its distinctness, and in the object to which it is directed (i.e. to the monad's own perceptions). But in its function as an expression of the monad itself, it is no different from any other perception capable of being possessed by any monad. That is to say, both apperceptions and perceptions are expressive of the monad itself in the same way, namely, through the fact that these perceptions and apperceptions are related, through the law of
the series, to the rest of the monad's perceptions.

There is one final remark which Leibniz made concerning the mind's expression of itself. In *What is an Idea?*, he briefly states that 'the deeds of each one represent his mind' (1678: L.I.319). Since deeds are actions, we can take this to mean that they are appetitions, and hence that 'the appetitions of each one represent his mind.' This is only to be expected. There is a series of appetitions, just as there is a series of perceptions (35). We can assume that these 'deeds' represent the mind in the same way as do the mind's perceptions, i.e. through the fact that each appetite is related, again through the law of the series, to all other appetites belonging to the same monad.
CHAPTER FIFTEEN

FINAL AND EFFICIENT CAUSES

In chapters 12 through 14 we discussed the soul's relation to its own body, to other bodies, to other monads, to itself, and bodies' relations to other bodies. Now we want to discuss the harmony Leibniz believed there to be between what he called the 'realm of efficient causes' and the 'realm of final causes'.

These realms can be regarded as systems of explanations. Efficient causes and final causes are both reasons or explanations of the world, or, at least, of certain aspects of the world. Although they are explanations, as we shall see, of an entirely different kind from each other, nevertheless, as systems of explanations, both require, or are founded upon, the principle of sufficient reason, according to which,

*nothing happens for which a reason cannot be given why it should happen as it does rather than otherwise.*

(The Nature of Truth, c.1686: Park. p.94)

The need to give a reason for everything which happens only arises if it is first assumed that there is a reason to be given. The principle of sufficient reason states that such a reason can be found. Final and efficient causes are then given as these reasons.

Let us now look more closely at these final and efficient causes. We begin with efficient causation. Efficient causes are those which are used in mechanical explanations of nature.
They employ the notions of magnitude, shape and motion to explain the qualities of bodies (1). All aspects of phenomenal bodies can be explained using these notions.

all phenomena are indeed to be explained by mechanical efficient causes.
(Specimen Dynamicum, Pt I., 1695: L.II.722)

To des Billeter a year later, Leibniz wrote that he believed,

that everything really happens mechanically in nature, and can be explained by efficient causes, but that at the same time everything also takes place morally, so to speak, and can be explained by final causes. These two kingdoms, the moral one of minds and souls and the mechanical one of bodies, penetrate each other and are in perfect accord through the agency of the Author of things, who is at the same time the first efficient cause and the last end.
(4/14 Dec. 1696: L.II.771)

We already know that bodies’ actions are explained mechanically through the laws of motion. In the Monadology, Leibniz writes as if efficient causes arise out of the laws of motion, or rather that they arise out of particular instances of bodies moving in accordance with these laws:

There is an infinity of shapes and motions, present and past, which enter into the efficient cause of my present writing.
($36, 1714: L.II.1050$)

It follows from this that the laws of motion are not themselves efficient causes. Particular movements, or collections of movements are efficient causes. The efficient causes of Leibniz’s writing are particular motions which have occurred and are occurring in his body, e.g. the movements of his blood, his respiration, the movements of his muscles, and the like.
Similarly, the efficient cause of the collision of two bodies
are the collection of movements which must have occurred, and which are occurring, in order for these two bodies to be in such close proximity to each other. Every past motion of each body will be a part of the efficient cause of their collision.

The laws of motion are not the only laws of nature conceived by Leibniz, though it is likely that he did think of them in this way since he believed that all phenomena could be explained by the laws of motion alone (2). In *A Specimen of Discoveries* (c.1686: Park. pp.85-6), he gives a lengthy list of what he calls the 'laws of corporeal nature'. Some of these are not evidently laws of motion - for instance, that every body has magnitude and shape, that one body cannot be in many different places at the same time, or that two or more bodies cannot occupy the same place at the same time. Nevertheless, it is possible to consider such laws as prerequisites for the motion of bodies as we know it. As such it is possible, though perhaps not desirable, to speak of these laws as laws of motion. Presumably, all the laws of corporeal nature are to be used in our efficient explanations of nature.

Mechanistic explanations employ the notion of cause. We know from our discussions in chapter 13 that bodies can be regarded as having effects upon each other. Causation holds between bodies. More than this, a particular effect can be predicted before the cause occurs if we reason inductively from past similar causes causing certain similar effects.

Mechanism, then, is closely related to determinism. One
body, as a cause, causes an effect in another body, and this effect is again a cause of a different effect in yet another body, and so on. There is no room here for the idea that one body may for a moment ignore the effect of another body upon it, nor for the idea that any body could act contrary to what the laws of motion prescribe. For example, if the laws of motion prescribe that a billiard ball which hits another at an angle of, say, 45 degrees, will cause the second ball to move in a certain direction away from the first ball, then, whenever a billiard ball hits another at that same angle (and with the same strength or force) then the second ball will move away along the same path as before. This will happen with unfailing regularity. Nothing in the second ball can prevent that ball from being affected in a particular way when another ball hits it in a particular way. This holds for all bodies in general. If it did not hold, we would be unable to predict the future movement of bodies from observed past movements.

The move from this mechanistic fact to determinism is achieved by the fact that, for Leibniz, bodies are physically necessitated to act in the way in which they do. They cannot physically act contrary to the laws of nature, and these laws of nature obtain in the world with absolute universality. (If the rules which we have formulated are not universally true, then we assume that we have not found the correct rules.) Since the body is necessitated to act in a certain way, it is determined to act in that way.
I understand a 'determination' to be produced when a thing comes into that state in which what it is about to do follows with physical necessity. 
(Necessary and Contingent Truths, c.1686: Park. p.102)

Leibniz distinguishes between physical and metaphysical necessity. Bodies are physically necessitated in their actions, but not metaphysically necessitated. They are not metaphysically necessitated because their actions are contingent and 'contingence is opposed to metaphysical necessity' (ibid.: Park. p.101). It is not inconceivable that bodies act contrary to the way in which they do.

According to Leibniz, the actions of bodies are contingent because propositions about them are 'such as are true at a certain time' (ibid.: Park. p.98) and because such propositions express, not only what pertains to the possibility of things, but also what actually exists, or would exist contingently if certain things were granted - for example, that I am now alive, or that the sun is shining. (ibid.: Park. p.98)

However, bodies are physically necessitated because they never in fact do act contrary to the laws of nature. The motions of bodies are physically necessary because they always, and without fail, conform to certain laws of motion. They would act differently if God suspended the laws of motion, but in actual fact, He does not do so (3).

Indeed, I think that in this series of things there are certain propositions which are true with absolute universality, and which cannot be violated even by a miracle. This is not to say that they could not be violated by God, but rather that, when he chose this series of things, by that very act He decreed
that he would observe them, as the specific properties of just this chosen series.
(ibid.: Park. p.99)

From these propositions (we suggest that they are propositions asserting, for instance, that the world will be ordered in the simplest possible way), Leibniz believed it to be possible to derive what he calls 'subordinate laws of nature'. It is these subordinate laws, which have only physical necessity and which are not repealed except by a miracle.
(ibid.: Park. p.99)

Such subordinate laws of nature must be, for example, the laws of motion. Leibniz can claim that these laws hold universally because this is simpler than if they were sometimes contradicted. They are physically necessary, and the bodies which act in accordance with them have physical necessity too:

Again, it is a matter of physical necessity that something heavy tends downwards, and that the angles of incidence and reflection are equal, and other things of this sort.
(ibid.: Park. p.101)

If God suspended the law of gravity, then a body would not tend downwards (ibid.: Park. p.100). But God does not suspend the law of gravity, and so the body tends towards the earth with physical necessity. It follows that, since the body's motion 'follows with physical necessity', its actions are determined.

Laws of nature do not have metaphysical necessity because it is always possible that they do not obtain. It is always
possible that God had never created the world at all, so that there would be no laws of nature at all. Leibniz states this fact by saying that,

For since the fact that the series itself exists is contingent and depends on the free decrees of God, its laws also will be contingent in the absolute sense; but they will be hypothetically necessary and will only be essential given the series. (ibid.: Park. p.100) (4)

According to Leibniz, efficient causes cannot be used to explain why the laws of nature which hold true in this world are such as they are rather than otherwise (5). We have not yet determined why this is so. Perhaps the reason lies in this fact that the laws of motion are physically, but not metaphysically, necessary.

Normally, Leibniz’s reasons as to why the laws of motion cannot be explained by efficient causation rest on the view that because other laws of motion are possible, though not actual, any reason explaining why only these laws are actual rather than others must be given on the basis of a choice which is made between all possible laws of motion. Such choices are made, as we shall see, on the basis of final causes. The converse of this view is that efficient causes, rather than being founded on a choice between possibles, are effective as reasons only when there is no possible choice, i.e. where the action being explained is necessary. Perhaps Leibniz believed this to be the case. Certainly, it suffices to explain why efficient causes are capable of explaining the motions of bodies - they can do so because such motions are necessary,
albeit only physically necessary.

Is it possible to claim that the laws of motion cannot be explained by efficient causes because they, unlike the motions of bodies, are not necessary? God has chosen these particular laws of motion. Hence, since there are alternative laws of motion possible, the laws of motion which hold in this world are not necessary. If it is said that efficient causes can only be used to explain that which is necessary (6), then it could be said that efficient causes are incapable of explaining contingent laws of motion, and that these must therefore be explained by final causes.

This, however, is not satisfactory, for we have confused metaphysical and physical necessity. We have argued that efficient causes can explain the motions of bodies because such motion is physically necessary, but we have then claimed that these same causes cannot explain the laws of motion because these laws are not metaphysically necessary. But the fact of the matter is that, under this hypothesis, efficient causes should be able to explain the laws of motion because these laws, like the motions of bodies, are physically necessary.

We must, therefore, find a different explanation of why efficient causes cannot be used to explain the laws of motion. Such an explanation is available. At the beginning of this chapter, we determined that efficient causes are not themselves laws of motion, but are rather particular instances of these
laws, i.e. the actual motions of certain bodies. These, or collections of these, are the efficient causes of the motions of other bodies. As instances of bodies acting in accordance with particular laws of motion, particular motions (or efficient causes) can only show that the laws of motion hold of this world. They will not also be able to show why these laws are such as they are rather than otherwise. From this it is clear that a law of motion cannot be explained by an efficient cause, because it cannot be explained by a particular movement of a body. If efficient causes are always motions of particular bodies, then it is obvious that only particular physical events or happenings can be explained by efficient causes.

Before going on to consider final causes, we need only note that the above explanation of why the laws of motion cannot be explained by efficient causation does not rule out the idea of God as the first efficient cause, or as the Prime Mover, for in this capacity, God is being considered, not as the creator and/or chooser of the laws of motion, but as a being who is Himself capable of some kind of motion. As the Prime Mover, God is being considered as in some way similar to the bodies whose motions are themselves efficient causes of the motions of other bodies (7).

Efficient causes explain events in terms of the motions of bodies. Final causes explain events in terms of the perceptions and appetitions of a monad, or of God. in the case of souls, everything is to be explained in vital
terms, that is, through the intelligible qualities of the soul, namely, perceptions and appetites.  
(Metaphysical Consequences of the Principle of Reason, c.1712: Park. p.173) (8)

Leibniz contrasts bodies, which are physically necessitated and which act according to the laws of motion, with the perceptions had by the monads, which are not physically necessitated, because no one law governs all monads. Each monad has a law peculiar to itself (9).

For Leibniz, bodies are not free because their movements follow from past movements and from the motions of other bodies with physical necessity. They act according to subordinate laws of nature which God has decreed should hold with absolute universality, so that these laws can only be repealed by a miraculous act. Conversely, monads, or at least those monads which are free,

are not bound by any certain subordinate laws of the universe, but act as it were by a private miracle, on the sole initiative of their own power, and by looking towards a final cause they interrupt the connexion and the course of the efficient causes that act on their will.  
(Necessary and Contingent Truths, c.1686: Park. p.100)

However, if minds can 'interrupt the connexion and the course of the efficient causes that act on their will', does this not mean that not all bodies act in accordance with universal laws of motion? It is the aim of the pre-established harmony to solve the apparent dilemma between the mechanism of bodies and the freedom of minds. Leibniz wants to claim both that minds are free and also that bodies are determined, yet he also wants to claim that every mind has its own body. But if this body is
physically determined by the motions of other bodies upon it, then the freedom of the mind is impaired; and vice versa, if the mind can direct the motions of its body, the body's physical necessitation towards movement in accordance with the laws of motion is impaired. We shall return to this problem in our penultimate chapter.

The actions of bodies can be predicted, but the actions of minds cannot:

the course of the mind's thoughts is changed by its free will; so that, in the case of minds, no subordinate universal laws can be established (as is possible in the case of bodies) which are sufficient for predicting the mind's choice.

(ibid.: Park. pp.100-101)

The closest Leibniz comes to finding a universal law which is followed by every mind is to state the law that,

it is most true that the mind never chooses what at present appears the worse.

(ibid.: Park. p.101)

But even if this fact is universally true, still it is not sufficient to make the mind's actions determined, for it does not imply that the mind always does what appears to it to be the best, because

it can delay and suspend its judgement until a later deliberation, and turn the mind aside to think of other things.

(ibid.: Park. p.101)

Hence,

it is not a matter of physical necessity that men should choose something in this life, however specious and apparent a
particular good may be; though there is sometimes a very strong presumption to that effect.
(ibid.: Park. p.101) (10)

Leibniz has not denied that the mind follows a law - we know that it does follow its own particular law of the series of its perceptions. What he has denied is that there are any laws common to more than one monad. Because there are no universal laws with regard to monads (i.e. no laws which hold for all monads) Leibniz denies that minds are physically necessitated in their actions in the way in which bodies are physically necessitated, and he concludes that minds are therefore free. There are no subordinate laws of nature which can be appealed to in order to predict what a mind will choose to do.

But, although Leibniz uses the above account as an argument for the freedom from physical necessity which belongs to minds, in fact the argument applies to all monads, i.e. to non-rational monads as well as rational ones. All monads are free from the determination which would arise if there were universal subordinate laws of nature applicable to their actions. All monads follow one and only one law, which law (of the series of perceptions) is unique to them alone.

All the same, from the nature of final causes, it would appear that these causes can only arise from a rational or higher being. In Tentamen Anagogicum, c.1696, Leibniz explains the differences between final and efficient causes by seeing each system of explanation as a kingdom. These two
kindoms, 'which interpenetrate without confusing or interfering with each other' (L.II.780) are,

the realm of power, according to which everything can be explained mechanically by efficient causes when we have sufficiently penetrated into its interior, and the realm of wisdom, according to which everything can be explained architectonically, so to speak, or by final causes when we understand its ways sufficiently.

(ibid.: L.II.780)

He goes on to give an example of these two kinds of explanation:

In this sense one can say with Lucretius not only that animals see because they have eyes but also that eyes have been given them in order to see.

(ibid.: L.II.780)

To say that animals see because they have eyes is to give a mechanical explanation of vision. To say that they have eyes in order to see is to give a final explanation - final in the sense that the end or purpose (the 'in order to') is given as the cause of the event.

It should be clear by now that final causes are not 'causes' in the same sense in which physical bodies are causes. Indeed, they are more properly called 'reasons' (11). Final causes are the kinds of things we would appeal to if we were called upon to explain or justify our actions. For instance, asked why we bought a particular painting, we may say that we thought it was beautiful, or that it would look good on the dining-room wall. Similarly, we could say that John killed his wife because he was jealous of her lover (the final cause) or that he killed her because he picked up a gun.
and pulled the trigger (the efficient cause).

The end or purpose of any action (the final cause) is the object of the will. Only rational or higher beings can will and only rational and higher beings know that they act according to final causes. Other (non-rational) monads can act according to final causes, but these final causes cannot be their own. When non-rational monads act, they act in accordance with the objects of God's will, not in accordance with the objects of their own wills, for they have no will (12). (It is still possible to say that non-rational monads act in accordance with their appetites.) If final causes are always the objects of wills, then non-rational monads will be able to act in accordance with final causes only if there exist rational beings whose wills have these final causes as their objects. We know that the object of the will is always 'the good' or, at least, 'the apparent good' (13). The object of God's will is the creation of the most perfect world, i.e. that world which contains the greatest variety consonant with the greatest simplicity or order (14). God can will that which is truly good because He is the most rational being. It is for this reason that Leibniz calls the realm of final causes, a 'realm of wisdom' (15), and because a being which is wise always strives towards that which is good, final causes are called 'the final causes of good and evil' (16). So too, because of the connection between the will (the rational appetite) and freedom (17), Leibniz is able to claim that 'every agent which acts according to final causes, is free'
(Leibniz's Fifth Letter to Clarke, §92, 18 Aug.1716: Alex. p.85). Knowing that not all monads are free (18), we should take this as meaning that only an agent which acts according to its own final causes is free.

In chapter 9, we saw the interconnections between the concepts of freedom, appetition, distinct perception, wisdom, reason, order, beauty, goodness, perfection and love. It follows from what has been said that final causes or explanations of things can be given in terms of these concepts. Moreover, Leibniz claims a connection between final causes and the choice of a rational being, and between final causes and morality. Hence he writes that,

Geometric determinations introduce an absolute necessity, the contrary of which implies a contradiction, but architectonic determinations introduce only a necessity of choice whose contrary means imperfection.

(Tentamen Anagogicum, c.1696: L.II.787) (19)

Similarly, in the Principles of Nature and of Grace, he writes of how final causes depend, 'upon the principle of fitness, that is to say, upon the choice of wisdom' ($11, 1714: L.II.1040).

On the connection between final causes and morality, we know that Leibniz told des Billettes that, 'everything also takes place morally, so to speak, and can be explained by final causes' (4/14 Dec.1696: L.II.771).

Again, these connections between final causes and freedom, wisdom and perfection would seem to suggest that final
causes as explanations of things are restricted to beings whose appetites are rational, i.e. to those beings who are free. But it is not clear that such freedom also involves the notion of choice, and so it is not clear that the connection between final causes and morality can be made.

According to Leibniz, the qualities of the mind or rational soul make it distinctively moral. Rationality is integral to a monad's freedom. But it is not necessarily the case that the kind of freedom obtained by relating it to the monad's reason, or to the distinctness of its perceptions, or to its primitive active force, is the kind of freedom required for morality. For morality, we need the notion of choice - the notion of a choice between that which is perceived as good and that which is perceived as evil. In the way in which we interpreted freedom in chapter 9, the notion of choice was irrelevant, and it was even claimed that the will could do naught else but strive towards what it saw to be good. Freedom was interpreted, not as a choice between what is good and what is bad, but rather as the ability to perceive that which is good. For Leibniz, it was said, to see the true good and yet not desire or will it, was an impossibility (20).

Leibniz does encounter major difficulties when trying to find a place for choices in his metaphysical system. The freedom from physical necessitation which he attributes to the mind leaves a space for the notion of choice, but does not actually provide us with any positive argument for its
occurrence. Leibniz's difficulties arise because once any monad is created, it can do nothing but actualize itself or follow its own law. It cannot even be said that before its creation the monad chose or made its own law, for it is its own law or notion, or is the actualization of its law or notion, and besides, before creation there was nothing which could perform the act of choosing.

What Leibniz claims is that the notion of a free choice is contained in the monad's notion, where freedom is assigned on the basis of the amount of primitive active force in the monad, and hence by the force of the appetition in taking the monad from one perception to the next. An action will be said to be freely chosen by a mind if the appetite which takes the monad from one perception to the next is the action of a large amount of primitive active force. But this is not what we would normally consider to be a choice, for it still remains the case that the monad is merely following the law of its series of perceptions. We cannot help but feel that a stronger account of choice (where there is some real possibility of acting or choosing which is not determined by the law of the series) is necessary for the concept of morality.

Leibniz claims that unless there is a law, there cannot be a choice. He argues against any 'indifference' between what is chosen and what is not chosen. There must be a reason, he believes, why one thing is chosen rather than another. (Below we will ask what it is which makes one mind consider these reasons relevant to its choice). If a mind is absolutely
indifferent to whichever option is open to it, it will choose neither (21).

The law Leibniz requires here is not the monad's own law of the series of perceptions, but a moral law, or set of laws, which will tell us what is good and what is bad, and which perhaps state that we should strive towards that which is good (22). These laws will be, or will be involved in, final causes. Leibniz argues that the reasons which determine our choices are final reasons, and that these 'incline' the mind towards a certain choice, but do not necessitate that choice (although they do necessitate with respect to God and the angels (23)):

the determination to which motions are subject is blindly compelling; whereas it is free, i.e. accompanied by choice, in a thinking being, who is only inclined and not forced by considerations of good and bad. (New Essays, Bk.2, Chap.21: R&B 177) (24)

But it is hard to see how such reasons can incline the mind towards a certain choice when there exists a possible notion in the mind of God in which the same reasons do not incline towards the same choice. Leibniz wants to retain the possibility that a monad will choose a different option. It must be possible for another monad with exactly the same history to choose to perform an action different from that of the first monad. Of course, Leibniz will not allow there to be two created monads with the same history up to a certain point in time, so we must resort to speaking of possible notions. There can be two possible notions, identical up to a certain point, which then diverge when a certain decision or choice has
to be made. It is not fully evident that Leibniz viewed the matter in this way. The fullest discussion of the subject can be found in the Sextus story at the end of the *Theodicy* (§§ 414-417: Huggard pp.370-373). There Leibniz says that each 'Sextus' belongs to one and only one world, but he does not comment on whether or not any of these worlds have the same history up to any particular point. We believe, however, that this must be the case if Sextus, or indeed anyone else, is to be considered as having a 'choice' or as being free and able to do the opposite of what he in fact does.

Let us now consider a specific example. Imagine a person in an empty shop faced with the option of stealing a precious jewel or of leaving empty-handed. Imagine that this person does so leave the shop without committing any crime, and that he or she does so because of the consideration that to take property which does not belong to oneself is morally wrong. In order that this be a freely-made decision, there must be a possible notion in God's mind in which the person steals the jewel, a notion in which the consideration of moral right and wrong did not prevent the theft.

Now, we would expect to find some reason as to why the person did not steal the jewel, and why the possible notion, had it been created, would have stolen the jewel. We would expect to find some reason why the one was influenced by moral considerations against stealing, while the other was not so influenced. Yet, ex hypothesi, we can find no difference
between the created person and the possible notion which would provide us with such a reason. Both the person and the possible notion are identical up to the point of divergence brought about by their different decisions regarding the jewel. The person and the notion differ only in the fact that the one chooses to steal and the other chooses not to steal.

Leibniz is faced with a dilemma. Either the decision to steal or not to steal is made freely or it is determined. If it is a free decision, there is no difference between the person and the notion which determines that the one will pay heed to moral considerations while the other does not. In this case, moral freedom is achieved at the expense of the principle of sufficient reason. If, on the other hand, the decision to steal or not to steal is determined, some reason will be found which explains why the person paid heed to moral considerations which the possible notion would have ignored. In this case, the principle of sufficient reason is retained at the expense of moral freedom, since there will no longer be a possible notion identical in all respects (except existence) to the created person up to the point where the one chooses to steal, and the other chooses not to steal, and the idea that an alternative decision was possible is lost.

This dilemma is very real, and cannot be lightly dismissed. It lies at the heart of Leibniz's attempt to reconcile determinism and free-will (25). It must be said that Leibniz himself believed that moral reasons merely 'incline' a person towards a certain action, and do not necessitate that
any particular action is done, and he thinks this is sufficient to ensure the morality and freedom of choice of the person (26). It is this belief which we have contested above. Nevertheless, Leibniz may be able to retain the notion of choice if he distinguishes actions based on considerations which are moral from actions which are caused by the physical motions of bodies. The choice of whether or not to steal involved considerations of moral right and wrong. There is no such choice whether or not to blink our eyelids, to blush, or to make our hearts beat. Leibniz is right to the extent to which he recognises this distinction, but the above dilemma remains unsolved.

The concept of a free choice is important in relation to morality, because we hold people responsible for their actions and reward and punish them accordingly. If their choices are not free, then such punishment and reward is unjust.

Leibniz believed that the freedom which makes a monad moral is the freedom which arises because the monad is rational. That is to say, only minds are moral. Moreover, Leibniz attributes freedom (and morality) to monads on the basis of their ability to reflect upon themselves. He argues that it is because the mind is able to reflect upon itself, and to be conscious of itself and of its own actions, that it is said to be responsible for its actions, and hence morally right or wrong with regard to them:

It is also because they lack reflection about themselves that
they have no moral quality . . . But the intelligent soul, knowing what it is and being able to say this little word "I" which means so much, not merely remains and subsists metaphysically (which it does in a fuller sense than the others) but also remains the same morally and constitutes the same character. For it is memory or the knowledge of this "I" which makes it capable of punishment and reward. (Discourse on Metaphysics, §34, 1686: L.I.501-2)

We have seen that primitive active force, and the resulting distinct perceptions, are bases for the ascription of freedom to minds and spirits (27). We know too that apperception, or the conscious knowledge of the self, is a more distinct expression than a non-conscious perception. Hence, the idea that the soul is a moral agent because it is conscious is quite in agreement with the rest of Leibniz's metaphysics. Our own language and the French language note this connection between consciousness and morality through the word 'conscience'. This is a derivative of the term 'consciousness'. It is our conscience which plagues us when we do wrong and have knowledge of the fact that we do wrong. Without this consciousness of our own wrong-doing, we would not understand what it meant to have a good or bad conscience.

Through memory we can be aware of our past actions and can resolve to continue what was good in us and to change what was bad:

For through a lack of attention or memory it often happens that we do what we ought not, or fail to do what we ought, or that we think that we have done what we did not do, or have not done what we have.

(Critical Thoughts on the General Part of the Principles of Descartes, 1692: L.II.638)

The connection with reflection is made through the claim that,
we do not carry out most of the things which we know, because we do not pay attention between our actions. But attention is nothing but reflection.

(A Fragment on Dreams, 1668-1670: L.I.175) (28)

Nam pleraque quae novimus, non sequimur, quia inter agendum non attendimus. Est autem attentio nihil aliud quam reflexio.

(Kauppi, Die Philosophie des Jungen Leibniz, p.154)

Also, because men or minds express God by way of resemblance rather than by a causative relation (29), minds (spirits),

enter by virtue of reason and the eternal truths into a kind of society with God and are members of the City of God, that is to say, the most perfect state, formed and governed by the greatest and best of monarchs. Here there is no crime without punishment, no good action without a proportionate reward, and, finally, as much virtue and happiness as is possible.

(Principles of Nature and of Grace, §15, 1714: L.II.1041)

It might be objected that it is unjust to punish monads or to reward them for merely actualizing their notions. Had God not actualized these particular notions, the notions, although unchanged, would not be punished or rewarded. It seems, on the face of it, to be unjust that a monad should be punished or rewarded for something which it has only done because it was created by God. Once actualized or created, the mind cannot fail to follow its law or notion, and God only created it because it would follow this particular law. Is it not unjust to then punish the mind for following a course of action which God chose to create? (30).

It is possible, however, that this objection is misdirected. Rather than say that God punishes and rewards
monads by some kind of external influence, Leibniz could have said that God created only those minds whose laws included the punishment of evil actions and the reward of good ones. That is to say, the punishment and reward of particular actions will occur as part of the series of perceptions which is the law of the monad itself (31).

If we do say this, the notion of choice becomes less important. It would not, then, matter so much whether or not a monad has freely chosen its particular course of action, since its punishment and reward could be explained without appealing to this notion. We can still allow Leibniz to retain the notion of choice in his philosophy, if we understand a free action to be any action which is determined, not by a universal law of nature, but only by the particular law of an individual rational monad, and which is determined upon after considerations of good and bad. Such a concept of choice is not strong enough to entail the punishment or reward of the action by God, but we have seen that Leibniz does not need a notion of choice which does justify punishment and reward of the monad if he incorporates punishment and reward into the law of the monad itself.
CHAPTER SIXTEEN

RELATIONS BETWEEN FINAL AND EFFICIENT CAUSES

There are a number of possible interpretations regarding the harmony between final and efficient causes.

Firstly, when the harmony between final and efficient causes is regarded as a harmony between the mechanistic realm of bodies and the teleological realm of monads, Leibniz writes that,

The perceptions in the monad arise from each other according to the laws of the appetites or the final causes of good and of evil, which consist in observable perceptions, whether regulated or unregulated, in the same way that bodily changes and external phenomena arise from each other according to the laws of efficient causality, that is, of motions. Thus there is a perfect harmony between the perceptions of the monad and the motions of the body, pre-established from the beginning between the system of efficient causes and that of final causes.
(Principles of Nature and of Grace, §3, 1714: L.II.1035)

Secondly, this harmony is regarded as a harmony between a mechanistic realm of bodies and a teleological realm of minds or souls. In a letter to des Billettes, Leibniz writes of,

two kingdoms, the moral one of minds and souls and the mechanical one of bodies.
(4/14 Dec.1696: L.II.771)

and of how these two kingdoms,

penetrate each other and are in perfect accord through the agency of the Author of things, who is at the same time the first efficient cause and the last end.
(ibid.: L.II.771)

Thirdly, when it is remembered that bodies are aggregates
of monads, this harmony of final and efficient causes is regarded as a harmony of free and non-free monads. Hence, Leibniz writes to Clarke that,

All the natural forces of bodies, are subject to mechanical laws; and all the natural powers of spirits, are subject to moral laws. The former follow the order of efficient causes; and the latter follow the order of final causes. The former operate without liberty, like a watch; the latter operate with liberty, though they exactly agree with that machine, which another cause, free and superior, has adapted to them beforehand.

(Leibniz’s Fifth Letter, §124, 18 Aug.1715: Alex. p.95)

The natural forces of bodies may be either primitive or derivative. If they are derivative forces, this passage supports the second interpretation of the harmony between final and efficient causes. If, on the other hand, they are primitive, i.e. if they are monads, the passage supports our third interpretation. The third interpretation is independently supported by the following passage from A New System of the Nature and the Communication of Substances:

I concluded, nevertheless, that we must not mix up indifferently, or confuse, minds or rational souls with other forms or souls, for they are of a superior order and have incomparably more perfection than have the forms which are sunk in matter, which I believe are found everywhere. For, in comparison with these, minds or rational souls are as little gods made in the image of God and having in them some ray of the light of the Divinity. This is why God governs minds as a prince governs his subjects or indeed as a father cares for his children, while he deals with other substances, instead, as an engineer handles his machines.

($5, 27 June 1695: L.II.742)

The first view is open to peculiar difficulties which the other two might be able to avoid. According to the first view, all monads’ perceptions follow the laws of their own appetites,
or all monads follow the final causes of good and evil. This is unproblematic, and has already been discussed (1). Leibniz's difficulties arise because he wants to claim that God chooses laws of nature which bodies will follow. He wants to claim that bodies are physically necessitated or determined to act in the way in which they do. But because bodies are composed of monads acting in accordance with the final causes of good and evil, the motions of bodies will arise out of the fact that any particular body is composed of certain monads rather than others, and not because God has chosen laws according to which that body will act (or at least that it can only be said that God has chosen these laws indirectly, namely, through His choice of certain monads rather than others). This must be explained in more detail.

We know from our discussions in chapter 6 (2) that Leibniz appeals to God's will as the final cause of the laws of motion.

I discovered at the same time that the laws of motion actually existing in Nature, and confirmed by experiments, are not in reality absolutely demonstrable, as a geometrical proposition would be; but neither is it necessary that they be so. They do not spring entirely from the principle of necessity, but rather from the principle of perfection and order; they are an effect of the choice and the wisdom of God. (Theodicy, §345: Huggard p.332)

Earlier in the Theodicy he had said that,

God chooses those [general rules] which are the most natural, which it is easiest to explain, and which also are of greatest service for the explanation of other things. ($208$: Huggard p.257) (3)
and that 'God chooses rules that are the most productive in proportion to the simplicity of ways and means' (ibid., §208: Huggard p.257). In the *Principles of Nature and of Grace*, he writes of how,

The supreme wisdom of God has made him choose especially those laws of motion which are best adjusted and most fitted to abstract or metaphysical reasons. ($11, 1714: L.II.1039)

These most abstract or metaphysical reasons are the final causes according to which the end to be achieved is the most perfect possible.

At times, Leibniz seems to suggest that God first chooses which notions of monads to create, and then chooses laws of motion which match these monads' perceptions. This is suggested by the passage quoted immediately above, and also by the following passage from the correspondence with Arnauld:

And one can truly assert that the whole universe was created only so as to contribute to the embellishment and the happiness of that city of God. That is why everything is so arranged that the laws of force or purely material laws conspire in the whole universe to carry out the laws of justice or love, that nothing can harm souls, which are in God's hands, and that everything must result in the greatest good of those who love him. (Letter to Arnauld, 9 Oct.1687: Mason p.160)

To Clarke he writes that,

God, foreseeing what the free cause would do, did from the beginning regulate the machine in such manner, that it cannot fail to agree with that free cause. (Leibniz's Fifth Letter, §92, 18 Aug. 1715: Alex. p.86) (4)

In *Specimen Dynamicum*, Leibniz speaks of God having regulated bodies 'for the benefit of' souls,
God regulates bodies as machines in an architectural manner according to the laws of magnitude or of mathematics but does so for the benefit of souls.
(Pt.1, 1695: L.II.723)

In the Discourse, Leibniz speaks of God as having created machines out of 'simple fluids', again suggesting the idea that God first created, or decided to create certain monads, and then created matter which would agree with their perceptions:

And God is an artisan skilful enough to produce a machine a thousand times more ingenious than that of our bodies, by using nothing but certain rather simple fluids formed expressly in such a way that only the ordinary laws of nature are needed to give them the organization necessary to produce so admirable an effect.
(Discourse on Metaphysics, §22, 1686: L.I.488) (5)

In brief, the idea Leibniz seems to be putting forward is that of God deciding to create free monads, and then creating matter and choosing laws of nature (or of motion) for this matter to comply with. These laws are chosen according to the criteria given both in this chapter and in chapter 7, plus the requirement that they agree with the free monads' perceptions. This account is unobjectionable if the free monads are those referred to in the second and third interpretations of the harmony. But if the 'free' monads are those which are free from the physical necessitation to which bodies are subject, i.e. those with laws peculiar to themselves, then all monads are free, and the harmony between final and efficient causes becomes that described in the first interpretation which we gave above. If the harmony is interpreted thus, i.e. as a harmony between all monads, not only those which are rational,
and all bodies, then it can be objected that: 1. once the monads have been created, matter is created also, so that there can be no creation first of the monads and then of matter; and 2. that there can be no choice of laws of motion for matter to adhere to because there is only one set of laws possible once the monads themselves have been chosen for creation.

To argue why this is so we must go back to our more particular discussions of the expression between monads and their bodies. In chapters 12 and 13, it was argued that the soul perceives its own body directly, and that it perceives other bodies only because its own body is affected, physically and causally, by other monads' bodies.

It might be thought that the pre-established harmony comes about because God orders bodies in such a way that the motions of other bodies on the soul's own body are such as to cause changes in the soul's own body, which changes are represented exactly by the soul's perceptions, even though the series of the soul's perceptions is independent of the series of the body's motions. Indeed, this is how Leibniz speaks. But when we remember that at least some of these bodies which act upon the soul's own body have souls (or dominant monads) of their own, it begins to become clear that the laws of motion are more intimately bound up with all souls' perceptions than the above account indicates.

Every soul's perceptions are in accordance with the movements of its own body. Each soul's body causes changes in
all other souls' bodies (6). Without any one soul's body's motions causing changes in another soul's body, the soul's perceptions would not be in accordance with the movements of its own body. Similarly, did the movements of this soul's body not also cause motions in the other souls' bodies, these other souls' perceptions would not be in agreement with the motions of their own bodies. It should be clear from this, that if one monad's perceptions did not agree with another monad's perceptions, then the motions of these monads' bodies would not act in accordance with the monads' perceptions of them (7). We can therefore say that the harmony of monads' perceptions with each other entails a harmony of the motions of these monads' bodies, or, in other words, that the motions of these monads' bodies are in accordance with the particular laws of motion actually existing in the world. Once God has decided to create certain monads (and to create them because they are in agreement), the fact that these monads' perceptions agree with each other dictates the fact that the body each monad perceives itself to have acts in accordance with particular laws of motion. It cannot be the case that God chooses the monads and then chooses laws of motion to fit these monads. This would be as if God chose certain monads and then decided upon certain laws of motion in order to make these monads express each other. Rather, it must be the case that once God has chosen to create a certain set of compossible notions, the laws of motion by which these notions' bodies will act, are at the same time already decided upon, because they will arise out of the fact
that the perceptions each monad has agree with all other monads' perceptions.

Leibniz would still be entitled to say that God chose laws of motion, but not that He chose laws of motion to suit His already chosen monads. The same criteria (of simplicity, order, perfection) would still apply, for there would be as many sets of laws of motion as there were possible worlds. But once a possible world (of monads) was chosen for creation, the laws of motion applicable to that world would apply. Observe that this objection applies only to the harmony between final and efficient causes as it is described under the first interpretation (8).

It might be thought that a harmony between all monads and all bodies which still allowed God to choose laws of motion for bodies could be brought about by claiming that God chooses to create monads whose primitive forces are modified as perceptions, and then makes these primitive forces, when they are aggregated, modified as derivative forces which act according to the laws of motion which He has chosen. God would not be able to control the way in which the primitive forces of the monads taken individually were modified (i.e. He could not change the series of perceptions belonging to His chosen monads), but He would be able to control the way in which these primitive forces, taken aggregatively, were modified (i.e. as derivative forces). This would give God the choice of laws of motion, by giving Him control over the derivative forces of aggregates of monads.
But in order to see that this is not in fact the case, we only need recall what these derivative forces actually are. Leibniz's belief is that when bodies are seen to collide, or to fall, i.e. are seen to move, the cause of the movement can be ascribed to either body. Thus, if one body pushes another, that which pushes and that which is pushed is not determinable from the phenomena alone. Similarly, a ball falling to the earth can be interpreted either as this or as the earth moving upwards to meet the ball. According to Leibniz, we will attribute motion to the body which, by doing so, enables us to explain the event (say of the ball falling to the earth) most simply. He then claims, if our analysis of derivative active force is correct, that this body is that whose monads have more primitive active force than those composing a body (say, the earth) which we think has not moved.

In ascribing derivative active force to that body which thereby explains an event simply and understandably, Leibniz believes that we are following God's criteria when He chose the laws of motion which obtain in the world. We will be correct to ascribe active force to that body which enables us to explain the phenomena most intelligibly, because God gave active force to that body which would give Him the simplest laws of motion.

But if derivative active force (i.e. the force which shows itself when a body moves) is a modification of primitive active force (i.e. of the force which belongs to the monads), then we reach the same conclusion as before, namely, that the
laws of motion arise out of the choice of which monads to create. One body's movement is due to its having derivative active force, but this derivative active force is due to the fact that the subordinate monads composing the body have primitive active force. One body has more primitive active force than another, not because God decrees that it has to have such force in order that the laws of nature can be simple, but because the correspondence between the monads themselves decrees that they will be ordered in this way.

Moreover, it surely cannot be the case that God could make a body which was composed of monads with a lot of primitive passive force act as if it had derivative active force. If the monads have primitive passive force, then this will be modified as derivative passive force, and if they have primitive active force, then this will be modified as derivative active force.

It follows from what has been said that, if God is to be able to choose to create laws of motion which suit His chosen monads, He must be able to decide which monads are to be the bodies of which dominant monads. God must be able to decide which bodies are to be composed of monads which have a lot of primitive passive force and which are to be composed of monads which have a lot of primitive active force. If He is to be able to decide which bodies are to move and which are to remain relatively stable. In doing this, He will be choosing laws of motion.
But, again, it should be clear that this cannot be the case if the harmony between final and efficient causes is a harmony between all monads and all bodies. For when this is so, the harmony between the monads themselves will determine which monads are aggregated as the bodies of which dominant monads, and this, in turn, determines which bodies will move and which will not. Once the choice of which monads to create has been made, the laws of motion will also have been chosen.

In chapter 4, we agreed that the dominant monad's primary matter influenced the number of monads in the secondary matter body of that monad, but did not influence the proportions of primitive active force to passive force possessed by these subordinate monads (9). This might enable Leibniz to claim that the dominant monad's confused perception of its body does not specify which monads are subordinate to the dominant monad (although its perceptions will specify how many monads are to compose the its body) for the dominant monad's confused perception of its body will not influence the degrees of primitive passive force possessed by the subordinate monads (10).

Given this analysis, perhaps Leibniz could maintain that God is able to choose which monads are to be the subordinate monads belonging to which dominant monads, and therefore that God can choose which bodies are to have particular amounts of primitive active and passive forces, which, taken collectively, will be modified as derivative active and passive force, thus
giving God control over the laws of motion.

But the above analysis only sounds plausible because we have left out of account the fact that these subordinate monads perceive. Once the relation between the dominant monad and its subordinate monads is considered as a relation between their perceptions, it no longer seems plausible to believe that God could decide which monads were to be subordinate to which.

Perceptions, we have seen, are relational properties (11). Now, although some relational properties do not specify that to which the thing which has the property is related (as in the relational property 'is a father'), it is unlikely that monads' relational properties are vague in this way (12). If they are not vague, then the monads' perceptions (as relational properties) will specify which monads are related to which, for the perception will have the property of being a perception of one monad, or set of monads, rather than of another. Again, therefore, the dominant monad's perceptions will entail which monads it is dominant over, and, similarly, the subordinate monads' perceptions will entail which dominant monad they are subordinate to.

It is our belief that Leibniz was not aware of these objections because he did not consider the relationship between the dominant monad and its subordinate monads in terms of a correspondence between perceptions, even though he should have done so because he often says that every monad (not only every rational monad) perceives. Only when considering the
relationship between minds and other minds, does Leibniz consider the relation between monads in terms of perceptions had by one corresponding to perceptions had by another. When he considers subordinate monads, he takes as their principal feature, not their perceptions, but the fact that they are forces, and are immaterial unities. Hence, when arguing for the presence of monads in bodies, Leibniz argues from the fact that bodies are infinitely divisible to the presence of an infinite number of indivisible monads in these bodies (13). When arguing for the presence of monads in bodies from the fact that these bodies move, he argues for the presence of forms as forces or as principles of motion (14). In both these cases, the fact that these monads also perceive takes second place.

This may also help to explain why Leibniz did not wholeheartedly embrace the idea that derivative forces are modifications of aggregates of primitive forces rather than modifications of individual primitive forces (15). When he considered the monads which are parts of aggregate bodies, he considered these monads in terms of forces and as unities. He could then overlook the fact that these monads also perceive, and hence fail to notice that a monad cannot simultaneously have its primitive force modified both as perceptions and as derivative forces.

We said above that the second and third interpretations of the harmony between final and efficient causes might be able to avoid these difficulties pertaining to the first interpretation. If the harmony is one between free (rational)
monads and bodies (composed of non-rational monads) or a harmony between free and non-free monads, then it may be possible to claim that God chooses to create bodies composed of non-free monads, which bodies can be made to act in ways which conform to the perceptions had by the free monads.

If God first chooses to create free monads - and does so because their perceptions correspond to perceptions had by other free monads - then it can be said that the free monads' perceptions do not entail that certain other non-free monads compose their bodies rather than other non-free monads. It would then be open to God to decide which monads are to be the monads composing the dominant monad's body and other bodies, and hence to decide which bodies are to move and which are to be at rest. God would then be able to make bodies move according to the simplest explanations, and could be said to choose specific laws of motion.

However, this will only be possible if the free monads do not have any confused perceptions. If they do have confused perceptions, these perceptions will be of monads which compose aggregate bodies, and the difficulties explained above will once again rear their ugly heads. To say that the free monads have no confused perceptions included in their laws of the series when this is a notion in God's mind is the same as to say that the notions in God's mind are notions of monads which are primitive active forces with no primitive passive force, since it is primitive passive force which is responsible for
confused perception (16).

This may be why Leibniz swithers between defining the monads as primitive active force alone and defining them as primitive active and passive force (17). Here, too, may lie the reason why the law of the series of perceptions is equated with primitive active force rather than with both primitive active and passive forces together (18).

Passages from Leibnizian texts can be interpreted as claiming that God creates active monads and then provides them with passive force and confused perceptions. In his fourth letter to Clarke, Leibniz writes of how,

The soul knows things, because God has put into it a principle representative of things without. ($30, 2 June 1716: Alex. p.41)

This can be taken to mean that God gives the soul primary matter in order that it will perceive confusedly, i.e. so that it will perceive bodies in space. If God gives the soul primary matter (or primitive passive force), then the soul must be primitive active force alone before primary matter is given to it.

If free monads, as notions, are only primitive active forces i.e. with no primitive passive force, it follows that the series of perceptions will contain only distinct thoughts, plus appetites to take the monads from one perception to the next. Any compossibility between different free monads would be on the basis of a correspondence between their distinct
perceptions and appetitions. It would then be left to God to introduce confused perceptions as terms in the series of perceptions and more appetitions to bring about these perceptions.

However, Leibniz encounters difficulties if the monad is considered as only primitive active force. Without primitive passive force, there is a danger of losing the monads' variety and distinctness from one another (19). Moreover, without primitive passive force (and confused perceptions) as part of the monad's law or essence, God may not be able to determine whether or not monads are compossible with each other. In the quotation given in chapter 11 (20), Leibniz writes of the necessity of spatio-temporal relations if monads' perceptions are to correspond to one another, but to be in such relations, the monad needs to have primitive passive force, for only if it perceives confusedly will it perceive bodies in spatio-temporal relations with other bodies. This, too, is why creatures free or freed from matter would be separated from the universal connexion of things (21), for we have explained the necessity of primary matter in the monads if they are to have a position in the world of space and time.

It is now possible to understand why Leibniz wanted monads which are both primitive active force alone and combinations of primitive active and passive force. The former are necessary if God is to be able to create matter, and then give matter form (or monads) so that it will function in ways which suit the perceptions which free monads have (where free
monads are also primitive active forces alone). But the latter are necessary if monads’ perceptions are to correspond to one another, and hence are necessary if God is to be able to choose to create a world of compossible monads. Monads as primitive active and passive force are also necessary if God is to be able to create matter which fits their perceptions. If the monads are primitive active force alone, they will have no sense perceptions for matter to be created to suit.

It should be noted that all these difficulties could have been avoided by Leibniz if he had simply abandoned the idea that God created bodies’ laws of motion to suit the free monads’ perceptions. He could then have claimed that the laws of motion do actually arise out of the perceptions which all monads have. There is no objection to this view, save that Leibniz did not hold it. If he had held it, then he could have claimed that God chose the monads which He did create, not only because their perceptions correspond, but also because the way in which these perceptions correspond entails that some of these monads will group themselves into bodies which act according to the simplest possible laws of motion. Thus, when the simplest explanation of a phenomenon entails that one body moves rather than another, the harmony between the monads’ perceptions will have ensured that the body which is said to move is composed of monads which have more primitive active force than do those of a body which is not considered to have moved. Moreover, if Leibniz had held this doctrine, then he could also have rejected his notion that the law of the series
is primitive active force. His doctrine of confused perception could then have been incorporated quite easily into his metaphysical system, by merely making clear the connections between primary matter and confused perception. By making the law of the series of perceptions both primitive active and primitive passive force, the series would be able to include both distinct and confused perceptions.

It follows from this that, by abandoning the idea that God created matter to suit His already chosen monads, Leibniz would have found that he required only one definition of a monad, namely, that whereby the monad is a combination of both primitive active and primitive passive force.

The three interpretations outlined above all regard the harmony of final and efficient causes as a harmony between the things which act according to the laws of final causes and those which act according to the laws of efficient causes. Sometimes Leibniz speaks as if those things which act according to final causes (i.e. minds, souls or monads) can only be explained by final causes, and as if those things which act according to efficient causes (bodies, or non-rational monads) can only be explained by efficient causes. Hence, we find him saying that,

in the explanation of the phenomena of particular bodies we no more use the soul or form than we refer to the human mind when we describe the functions of the human body. For we have shown that such is the harmony of things that everything which happens in the soul can be explained from the laws of perception alone, just as everything which happens in the body can be explained from the laws of motion alone, and yet all
things agree with each other as if the soul could move the body or the body the soul.  
(A Specimen of Discoveries about Marvellous Secrets, c.1686: Park p.85)

In this passage, Leibniz does not actually deny that final causes can be used to explain bodily motions, nor that efficient causes can explain perceptions, but he does deny that this is the case in his Critical Thoughts on the General Part of the Principles of Descartes:

Nature has, as it were, an empire within an empire, a double kingdom, so to speak, of reason and necessity, or of forms and of the particles of matter, for, just as all things are full of souls, they are also full of organic bodies. These kingdoms are governed, each by its own law, with no confusion between them, and the cause of perception and appetite is no more to be sought in the modes of extension than is the cause of nutrition and of the other organic functions to be sought in the forms or souls.  
(1692: L.II.675)

But at other times, Leibniz makes statements like the following:

I believe that everything really happens mechanically in nature, and can be explained be efficient causes, but that at the same time everything also takes place morally, so to speak, and can be explained by final causes.  
(Letter to des Billettes, 4/14 Dec.1696: L.II.771)

This suggests that final causes can explain the motions of bodies, and that the motions of bodies can explain the monad's perceptions, rather than that the monad's perceptions are explicable only by final causes and the body's motions only by efficient causes.

Is it possible to reconcile these two views? It is, if we stress that every monad has an organic body, and that
individual substances are composed of both a form or a soul and an organic body. This enables the action of an animal or corporeal substance to be explained either by the motion of its body or by the appetitions of its form or soul, while at the same time maintaining that the form or soul acts according to final causes and the body according to efficient causes. Thus, when Leibniz explains the final and efficient causes of his present writing, the efficient causes are certain motions taking place in his body (22), while in the final cause there is,

an infinity of small inclinations and dispositions of my soul, present and past. (Monadology, §36, 1714: L.II.1050)

The harmony between final and efficient causes is then obtained from the fact that the soul never wills to move its body unless the body is, independently of the soul, ready to move itself (23).

In chapter 6, we distinguished two ways in which final and efficient causes could be related. In the second, each system of explanations is seen as sufficient in itself to explain nature, but both require recourse to God as either the final end or as the first efficient cause. This is compatible with the view presented above, where minds or souls are governed by final causes and bodies governed by efficient causes, and where the actions of all corporeal substances can be explained in both ways. God's will, as the final end, is the reason for the existence of the monads and of their perceptions.
and appetitions. God's power, as the first efficient cause, is the reason for the motion of bodies. God is here considered as having created matter (primary matter) and then endowed it with form, considered as a principle of motion. Here, again, the monad has to be considered as primitive active force alone. God is the Prime Mover, imparting movement to matter. Primary matter is the fluid which God 'forms', 'in such a way that only the ordinary laws of nature are needed to give them the organization necessary to produce so admirable an effect' (24).

It is in this way that Leibniz speaks in Considerations on Vital Principles and Plastic Natures:

These are like two kingdoms, one of efficient causes, the other of final, each of which separately suffices in detail to give a reason for the whole, as if the other did not exist. But neither is adequate without the other when we consider their origin, for they emanate from one source in which the power which makes efficient causes, and the wisdom which rules final causes, are found united. Even this maxim, that there is no motion which does not originate in another motion in accordance with mechanical rules, leads us again to a prime mover, because matter, being in itself indifferent to motion or repose but nevertheless always possessing motion with its whole force and direction, cannot have been put in motion except through the author of matter himself. (1705: L.II.956-7)

In His capacity as Prime Mover, God can only impart movement to bodies. He cannot also provide the bodies with laws according to which their movements are determined. To explain the laws of motion, God has to be considered as the final cause, as that whose will dictates the ways in which bodies will move so that they conform to the perceptions had by the monads. This is why neither realm is 'adequate without the other when we consider their origin'. God is needed as the
first efficient cause in order to provide the force necessary in bodies for their movement, and He is needed as the final end in order to explain both the laws of motion and the perceptions and appetitions of the monads.

Now there would be no point in God giving bodies movement if He had not already decided upon certain laws of motion according to which they should act. Leibniz can therefore regard God's role as the final end as superior to His role as the first efficient cause. And so, we return to the first interpretation of the harmony between final and efficient causes given in chapter 6. Under this interpretation, efficient causes, rather than being considered as on a par with final causes, are seen instead to be dependent upon them (25). Moreover, in this interpretation of the harmony, we find another reason why Leibniz believed all events in nature to be explicable by both final and efficient causes (26). If God chooses the laws of motion for bodies, and chooses those which explain phenomena in the simplest, most intelligible way, then it follows from the fact that these criteria hold for the general laws of motion that they will also be true of particular motions. Hence, Leibniz thinks final causes can sometimes be of use in predicting how any one particular body will act. That is to say, if the laws of mechanics have been chosen by an intelligent being acting according to the principles of variety, simplicity and order, these same principles can be used to understand the mechanical workings of particular bodies. The logical jump from the perfection of the
whole to the same kind of perfection in each part of the whole is questionable. Nevertheless, Leibniz gives examples where use has been successfully made of final causes in physics. For instance, he discusses Snell's hypothesis that light rays would travel from one point to another by the easiest path (27). A large proportion of Leibniz's Tentamen Anagogicum devoted to giving further examples of the use of final causes in solving particular problems in mechanics. There, he writes of how,

Order demands that curved lines and surfaces be treated as composed of straight lines and planes . . . But the same order demands that the effect of the greatest ease be obtained in relation to the planes.
(Tentamen Anagogicum, c.1696: L.II.781)

We will not dwell on this use of final causes in physics for it has already been investigated by George Gale (28). It is sufficient to note that Leibniz believed these principles (or final causes) to be of use and to note that this is another reason why he claims that,

all existent facts can be explained in two ways - through a kingdom of power or efficient causes and through a kingdom of wisdom or final causes.
(Specimen Dynamicum, Pt.1, 1695: L.II.723)

Indeed, after giving an example of the use of final causes in relation to curves, he immediately goes on to say that,

It is for this reason that I usually say that there are, so to speak, two kingdoms even in corporeal nature, which interpenetrate without confusing or interfering with each other - the realm of power, according to which everything can be explained mechanically by efficient causes, when we have sufficiently penetrated into its interior, and the realm of wisdom, according to which everything can be explained architectonically, so to speak, or by final causes when we
understand its ways sufficiently.
(Tentamen Anagogicum, c.1696: L.II.780)

However, this explanation of things by both final and efficient causes is different from the one given above (29). There, the actions of corporeal substances were capable of being explained either by efficient causes (having recourse to the motions of bodies) or by final causes (having recourse to the appetites of the monads). Here, however, the actions of bodies (not corporeal substances) is explained by final causes. That is to say, here, instead of the action of a corporeal substance's body being explained by efficient causes, and the action of its soul being explained by its appetite, the action of the substance's body is explained by God's appetite, i.e. by God's will.

The two accounts are not incompatible, however. In the first, the action of the corporeal substance is explicable either by the appetite of the monad or by the motions of the body. In the second, the motion of the body is explicable either by efficient causes (i.e. by other motions) or by reference to God's will. Were it explicable by the appetite of a monad other than God, then there may be an inconsistency between the two accounts, for this would entail holding both that the body's motion could only be explained by efficient causes, and yet also that it could be explained by final causes belonging to its dominant monad. Nor are the two interpretations of the harmony whereby there are either two realms which are both adequate to explain nature, or where the
final realm is superior to that of efficient causes actually incompatible. They are merely different ways in which Leibniz tries to make his views intelligible. All the corporeal substance's actions can indeed be explained either by final or by efficient causes. Hence, the two systems of explanation can be regarded as equally good or bad at explaining the actions of these substances. Both systems will lead back to God, either as the final end or as the first efficient cause. But these two realms are sufficient in themselves only insofar as they are called upon to explain the actions of corporeal substances. When we want to find a reason for the laws of motion according to which bodies act, we have to turn to final causes, and try to determine God's reasons for creating the world as He did rather than otherwise. It is here that efficient causes are seen to rest on final causes. Efficient causes are only such as they are because it was God's will that they be so.

And so it would seem that everything can be explained by both final and efficient causes, except when these causes are themselves called upon to explain themselves, and each other. When this happens, efficient causes are found lacking, relying themselves on final causes. We wonder, however, whether final causes can explain their own 'raison d'etre'. Final causes may be final in a sense other than that of being the end to be achieved, for they may also be final in the sense that there is no reason for them. Efficient causes can be explained by final causes, but there are no more final causes available to explain why the final causes of good and bad are as they are.
rather than otherwise. At some stage, the principle of sufficient reason no longer applies.

What then is the ultimate ground of the divine will? The divine intellect. For God wills the things which he understands to be best and most harmonious and selects them, as it were, from an infinite number of all possibles. What then is the reason for the divine intellect? The harmony of things. What the reason for the harmony of things? Nothing. For example, no reason can be given for the ratio of 2 to 4 being the same as that of 4 to 8, not even in the divine will.
(Letter to Magnus Wedderkopf, May 1671: L.I.227)
CHAPTER SEVENTEEN
CONCLUDING REMARKS

We should now be in a position to understand the founding of the material, phenomenal world in a realm of immaterial substances. The relationship between monads and bodies has been explained: 1. as a relation between the confused and distinct perceptions had by the monads themselves; 2. as a relation between the primitive active and primitive passive forces in the same monad; 3. in terms of the relations which hold between dominant and subordinate monads' perceptions; 4. as a relation between monads' perceptions and the motions of the bodies which belong to these monads; 5. as a relation between the monads' primitive forces and the bodies' derivative forces; 6. in terms of the relations between free (active) and non-free or determined (passive) monads; and - the most general explanation of all - 7. as a relation between beings which act according to final causes and objects which act according to mechanical laws.

Two questions remain:
1. Are these alternative explanations compossible, or do some exclude others?
2. Are any of these explanations to be preferred over others?

The first two accounts explain the relation principally in terms of the monads themselves. Monads perceive confusedly or distinctly according to their primitive passive and active forces. If monads perceive confusedly, they perceive their
bodies as extended; if they perceive distinctly, they perceive their bodies as aggregates of unextended monads. These explanations have the beauty of distinguishing the two views of the body which we outlined in chapter 3. This is not true of the other accounts.

The third explanation is not incompatible with the first two, but rather supplements them. In 1, subordinate monads are perceived distinctly or confusedly by a dominant monad, whereas in 3, the relation between dominant and subordinate monads is further explained as arising out of the relations which hold between their perceptions. This, we should say, is dependent upon each monad being able to perceive all of its own perceptions, i.e. it is dependent upon each monad being able to express itself.

The fourth explanation also supplements the first two. Here, the confused perceptions had by the dominant monad are necessary if the dominant monad is to perceive itself to have a body which moves. Only if the dominant monad perceives confusedly is the fourth account (where the dominant monad's perceptions are related to the motions of both its own (confusedly perceived) body and the (confusedly perceived) bodies of other subordinate monads) possible.

It must be remarked that we expressed surprise that Leibniz did not also relate the monads' perceptions to the bodies' resistances, and we also observed that Leibniz can be interpreted as relating only the monads' confused
perceptions to the bodies' motions, or also of finding a relation between motions and the monads' distinct perceptions. If the first option is chosen, the fourth explanation can avoid possible conflict with the third (in which the subordinate monads are capable of being distinctly perceived, i.e. in which they can be perceived as individual monads rather than as an extended aggregate).

More interestingly, the fourth explanation provides no obvious correlation between the dominant monad's active and passive forces and the subordinate monads' active and passive forces. We noted that this is actually desirable in preventing the conclusion that a distinctly-perceiving dominant monad's body moves, and a confusedly-perceiving dominant monad's body resists. If the dominant monad's primitive active force was directly proportional to the subordinate monads' primitive active forces, then, whenever the dominant monad distinctly perceived, its body would display derivative active force by moving. This would be contrary to empirical fact. Similar remarks could be made regarding passive force.

Of the fifth explanation, it should be said that this is different from the other four in that it is not a description of a relation between a dominant monad and its body, but is rather a description of the relation between the subordinate monads and the aggregate body they compose. Actually, it would be impossible to explain the relation between the dominant monad and its subordinate monads as a relation of primitive to derivative force because of what we said in the preceding
paragraph. And so, in 5, the relation of primitive to derivative force is interpreted as a relation between the subordinate monads and the aggregate body. Because of this, the fifth explanation is not incompatible with the other four, but is again a supplement to them, explaining why, when the subordinate monads have primitive active force, the body has derivative active force (and so, it moves) and when they have primitive passive force, the body has derivative passive force (and hence resists).

However, we should remember that this is only possible because we have interpreted derivative force as a modification of the aggregate. If, instead, it is interpreted as a modification of one monad's primitive force, then conflict arises between the fifth explanation and the fourth, because then the dominant monad's primitive force would be proportional to the body's derivative force.

The sixth explanation is quite acceptable, even though Leibniz has difficulty in finding a moral sense of 'choice', for this does not preclude the interpretation of freedom in terms of active force and distinct perception. Under this interpretation, the sixth explanation is very similar to the third. But whereas in 3, the relation holds between a dominant monad's perceptions and its subordinate monads' perceptions, in 6, the relation holds between the monads' active and passive forces. This explanation creates difficulties for the fourth explanation. In 4, we wanted to stress the absence of a
correlation between the dominant monad's primitive active and passive forces and the subordinate monads' primitive forces, but in 6, such a correlation is asserted to hold, although it is the inverse correlation from the one which is denied in 4. In 6, Leibniz wants to claim that an increase in the dominant monad's primitive active force will be accompanied by a decrease in the subordinate monads' primitive active forces. But it is plainly seen from this that if primitive forces are modified aggregatively as derivative forces in the manner described in the fourth account, what has been said in no. 6 entails that when a dominant monad distinctly perceives (has primitive active force) its subordinate monads will have primitive passive force, and the dominant monad's body will resist.

Although this consequence does not have intuitive appeal, it is actually consistent with Leibniz's other accounts of the relations between monads and bodies. The converse of the above consequence is that when the dominant monad loses some primitive active force, the increase in primitive passive force will lead to its having confused perceptions. The corresponding decrease in primitive active force in the dominant monad is accompanied by an increase in the primitive active forces of the subordinate monads, leading, in turn, to the motion of the aggregate body. And we know from the fourth account that Leibniz did believe there to be a correspondence between confused perceptions and motions. But the manner by which the sixth explanation explains this correspondence leads
to unacceptable conclusions. It is unfortunate that these consequences cannot be eradicated without a complete revision of Leibniz's theory of freedom and of the action of one substance on another.

The seventh explanation is closely related to the sixth. Hence, problems concerning no.6 also cast doubts on no.7. In its more general form, the seventh explanation relates physics and metaphysics. Nowadays, physicists recognise the influence of the observer (percipient) on observed events, so the distinction between metaphysics and physics is not so sharply defined as Leibniz believed it to be. Indeed, if physicists at any time come to believe that that which is observed is itself an observer, they will be giving a very Leibnizian explanation of the world. However, even if this explanation fails to give a satisfactory account of the distinction and relation between metaphysics and physics, it may still be useful in its more specific form, in which it distinguishes minds and matter (as it is sense-perceived) according to the laws which govern their actions. This is possible because a distinction can still be made between the perceiver and the contents of the perceiver's perceptions. (Present-day physics has gone beyond the bounds of sense-experience.) As an explanation of the relation between the dominant monad's appetitions and the motions of its body, the seventh explanation can be regarded as a general reworking of no. 4, in terms of appetitions rather than perceptions.

Are any of these explanations more attractive than others? Ideally, the answer should be 'no'. Given Leibniz's
doctrine of alternative points of view, we might expect that
the more possible (but compatible) explanations which can be
given, the better. This is particularly the case if we can also
show the relations which hold between the different
explanations themselves. In practice, however, the doubts
placed on no.6 suggest that the first five explanations are
more intelligible than the last two. But within the first five
explanations, it would be difficult to choose any one as being
together, they give us a greater
better than any of the others. Together, they give us a greater
understanding of the way in which Leibniz conceived of the
relation between monads and bodies, whether this be as a
relation between dominant and subordinate monads (as in nos.1-
explanations themselves. In practice, however, the doubts
placed on no.6 suggest that the first five explanations are
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together, they give us a greater
understanding of the way in which Leibniz conceived of the
relation between monads and bodies, whether this be as a
relation between dominant and subordinate monads (as in nos.1-
4) or as a relation between subordinate monads and extended
bodies (as in no.5).
CHAPTER 1

1. See chapter 8, p.144.
3. Ibid.
4. To digress somewhat, we should point out that Leibniz's metaphysics has room for the idea that these aggregated unities are the bodies of living substances. A flock of sheep might have its own dominant monad similar to the dominant monad had by any one sheep's body. Both the body of a sheep and the flock of sheep have parts. The only difference would seem to lie in the fact that the parts of the flock appear to be further away (spatially) from each other than do the parts of the sheep. So, if the sheep's body can have a dominant monad (and so be part of a 'unity per se'), so too, the flock of sheep could have a dominant monad (and be part of a 'unity per se'). Of course, this is not to claim that the flock itself is a unity per se, for neither is the body of any one particular sheep.

5. We here assume that entelechy and substantial form are equivalent, although we shall see in chapter 6 (p.106) that they are not always so for Leibniz. However, an examination of the texts under discussion here does invite the equation, for in the 1709 letter, the monad is a result of both entelechy and primary matter, or of an active principle and passive power, whereas in the 1715 postscript, the composite animal is the result of active and passive power or of substantial form and primary matter, or of a principle of impetus and a principle of resistance. This suggests that the active principle (entelechy) of 1709 is the same as the principle of impetus (substantial form) of 1715.

6. We take 'potentia' and 'vis' to be the same, following L.J. Russell, The Correspondence between Leibniz and De Volder, p.111. See bibliography.
8. See Specimen Dynamicum, Pt.1, 1695 (L.II.714) and Letter to Arnauld, 9 Oct.1687 (Mason p.153). We examine the Scholastic notion of primary matter in chapter 2.
10. Compare also chapter 6, p.115, quotation from Theodicy, §89.
12. Although we keep with the second camp with regard to our definition of the monad, with regard to the body, we adopt both of Russo's alternatives. According to Russo, those in the first camp believe that body is an aggregate of substances, and those in the second, that body belongs to the monad itself. This is the distinction between primary and secondary matter. Rather than deny one of these kinds of matter, our task involves rather trying to locate the connections between them.
13. On why we adopt the equation of primary matter and primitive passive force, see this chapter, p.17.
16. See chapter 8, p.157 in conjunction with p.164. Also E. Manier, Matter and Individuation in Leibniz. See bibliography.
17. Chapters 3 and 4.
18. See above, p.3.
19. Observe that if the composite substance is primitive active and passive power, or primary matter and substantial form, the monad can be nothing else but the soul, for the monad is always a simple substance.
20. Loemker translates 'potentia' as 'power', but it is equally acceptable to translate it as 'force'. Also see note 6 above.
21. For example, primary matter and primitive passive force are equated in Specimen Dynamicum, Pt.1, 1695 (L.II.714) and in the letters to des Bosses of 20 Sept.1712 and 21 Apr.1714 (L.II.988 and 991).
22. For discussion of the soul or substantial form in its capacity as provider of unity of the animal, see chapter 6, pp.116-118.
23. Leibniz continues, saying that 'a real substance (such as an animal) is composed of an immortal soul and an organic body; and it is the combination of these two that is called 'unum per se' (Letter to Remond, 1715, Latta's transl. pp.95-7, note 2). This again suggests that the monad is a soul together with its organic body because monads are unitities.
24. This dilemma is the subject of L.J. Russell's article, The Correspondence between Leibniz and de Volder. Russell attributes the differing definitions of monads to the fact that Leibniz's philosophy was never complete, and to an attempt on Leibniz's part to move away from the logical definition of substance in the Discourse on Metaphysics of 1686. This attempt involved bringing the body more fully into his account of substance, opening up the problems as to whether or not primary and secondary matter are elements of the monad or of the corporeal substance.
25. Often Leibniz equates souls and substantial forms, and he equates souls, substantial forms and primitive active forces. But as this is not always the case (see chapter 6), we here present the above as three different options.
26. Again, these are presented as separate options, because although Leibniz does often equate primitive passive force and primary matter, at other times he distinguishes them (see above, p.11).
27. The quotation from the correspondence with des Bosses, quoted on p.4 of this chapter (L.II.972) could be interpreted in this way.
28. It would be interesting to gather together Leibniz's various pronouncements regarding composite and corporeal substances in order to find a correlation between them. It would be a mammoth task, although likely a worthwhile one. We have not assumed that composite and corporeal substances are the same, although Leibniz's speaking of 'composite substances' rather than of 'composites of substances' invites
this equation. Often, however, composite substances are merely un-souled aggregates of monads (Principles of Nature and of Grace, §1, 1714: L.II.1033-34). In these cases, composite substances are presumably not corporeal substances (i.e. monads and their bodies). Observe that although the Principles of Nature and of Grace and the Monadology are very similar, in §2 of the Monadology, Leibniz speaks of compounds of substances without committing himself to the view that compounds are themselves substances (L.II.1044 and G.VI.607).

29. Our reasons for this are given on pp.9-10 of this chapter.

CHAPTER 2


2. See note 15 below.

3. 'The matter comes to be and ceases to be in one sense, while in another it does not. As that which contains the privation, it ceases to be in its own nature, for what ceases to be - the privation - is contained within it.' (Physica, 192a: The Works of Aristotle, vol.II). It follows from this that privation cannot be a quality or quantity. It denotes the absence of quality and quantity, and so cannot itself be these even negatively.

4. See Physica, 191a-191b: The Works of Aristotle, vol.II. Since primary matter is never without a form, it could be asked whether primary matter without form would have any potentiality. Wine has the potential to become vinegar, but a block of wood does not have this potential. Rather, a block of wood has the potential to become a pile of ashes. Wine can be 'not-vinegar' and wood can be 'not-ashes'. It might be argued that the wine cannot be 'not-ashes', nor the wood 'not-vinegar'. If this is so, it could be said that primary matter only has 'not-being' when it has a form which gives it being. Primary matter without form would be not-being per se, i.e. privation.

5. 'Materia prima cuilibet Entelechiae est essentialis, neque unquam ab ea separatur, cum eam compleat et sit ipsa potentia passiva totius substantiae completae.' (G.II.324). The complete substance is here a monad as opposed to a corporeal substance, which is the monad together with its organic body. For Leibniz goes on to say that secondary matter results from innumerable complete substances: 'materia vero secunda, qualis corpus organicum constituit, resultatum est ex innumeris substantiis completis.' (ibid.). Primary matter as the passive potentiality of the monad opens up the possibility that primary matter is the reason why the monad is in time. Without primary matter, there would be no potentiality, and so the monad would be either nothing at all or constantly fully actual. With nothing for the monad to become, with no changes for the monad to undergo, time would be undetectable, and some
would also say, if it is undetectable, it does not in fact exist. Compare God, who is fully actual, and is often considered as standing outside time.

6. Inertia and impenetrability are discussed in greater detail in chapter 3, pp. 40-46.

7. Chapter 4, pp. 52-53. It is true that Philalethes, quoting from Locke, states that prime matter can have no size (New Essays, Bk. 3, Chap. 10: R&B 344), but in his reply Theophilus (Leibniz) does not make known his assent or dissent on this issue.

8. Compare our discussion of Aquinas' determinate matter later in this chapter, p. 25.


10. For a clear and concise account of the different Scholastic definitions of primary matter, see Ivor Leclerc, Leibniz and the Analysis of Matter and Motion. See bibliography.


12. Leibniz has not contradicted himself. Primary matter can be thought of as separate from form, even though it may never be found without form in the actual world.

13. It might be thought that this determinate matter which possesses quantity is not primary matter. However, in the Summa Theologica, Pt. 1, Qu. 3, Art. 2, Aquinas says that 'dimensive quantity is the first property of matter' (Pegis p. 28), and he goes on to say that 'matter is that which exists in potentiality' (ibid.) and this is primary matter.

14. The reference of the second 'which' is unclear, making it controversial whether form or matter is that which is the first underlying subject which cannot be in another subject. Because the following 'it' is singular, it is likely that 'which' refers to primary matter. However, if the reference is to the forms, then Aquinas will be in agreement with Aristotle and Leibniz, who both accepted the doctrine that a substance is that which is always the subject and never the predicate of any proposition. See Aristotle, Categoricae, 2a 11-13: The Works of Aristotle, vol. 1 and Leibniz, Discourse on Metaphysics, § 8, 1686: L. I. 471 and The Nature of Truth, c. 1686: P. 95. Aristotle differs significantly from Leibniz because he distinguishes between being 'predicable of' a subject and being 'present in' a subject (Categoricae, 1a24: The Works of Aristotle, vol. 1).

15. We should not really even speak of 'some' primary matter or of identical or equal 'amounts' of primary matter, since before it has form, primary matter has no quantity. There can be no 'bits' of primary matter until it has form. Before being 'informed', primary matter is undifferentiated and undivided.

16. See quotation above (p. 24) from Opusc. XVI. Exposition. de Trinitate 2 ad. 4: Gilby 451, and also, Disputations, X de Veritate, 5: Gilby 658.

17. See above, p. 21.

18. Note that Aquinas's determinate matter is only the individuator of compound substances composed of soul and body. He accounts for the individuality of unextended, immaterial, indivisible units by the degrees of perfection and actuality
they possess. "Bodiless substances agree with one another in spirituality, but they differ in degrees of perfection according as they draw away from potentiality and draw nigh to pure actuality' Opusc. VII, de Ente et Essentia ad Fratres Socios, 6: Gilby 438). This is essentially Leibniz's solution to the problem of the individuation of monads, since Leibniz distinguishes monads according to the distinctness of their perceptions - see chapter 9, pp.190-191 - and holds that the more distinct a monad's perceptions, the more perfect is that monad - see chapter 9, p.183.

19. Eduard Manier, Matter and Individuation in Leibniz, argues that Leibniz did use primary matter as a principle of individuation. However, even if this is the case, it is unlikely that Leibniz realised that he was making use of primary matter in this way.

20. See this chapter, pp.21 and 31 and also chapter 5, pp.100-102.

21. Observe, however, that Leibniz attributes the equation of primary matter and primitive passive force to the Scholastics - see quotations in this chapter, pp.22 and 28.

22. p.121.

CHAPTER 3

1. The context from which this quotation is taken suggests that 'primitive force' is meant to refer only to primitive active force. But on p.37 below we show that derivative passive force cannot be a modification of primitive active force alone. Our interpretation conflicts with the view expressed in the postscript of Leibniz's letter to des Bosses (see chapter 1, p.2) in which derivative forces are said to be modifications of composite substances. A move towards reconciling these two views is made later in this chapter - see below, note 8.

2. The law of the series can have properties as well as modifications. Leibniz tells de Volder that, 'A temporal succession is a series, which has in common with other series the property that the law of the series shows where it must arrive in continuing its progress.' (21 Jan.1704: L.II.869). In connection with this, see J.E. McGuire, Labyrinthus Continui: Leibniz on Substance, Activity and Matter, p.300 (see bibliography): 'Leibniz, however, can distinguish between the state of a substance at a particular time, and the fact that it is in that state at that time. The latter is a permanent attribute of the substance, the former a temporary state of the substance.'


4. See chapter 5, pp.97-100 and chapter 10, pp.206-209.

5. See chapter 8, pp.157 and 165 and note 33.

6. It could be argued that this view enables us to accomodate the view expressed in the correspondence with des Bosses (postscript to the letter of 19 Aug.1715, see chapter 1, p.2, where derivative forces are modifications of composite substances. Leibniz's statements there might be interpreted as asserting that derivative forces are modifications of primitive
force only if these primitive forces form an aggregate body. Unfortunately, in the letter to des Bosses, it is the composite aggregate body, and not the monads, which has primitive force, whereas our interpretation still attributes primitive force to the monads themselves. So, our interpretation cannot fully eliminate Leibniz's inconsistency.


8. There is also a French noun 'la mode' meaning 'maniere' or 'facon' (fashion, shape or form) which has the same etymology as the masculine noun.


10. Compare what we say of motion, chapter 12, p.259.


12. The difficulty might be avoided if 'quantity of matter' is said to refer to the number of monads making up the organic, secondary matter, resisting body, and is not taken as referring to the amount of primitive passive force possessed by these subordinate monads. See chapter 4, note 22.


14. Perhaps, however, it could be said that the amount of heavy matter is the number of subordinate monads, and that the resistance of this heavy matter depends on how much primitive passive force these monads have. A lesser amount of heavy matter would have fewer monads than a greater amount of heavy matter and yet resist more because what monads it does have possess, collectively, more primitive passive force than the monads in the greater heavy matter. This would mean that we must qualify what we say of 'quantity of matter' in note 12 above. Quantity of matter will consist of both those (heavy) monads which are the body's own, and also those (non-heavy) monads which are not the body's own. Unfortunately, this now shows us the weakness of the solution proposed here, because every monad, except God, has primary matter, and all of them will, therefore, contribute to the resistance of the whole quantity of matter, contradicting Leibniz's statement that non-heavy matter does not sensibly resist (or, under our interpretation, that the monads which make up the non-heavy matter do not contribute to the resistance of the body).


16. Russell (Critical Exposition, pp.78-79 - see bibliography) equates primary matter and resistance. He does this because he does not make our equation of resistance with inertia and impenetrability. Rather, Russell regards inertia and impenetrability as properties of resistance, and so as properties of primary matter.

17. Chapter 13, pp.268-269.

18. The distinction is actually fourfold. As an aggregate of monads, the body can be either 1. distinctly perceived (thought of) or 2. confusedly perceived (sensed). As a phenomenon (i.e. as an element in a monad's perceptions, it can again be 3. an element in a confused perception, or 4. an element in a distinct perception. However, Leibniz does not
grant the fourth option. He does not speak of phenomena as elements in distinct perceptions. Phenomenal bodies are always sense perceived (or so we will argue in chapter 5). Phenomenal bodies distinctly perceived would be aggregates of monads, and Leibniz may have thought that this had already been accounted for under 1. He may also have thought that the body is not actually a body when it is distinctly perceived. When distinctly perceived, the aggregate is seen as what it actually is, and not as the extended, material object which is the way it is presented in our confused perceptions.

19. See chapter 10, pp.203-204. The joining together of these two views is the foundation of the description of a body as a well-founded phenomenon.


21. In a letter to de Volder, Leibniz writes: 'I do not admit any action of substances upon each other in the proper sense, since no reason can be found for one monad influencing another. But in appearances composed of aggregates, which are certainly nothing but phenomena (though well founded and regulated), no one will deny collision and impact. Meanwhile I discover that it is further true in phenomena and derivative forces that masses do not so much give new force to other masses as they give determinate direction to the force already existing in them, so that one body is repelled away from another by its own force rather than being propelled by the other.' (20 June 1703: L.II.863) Hence, as a confusedly perceived aggregate of monads, the body (as a phenomenon) displays causal influence. Derivative force, on the other hand, is a modification of the aggregate, and is not a modification of the phenomenon. It is therefore possible that, although the derivative forces themselves have no causal influence, the phenomenon, which is that which has resistance and motion, can be a causal agent.

22. Because we have not interpreted derivative force as a modification of the dominant monad, our interpretation does not provide us with a simple explanation of the relation between the dominant monad and its organic body, in which the primitive force of the dominant monad is modified as the derivative force of the body. Nevertheless, we shall find that our interpretation of derivative force does help us to explain the relation in a different way, and in a way which is more in keeping with Leibniz's own writings.

23. As phenomena (i.e. as elements in perceptions rather than as aggregates of monads) bodies can have causal influence. But it should be remembered that these bodies are perceived as causal agents only when they are confusedly perceived. See also notes 18 and 21 above.

24. Chapter 5, p.79.

CHAPTER 4

1. The fact that primary matter is here said to be always joined to a form gives us some reason to believe that it can only have quantity when the form is present, see chapter 2, p.21.

In a letter to des Bosses, 16 March 1709 (G.II.368), Leibniz
wrote of how the materia prima of one monad does not increase mass (massam), or the phenomenon resulting from monads, any more than a point increases a line. 'Caeterum materia prima propria, id est potentia passiva primitiva, ab activa inseparabilis, ipsi Entelechiae (quam complet, ut Monada seu substantiam completam constituit) concreatur. Ea vero massam, seu Phaenomenon ex Monadibus resultans, non auget, non magis quam punctum lineam.' (G.II.368).

Contradiction with the later letter might be avoided if, in this passage, Leibniz is using 'massa' to signify an extended material secondary matter and, in the letter of 30 April 1709, is using it to signify secondary matter as an aggregate of unextended monads. On the other hand, the contradiction will remain if secondary matter cannot be at once both an aggregate of monads and an extended, material substance.

2. In the Refutation of Spinoza, c.1708, Leibniz calls extension a 'repetition of perceptions' (Duncan p.179). But there cannot be a repetition of perceptions without also a repetition of perceiving beings, or a repetition of beings which are perceived. See chapter 5, p.102.

3. See quotation on p.4 of chapter 1 (Letter to des Bosses: L.II.72) and also see chapter 6, pp.110-112.

4. See chapter 8, p.157. The essence of a substance is its law, and its law is its primitive active force. On bodies, see chapter 8, pp.153-155.

5. On p.132 (chapter 7), we quote a passage from the correspondence with de Volder in which extension is said to be the diffusion of a force from which activity and passivity result. Again, to avoid conflict with the passages under discussion here, it must be borne in mind that derivative activity and passivity (derivative forces) result from the primitive forces of the monads.

6. See chapter 1, p.4.

7. Leibniz continues the above quotation saying: 'For extension signifies only a repetition or continued multiplication of that which is extended; a plurality, continuity and co-existence of parts.' (Duncan pp.44-45) suggesting that not only are the subordinate monads repeated, but so too, are the subordinate monads' extended bodies.

8. Chapter 8, pp.157-165.

9. It will be the derivative passive force of the subordinate monads' bodies which is repeated, if derivative passive force is a modification of an aggregate of primitive passive forces.

10. See chapter 2, p.25.

11. However, because of its homogeneity, the repetition of the subordinate monads' primitive passive forces does not provide us with any reason why some monads rather than others are subordinate to any one particular dominant monad (see above, this chapter, p.58. Leibniz needs the subordinate monads to be both dissimilar so that they can be distinguished from one another, and also similar so that they can be parts of the same body.

12. See above, this chapter, p.54.

13. But observe what we say on pp.63-64 of this chapter
concerning how the amount of resistance repeated will vary according to the type of material in question.

14. See above, this chapter, p.53.

15. See above, this chapter, p.53.

16. But this is subject to certain restrictions, see this chapter, pp.63-64.

17. We should note that sometimes Leibniz claims that primary matter is proportional to a body's magnitude: 'Hence it is in this passive force of resistance, which involves impenetrability but something more, that I locate the concept of primary matter, or mass [molis] which is everywhere proportional in a body to its magnitude.' (On Nature Itself, Sept.1698: L.II.818). Magnitude and extension are not the same thing, for primary matter is proportional to the first but not to the second. Of magnitude, Leibniz wrote that it 'is in fact measured by the number of determinate parts, yet this number may vary for the same fixed thing, depending upon which measure or unit is assumed' (On Analysis Situs, n.d.: L.I.391). Most likely, the determinate parts are the subordinate monads' bodies, for if the determinate parts are what Leibniz later came to call 'monads', the relation between magnitude and secondary matter will be the same as the relationship between extension and secondary matter, since the monads making up the secondary matter will be the determinate parts measured in the investigation of the magnitude of any body.

It is confusing that, although derivative passive force is not proportional to the primary matter (of the dominant monad), derivative active force must be proportional to primary matter, since it, too, is proportional to the body's magnitude (ibid.: L.II.818). See chapter 12, pp.243-245.


19. p.53.

20. Note that the fact that inertia and impenetrability are properties of primary matter does not provide us with an argument for the proportionality of resistance and primary matter, since something can be a property of something else without the two having to be in proportion to each other. The same holds for the relation between resistances and secondary matter.


22. In chapter 3, p.43, we observed Leibniz saying to Clarke that, 'it is not so much the quantity of matter as its difficulty of giving place that makes resistance' (Fifth letter to Clarke: L.II.1142). If we take 'quantity of matter' to mean the number of subordinate monads in the secondary matter (which is proportional to the primary matter of the dominant monad), the 'difficulty of giving place' can now be the result of how much primary matter the subordinate monads possess. But also see chapter 3, note 14.

23. On fluidity and primitive passive force, see chapter 2, pp.27-30.

24. This is another reason why the idea of extension as a repetition of primitive active forces is unsatisfactory (see above, pp.58-59).

26. Leibniz here uses the term 'massa' for 'mass'. This is later reserved by Leibniz for secondary matter, i.e. for an aggregate of monads. 'By matter, I here mean mass (massam) or secondary matter, where there is extension with resistance' (Letter to des Bosses, 30 April, 1709: L.ii.970, quoted above, p.52). See also L.ii.558, note 51.

27. See chapter 1, p.11.

CHAPTER 5

1. The view that thoughts are a kind of perception goes against the argument put forward by G.H.R. Parkinson in his paper, The "Intellectualization of Appearances": Aspects of Leibniz's Theory of Sensation and Thought. See bibliography. The view is, however, in agreement with Mark Kulstad's arguments in his paper, Some Difficulties in Leibniz's Definition of Perception. See bibliography.
2. See chapter 11, p.219.
3. See chapter 3, p.51. Between different monads, increases in the primitive active force of one monad and decreases in the active force of another monad signify the action of one substance on another, see chapter 9, p.187. (Also note that although the active force of individual monads changes, the total perfection of the world does not change, see chapter 9, note 33.)
4. Observe that what Rescher should have said is that there is a connection between distinct perceptions and primitive active force. If clear perceptions are comparable to clear knowledge, then, under Leibniz's definition of clarity, clear perceptions can be either distinct or confused - see this chapter, p.83.
5. Parkinson (op.cit. pp.15-17) also compares perceptions and knowledge. But he restricts the discussion to that of a comparison between perceptions and concepts, rather than between perceptions and the act of knowing. Parkinson's conclusions differ accordingly.
6. Under some interpretations, inadequate, distinct knowledge may also be either symbolic or intuitive. See below, note 7.
7. When something is distinctly known, the marks by which it is distinguished from other things can themselves be known either confusedly or distinctly. When the marks are known confusedly, distinct knowledge is inadequate, but when they are known distinctly, distinct knowledge is adequate. Symbolic or blind knowledge is that where we use signs to signify the marks by which things are distinguished. In these cases, we believe that we could give a distinct account of the marks, even though at the present time we do not do so. If we are wrong in our belief about our ability to know the marks distinctly, our knowledge will be symbolic, but inadequate. Intuitive knowledge would occur if we could distinctly know all the distinguishing marks of a thing, and have them all in our mind simultaneously. Because of the mind's limitations, humans usually only have intuitive knowledge of primitive (i.e. simple) concepts, which have only one distinguishing mark (i.e. the thing itself), or when the concept is not very complex, because it has only a few distinguishing marks. See
Meditations on Knowledge, Truth and Ideas, 1684: L.I.449-450.

8. Margaret Wilson (Confused Ideas - see bibliography) discusses Leibniz’s own confusion in shifting from confused sense perception of divisible objects or qualities to the claim that our knowledge of the concepts of these objects or qualities is also confused. She believes Leibniz’s shift to be due to his conflation of the qualities themselves with the perception of these qualities (see pp.129-130). Her argument does not conflict with our attempt here to show why Leibniz believed sense perception to be confused. In fact, her argument rather presupposes ours.

9. Mark Kulstad (op.cit. pp.65-78) calls such a ‘global perception’ a ‘perceptual state’ (p.72). In his article, he uses the distinction between an individual perception and a perceptual state to try to solve the dilemma he believes to be the outcome of Leibniz’s definition of perception as the expression of many things in one, viz. the dilemma that this definition leads to the conclusion that a monad cannot perceive another simple substance. Kulstad eventually rejects the distinction as being of no help here. However, if all perceptions are actually perceptual states in Kulstad’s sense of ‘perceptual state’, then there could perhaps be perceptions of simple substances if we include in this the facts that a monad is always accompanied by an organic body and that these bodies are composed of subordinate monads. It could then be said that we can sense perceive a simple substance, so long as we always also perceive its aggregated organic body. This allows sense perception of a simple substance to also be an expression of ‘the many’.

10. Note that we here interpret confused thoughts to be sense perceptions, but see note 1 of this chapter.

11. It might even be said that we distinguish these parts of the flowers because we have concepts of them, or at least that we distinguish them more readily once we have the concept of them.

12. Also see passage from the letter to Remond of 11 Feb.1715, quoted above, p.79.


14. There is evidence that Descartes, like Leibniz, believed all sense perception to be confused. In the Second Meditation, Descartes asks, ‘What, then, was it that I knew in this piece of wax with such distinctness?’ and he replies, ‘Certainly it could be nothing of all the things which I perceived by means of the senses.’ (Sutcliffe pp.108-9). Similarly, it would seem that Descartes allowed there to be degrees of confusedness and distinctness (and also of clarity and obscurity – see Principles of Philosophy, Pt.1, Pr.63: H&R.I.246). Descartes’ criteria for distinctness are also very similar to those of Leibniz: ‘our conception’ he writes ‘is not more distinct because it comprehends fewer properties, but because we distinguish accurately that which it does comprehend from all other notions’ (ibid.).

15. For discussion of expression, see chapter 11.

16. For example, assuming that Leibniz means ‘monad’ when he talks of souls: ‘For there is no soul or entelechy which is not
dominant with respect to an infinity of others which enter into its organs, and the soul is never without an organic body which fits its present state.' (Reply to the Thoughts on the System of Pre-established Harmony, 1702: L.II.944). See also, New Essays, Bk.2, Chap.23, 1704: R&B 221.

17. See chapter 4, p.66.

18. Note that the more these subordinate monads perceive confusedly, the greater will be the resistance of the organic body of which they are parts, since both these monads' confused perceptions and the resistance of the whole organic body are due to the primitive passive forces of the subordinate monads.

19. Under this interpretation, extension could be a repetition of both primitive active and primitive passive forces. Compare our discussion of extension in chapter 4, pp.55-60.

CHAPTER SIX

1. Also see chapter 1, p.5 for quotation from Specimen Dynamicum in which Leibniz explicitly states that primitive active force is a substantial form.

2. It is interesting to compare this with what we said in chapter 1, pp.8-9. Significantly, Leibniz is here speaking of entelechies, which in Chapter 1 were associated with the body - the entelechy is the 'entelechy of the body'. It contains the 'completion of possibility', making that which is potential (i.e. primary matter), actual.

3. Compare Thomas Aquinas, 'To seek the nature of the soul, we must premise that the soul is defined as the first principle of life in those things in our world which live; for we call living things animate, and those things which have no life, inanimate.' (Summa Theologica, Pt.1, Qu.75, Art.1: Pegis p.683). But Leibniz is unsure whether to attribute substantial forms to inanimate objects. In his correspondence with Arnauld, he says: 'I do not know if the body, when the soul or substantial form is left aside, can be called a substance. It may well be a machine, an aggregate of many substances, in such a way that if I am asked what I am obliged to say concerning the form of the corpse or of a marble tile, I shall say that they are perhaps united by aggregation like a heap of stones and are not substances.' (Draft of the letter to Arnauld of 28 Nov./8 Dec.1686: Mason p.89). In the later letter which was actually sent, Leibniz tends towards the view that only animate beings have substantial forms (Mason p.95). In a later letter to Arnauld (9 Oct.1687: Mason p.154), he denies that he had ever attributed substantial forms only to animate beings, but even here he implies that inanimate objects are aggregates of animated beings, and that it is these animated beings which possess the substantial forms. All the same, for all that we would not expect Leibniz to deny that the monad is living, it cannot be denied that in the passage quoted above from On Nature Itself, the form is both an element of the monad and the form of an inanimate thing.

4. And also, letter to John Bernoulli, 18 Nov.1698: L.II.830 - 'Forms are for me nothing but activities or entelechies, and
substantial forms are the primary entelechies'.

5. See chapter 1, p.11.

6. It might be the case that monadic entelechies belong to monads which are parts of the body. Minds or souls are not parts of bodies. They are spiritual, and are not entelechies of the body - see chapter 1, pp.8-9 and also note 2 above.

7. Indivisible substances, as we shall see, are indestructible. Their forms cannot be destroyed, only changed. As the form which arises out of the union of monadic entelechies, the substantial form would be the form of an aggregate, not the form of an indivisible substance. It would be the substantial form of a composite substance, not the form which is part of an indestructible, unitary, individual substance, or monad.

8. Except, perhaps, with regard to our suggestions with regard to the form as the entelechy of the body, unless the rational soul can also be the entelechy of the body because the soul is never without an organic body.

9. See chapter 1, p.17.

10. In the Physica, Aristotle's words are: 'Nature is a source or cause of being moved and of being at rest in that to which it belongs primarily'. (Physica, Bk.2, 192b: The Works of Aristotle, vol.II)

11. See Correspondence with Clarke, §53 of Leibniz's Fifth Paper, 18 Aug.1716: Alex. p.74. It is true that this was written just before Leibniz died, while the other quotations are dated much earlier, but we assume that Leibniz held this view for some time.


13. Leibniz also distinguishes his derivative active force from the Scholastics' forms: '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 [propinqual] possibility of acting, which needs an external excitation or a stimulus, as it were, to be transferred into action. Active force, in contrast, contains a certain action or entelechy and is thus midway between the faculty of acting and the action itself and involves a conatus. It is thus carried into action by itself and needs no help but only the removal of an impediment.' (On the Correction of Metaphysics and the Concept of Substance, Acta Eruditorum, March 1694: L.II.709). The derivative active force is said to 'contain' the substantial form or primitive active force, but in fact Leibniz believed it to be a modification of the primitive active force.

14. Leibniz recognised his debt to St. Thomas, see below p.114.


16. Loemker believes Leibniz's reading of Aquinas to be erroneous (L.II.1185.n.121).

17. Observe that the form is not here the form of an inanimate being, as Leibniz had declared it to be in On Nature Itself (see this chapter, p.105).

18. Leibniz, p.140. See bibliography.


20. Critical Exposition of the Philosophy of Leibniz, p.150.
21. See also, Thomas Aquinas: 'the same essential form makes man an actual being, a body, a living being, an animal and a man.' (Summa Theologica, Pt.1, Qu.76, Art.6: Pegis p.713) and 'the unity of a thing composed of matter and form is by virtue of the form itself' (Summa Theologica, Pt.1, Qu.76, Art.7: Pegis p.714).

22. Leibniz’s meaning is clear despite the fact that a flock of sheep is made up, not of inanimate bodies, but of animated, living sheep.

23. We do not intend to suggest here that the form confers indivisibility on an already animated substance, nor do we want to imply that the animated substance is even logically prior to the substantial form. Without the form, the substance cannot be animated (besouled). All that we mean here is that it is because there is a form in the animal, the animal is animated, is indivisible and has being.


25. See above, this chapter, p.110.

26. Quoted above, this chapter, p.113.

27. Leibniz also believed he had the backing of Averroes, Angelius Mercenarius, and Jacob Zarabella (On Transubstantiation, c.1668: L.I.181).

28. But compare, ‘Perception, too, cannot be explained by any mechanism, what-ever it may be’ (On What is Independent of Sense and of Matter, 1702: L.II.897) and, ‘It must be confessed, moreover, that perception and what depends on it are inexplicable by mechanical reasons, that is, by figures and motions. If we pretend that there is a machine whose structure enables it to think, feel, and have perception, one could think of it as enlarged yet preserving its same proportions, so that one could enter it as one does a mill. If we did this, we should find nothing within but parts which push upon each other; we should never see anything which would explain a perception. So it is in the simple substance, and not in the composite substance or machine, that perception must be sought.’ (Monadology, §17, 1714: L.II.1046).

29. Mechanical explanations explain phenomena by reference to the laws of motion. Once we have allowed the concept of derivative active force in mechanics (or rather, in Leibniz’s new science of dynamics), then ‘all other material phenomena can be explained through local motion’ (Specimen Dynamicum, Pt.1, 1695: L.II.715). Leibniz’s point is that the derivative active force has to have its foundation in the metaphysical concept of primitive active force.

30. Further quotations expressing the same view can be found in Critical Thoughts on the General Part of the Principles of Descartes, Pt.2, 1692 (L.II.674-5): Specimen Dynamicum, Pt.1, 1695 (L.II.722): Tentamen Anagogicum, c.1696 (L.II.779); Letter to Remond, 10 Jan.1714 (L.II.1064).

31. See also, Tentamen Anagogicum, c.1696: L.II.780, and Specimen Dynamicum, Pt.1, 1695 (L.II.723).

CHAPTER 7

1. ‘the nature of matter or of body in its universal aspect,
does not consist in its being hard, or heavy, or coloured, or one that affects our senses in some other way, but solely in the fact that it is a substance extended in length, breadth and depth.' (Principles of Philosophy, Pt.2, Pr.4: H&R 255-6), and, 'the idea of extension that we perceive in any space whatever is quite evidently the same as the idea of corporeal substance.' (ibid., Pt.2, Pr.21: H&R 264-5). Also see Pt.1, Pr.53: H&R 240.


4. A fuller discussion of extension has already been given in chapter 4. See especially the discussion on whether extension results from the repetition of only primitive passive force, or from the repetition of both primitive active and primitive passive force (chapter 4, pp.55-61).


6. See also, On the Correction of Metaphysics, March 1694: L.II.709-710.

7. For example, Specimen Dynamicum, Pt.2, 1695: L.II.728-9, and Correspondence with Huygens, 12/22 June 1694: L.II.686.


9. Leibniz's argument for force in bodies if their motion is to be real provides him with another reason why Descartes' forceless 'res extensa' cannot fully characterise bodies - see A Specimen of Discoveries, c.1686: Park. p.82, and, Discourse on Metaphysics, $18, 1686: L.I.484.

10. It must be observed that in this argument Leibniz has again only asserted a connection between motion and force, and not between motion and the more specific primitive active force. That is to say, he has again left open the possibility that motion in a body shows the presence of primitive passive force as well as primitive active force. However, we have already given some reasons why motion should display the presence of primitive active force. See pp.132-134 above, and also, p.141 below.

11. On the relations between the perfection of the world as a whole and the perfection of individual physical events or phenomena in that world, see George Gale's article, Did Leibniz have a Practical Philosophy of Science? Or, Does 'Least-Work' Work? See bibliography.

12. There is no reason to doubt that perception is a kind of expression - see chapter 11, p.219.


CHAPTER 8

3. Chapter 6, pp.116-118.
4. Later in the same paper (L.II.745), Leibniz calls mathematical points 'modalities' (modalites).
12. Correspondence with Clarke, Leibniz's Fourth Paper, 2 June 1716: Alex. p.36. For an argument against the infinite divisibility of matter, see Clarke's Fourth Reply, 26 June 1716: Alex. p.53-54.
14. Leibniz's Fourth Letter to Clarke, 2 June 1716, Postscript: Alex. p.44.
15. See quotation from Dieter Turck, chapter 1, p.8.
16. This is similar to Parkinson's explanation of why the monad is sometimes a soul and at other times a soul and primary matter, see chapter 1, p.7.
17. For Leibniz's specific arguments against these two analogies see, Reflections on the Doctrine of a Single Universal Spirit, 1702: L.II.899-910.
20. This argument is more persuasive if extension is a repetition of primitive passive force, see chapter 4, pp.59-60.
21. See chapter 6, p.106.
22. See below, p.157.
27. Discourse on Metaphysics, §89. 1686: L.I.472, and also, Remarks, Correspondence with Arnauld, 1686: Mason p.45.
31. Critical Exposition, p.54.
33. This passage can be interpreted either as stating that 1.
the essence of a substance is either its primitive active force or its law of the series, but not both, or 2. as asserting that the law of the sequence of changes and the primitive active force are one and the same thing. We adopt the second interpretation because Leibniz elsewhere identifies the law of the series with primitive force, see Letter to de Volder, 21 Jan.1704: L.II.863 (see chapter 3, p.34). On the quotation from the Notes on the Reply to Foucher, it should be said that Leibniz's analogy would be more intelligible if he compared the monad's law of the sequence of changes, not with the numbers in a series, but rather with the law of the series of numbers.

35. See letter to de Volder, 21 Jan.1704: L.II.872 - 'there is a fixed law of the progression of phenomena' in each perceiving being. In a letter to Arnauld, 23 March 1690: Mason p.170, this law is called 'the law by which the series of its (i.e. the monad's) operations continues'. A monad's operations are presumably its appetitions. These are discussed in chapter 9.

36. See chapter 5, p.76.
37. See chapter 3, p.34.
38. See arguments of chapter 6, p.108. Our view is also supported by the fact that both the law of the series and the substantial form are individuators for Leibniz.
39. Canguilhem, G., Études d'Historie et de Philosophie des Sciences, pp.359-360 (see bibliography) finds a similarity between DNA and Leibniz's definition of an individual substance as a law of the series of its operations.
40. Chapter 5, pp.86-87.
41. See New Essays, Bk.2, Chap.21: R&B 210, and the explanation of the connection between primitive active force and distinct perception which we give in chapter 10, p.199.
42. Compare what we say in chapter 5, pp.81-82.

CHAPTER 9

1. The appetite is therefore the action behind the changes in the monads. But more than this, changes in the monads are the basis of changes in bodies, because bodies are aggregates of monads. Changes in the perceptions which the monads in the body have are expressed by a monad which perceives that body as a change in the body itself. But the body would not change if the component monads' perceptions did not change. To de Volder, Leibniz explains the matter as follows: 'You doubt whether a single simple thing is subject to changes. But since only simple things are true things, and the rest are beings by aggregation and therefore phenomena, existing, as Democritus put it, by convention but not by nature, it is obvious that, unless there is change in the simple things, there will be no change in things at all.' (20 June 1703: L.II.864). And more simply in the Monadology, 'if simple substances did not differ by their qualities, there would be no way of perceiving any change in things, since what is in the composite can come only from its simple ingredients.' (§8, 1714: L.II.1045).
2. On how we can make sense of the idea that primitive active force is both a law and a force (the action of which is the appetite), see discussion on the law of the series in chapter 8, pp.159-161.

3. It might be asked whether the series of perceptions and appetitions is such that there is an appetite, followed by a perception, followed by an appetite, and so on, or whether the series is such that there is an appetite and a perception, followed by another appetite and another perception, and so on. The difference can be illustrated as the difference between the series Ai, Pi, Aii, Pi, Aiii, Pi, Aiv, Piv . . . and the series API, APii, APiii, APiv . . ., where 'A' is an appetite and 'P' is a perception. In other words, are appetitions separate from or included in the perceptions which they bring about? The latter option is to be favoured because this would enable Leibniz to avoid problems arising from the fact that it is the same primitive active force which gives rise to both the appetite and the (distinct) perception (see above, pp.184-185). Alternatively, Leibniz could have denied that appetitions are modifications, but this he does not do (see postscript to the letter to des Bosses of 19 Aug.1715: L.II.1003).

The possibility that Leibniz believed there to be both a series of perceptions and a series of appetitions is ruled out by the fact that, in the passage quoted from the Metaphysical Consequences of the Principle of Reason, he speaks of a 'seriem appetituum et perceptionum' (Couturat, Opuscules et Fragments Inedits, p.14).


5. Observe, however, that such a view might be consistent with the view which Leibniz expounded whereby the substantial form arises out of the union of monadic entelechies (see chapter 5, p.106). Also observe that a similar objection might be brought against the notion of simultaneous perceptions. If a number of perceptions can occur at the same time, it must be explained how a monad's primitive active and primitive passive forces can be modified as a set of perceptions. However, this is not such a severe objection as it is with respect to appetitions, since it is possible to conceive of a force being modified as a set of perceptions in a way in which it is not possible to conceive of a force being modified as a set of individual actions.

6. This is consistent with the interpretations of the relations between primitive passive force and confused perception and primitive active force and distinct perception given in chapters 5 and 10 respectively.

7. Leibniz here agrees with Descartes: 'no-one, when he considers himself alone, fails to experience the fact that to will and to be free are the same thing [or rather that there is no difference between what is voluntary and what is free]. (Reply to Objections, 3, No.12: H&R.II.75).

8. Compare Spinoza, 'To act virtuously is to act in obedience with reason' (The Ethics, Pt.IV, Prop.36: Elwes p.211).

9. This fact is related to the fact that created monads have primitive passive force. See chapter 5.
10. See chapter 5, pp.82-96.
11. The degree of adequacy of a perception will depend not only on the distinctness with which any one particular thing is perceived, but also on how many things are distinctly perceived.

There is a question to be asked as to whether or not a monad has a number of different points of view of the world during its lifetime, or one point of view corresponding to the law of the series of its perceptions, i.e. is the monad's point of view the same as its essence or law, or is it the same as any particular perception in the series? A case could be made for either view in Leibniz. It is possible that he adopts both alternatives. Margarita Levin (Leibniz's Concept of Point of View - see bibliography) assumes that Leibniz's points of view are analogous to the whole life of the monad, rather than that the monad has a number of different points of view during its lifetime. But the concept of a global point of view composed of more specific points of view is not contradictory, and Leibniz might have adopted both kinds of points of view.

Our argument here assumes points of view at specific times.

12. Reflection, for Leibniz, can only be accomplished by a being which is conscious of itself (see chapter 14, pp.310-312). It follows from this that only self-conscious beings can be free.

13. Compare Aquinas, 'Now it is the very notion of good to be the term of appetite, since good is the object of every appetite' (Summa Contra Gentiles, Vol.3, Pt.1, Chap.3: English Dominican Fathers, p.7 - see bibliography). We shall see later how it can be said of Leibniz's appetitions that they all, not only the rational ones, strive towards the good (pp.189-190).

14. Spinoza's account is similar: 'Under the guidance of reason we should pursue the greater of two goods and the lesser of two evils' (The Ethics, Pt.IV, Prop.65: Elwes p.231) and 'We may, under the guidance of reason, seek a greater good in the future in preference to a lesser good in the present, and we may seek a lesser evil in the present in preference to a greater evil in the future.' (ibid., Prop.66: Elwes p.231). Spinoza's note on Prop.66 is particularly illuminating: 'we shall readily see the difference between a man, who is led solely by emotion or opinion, and a man, who is led by reason. The former, whether he will or no, performs actions whereof he is utterly ignorant; the latter is his own master and only performs such actions, as he knows are of primary importance in life, and therefore chiefly desires; wherefore I call the former a slave, and the latter a free man.' (ibid. Prop.66, Note: Elwes p.232). Also compare Descartes, Meditation 4: H&R.1.175.

15. Compare Spinoza: 'man is led to seek for means which will bring him to this pitch of perfection, and calls everything which will serve as such means a true good.' (On the Improvement of the Understanding: Elwes p.6) and also Descartes' Arguments Demonstrating the Existence of God: 'The will of a thinking being is borne, willingly indeed and freely (for that is of the essence of will), but none the less
infallibly, towards the good that it clearly knows. Hence, if it knows certain perfections that it lacks, it will immediately give them to itself if they are in its power [for it will know that it is a greater good for it to possess them, than not to possess them].' (Def.7: H&R.II.56).

16. The perfection of an individual substance can increase or decrease (see n.33 above). For a mathematical-type explanation of an increase or decrease in perfection, see De Progressu In Infinitum, 1694-6 ?: Grua 1.94-95.

17. See this chapter, p.170 and chapter 5, pp.77-79. The lack of freedom or control experienced in relation to our sense perceptions is due, then, to the fact that we perceive the body confusedly, viz. when our perceiving soul is limited by primitive passive force.


19. It should be said that there is a conceptual difficulty present when we speak of an amount of primitive active force in a monad at a certain moment in time. As the law of the series, the monad’s essence, substantial form, or primitive active force, is, in a sense, a-temporal, or in some way, outside time. Time enters into Leibniz’s metaphysical system when the monad’s primitive forces are modified, or when the terms of the series are actualized. Leibniz wants both a force which refers to the monad’s essence, and which somehow specifies the whole of a monad’s life, and also a number of different primitive active forces in a monad at different times, which can then be said to act in such a way that they bring about the passage from one perception to another, which perceptions are of varying degrees of distinctness and confusedness.


21. See chapter 10, p.199.

22. See quotation from the postscript to the letter to des Bosses, 19 Aug.1715, quoted above on p.2 (chapter 1).

23. But see chapter 15, pp.331-336 regarding the difficulties Leibniz encounters when he tries to find a notion of choice compatible with morality.

24. See chapter 15 for detailed analysis of both kinds of laws.


27. See above, p.179.


29. We said that these two goods should coincide. However, in an imperfectly rational being it can sometimes be the case that what it perceives as good for itself is not actually so. All the same, what it perceives as good shall always be towards the good of the whole, regardless of whether or not the rational being understands this to be so.

30. Latta does make this point elsewhere, see Latta p.35.

31. Taking ‘point of view’ this time to be the kind which is analogous to the monad’s essence – see above, note 11.

32. This is a statement about degrees of confused and distinct perceptions of the world, and not a statement about what is
confusedly or distinctly perceived. All monads perceive all other monads, but in each monad, some monads are perceived more distinctly than others are perceived. The continuous scale from confused thoughts to distinct perceptions tells us only that the total amount of primitive active force (and hence of distinct perception) of any one monad will differ from that of each and every other monad. It does not tell us anything regarding which monads are distinctly perceived and which not, and hence does not imply that each monad is itself perceived by all other monads according to a continuous scale of confused and distinct perceptions, or in other words, it remains possible that any one monad may be perceived by two or more monads with the same degree of distinctness, even though these other monads do not have the same total amount of distinct perception.

33. We should observe that Leibniz believed that the perfection of individual substances could increase or decrease, but that the perfection of the world remains static: 'It is asked whether the whole world increases or decreases in perfection, or indeed always preserves the same perfection, which I rather think, even though the different parts variously exchange perfection among themselves, so that it is transferred to and fro.' (Does the World Increase in Perfection, 1694–96?; my translation). 'Quaeritur an totus mundus perfectione crescat aut decrescat, an vero eandem semper perfectionem servet, quod potius puto, tametsi diversae partes perfectionem inter se varie permutent, ut invicem transferatur.' (Grua I.95). It follows from this that if one individual substance is improved, then another must be impaired: 'If the perfection of the world remains the same, certain substances cannot perpetually increase in perfection without others perpetually decreasing in perfection.' (ibid.; my translation) 'Si eandem manud mundio perfectio, non possunt quaedam substantiae perfectione perpetuo crescre, quin aliae perfectione perpetuo decrescant.' (Grua I.95).

34. See chapter 16, pp.340–341.

35. This is similar to what we said concerning personal good and the good of the whole (pp.189–190). It can be said that when the monad is in harmony with itself, it must also be in harmony with the rest of the world. After all, the monad's perceptions represent the whole world, so if the monad's perceptions are in harmony with each other, so too, they must be in harmony with the rest of the world. (Leibniz's philosophy could, however, be criticized on the grounds that disharmony has no place in the world, because even if a monad feels that it is not 'at peace' or in harmony with itself, it must, in fact, be so, since it is always in harmony with the rest of the world.)

36. Again there are similarities in the philosophy of Spinoza: 'Pleasure in itself is not bad but good: contrariwise, pain in itself is bad'. (The Ethics, Pt. IV, Prop.41: Elwes p.217).

37. Again compare Spinoza: 'When the mind regards itself and its own power of activity, it feels pleasure: and that pleasure is greater in proportion to the distinctness wherewith it conceives itself and its own power of activity'
(The Ethics, Pt. III, Prop. 53: Elwes p. 165).

38. Superessentialism, Counterparts and Freedom. See bibliography.


40. The Root of Contingency. See bibliography.

41. Leibniz and Contingency. See bibliography. Lois Frankel's interpretation (Being Able to do Otherwise, Leibniz on Freedom and Contingency - see bibliography) is also similar to ours insofar as he recognises that Leibniz's freedom involves rational decisions based upon our perceptions of what is good and what is bad.


43. Logic and Reality in Leibniz's Metaphysics, p. 100.

44. See chapter 15, pp. 331-336.


46. See chapter 14, p. 307 and p. 313.

47. But see note 35 above.

CHAPTER 10

1. In chapter 5 we acknowledged that sense perceptions of material objects can be distinct (see chapter 5, pp. 92-96). But any degree of distinctness in this case is due to our conceptual abilities.

2. For example, see New Essays, Bk. 2, Chap. 21: R&B 210.

3. Presumably, perception is involved because all monads have some primitive passive force. Leibniz also connects thought with reflection or self-consciousness: 'Only two qualities are perceived in mind: perceptivity (or the power of perceiving) and activity (or the power of acting). Perception is the expression of many things in one, or in simple substance; if it is combined with the reflection of the percipient, it is called thought.' (A New Method for Learning and Teaching Jurisprudence, Revision Note, 1697-1700: L.I. 557 n. 37) But compare Leibniz's letter to Arnauld, 9 Oct. 1687: Mason p. 144: 'this representation is accompanied by consciousness in the rational soul, and then it is called thought.'

4. See Meditations on Knowledge, Truth, and Ideas, Nov. 1684: L.I. 449. Margaret D. Wilson (Confused Ideas) argues against Leibniz's shift from the complexity of the perceived quality in our sense perceptions to the complexity of the concept of this quality. She rightly points out that we can have a distinct concept of, say, 'redness' for we can conceive of it in scientific terms and distinguish it from other colours by the length of its wavelength. She notices a hesitancy in Leibniz over the question of whether or not it is possible to have an idea of the quality of redness without ever having perceived something red.

5. See discussion in chapter 5, pp. 83-84.

6. Note Leibniz's use of the term 'perfectly' in this passage from What is an Idea?: 'God has imposed a power of thinking upon the mind so that it can by its own operations produce ideas which correspond perfectly to what follows.
from the nature of the things.' (1687: L.I.319).

7. Leibniz would never have considered that rational knowledge is not distinctly perceived, or in other words, he never questions whether rationality does lead to a higher-grade knowledge than any attained by irrational means. Of course, it would be possible to question this elevation of reason.


10. See chapter 5, pp.98-99. Also see below, pp.206-209.

11. Of course, this is not to deny that we can think distinctly when we are 'on the move', but it is to deny any necessary connection between bodily motion and distinct thought.

12. For Leibniz, our bodies are never absolutely at rest. See Leibniz's Fifth Paper to Clarke, §53, 18 Aug.1716: Alex, p.74.

13. And each individual monad in the aggregate will also thereby have its own confused and distinct perceptions in its role as a dominant monad, for all monads are dominant over some others. Compare discussion of primitive passive force, chapter 5, pp.100-102.


15. Under this interpretation, if derivative force were a modification of a law of a series, Leibniz would have to allow there to be a law of the series of motions belonging to a body, which law would parallel the subordinate monads' laws of their perceptions. This might not have been an impossible task.

16. We can now understand why Leibniz told des Bosses (Postscript. Letter to des Bosses, 19 Aug.1715: L.II.1003 - see chapter 1, p.2) that the substantial form (as an element of the composite animal) is a principle of impetus.

17. These will be the derivative active forces of the subordinate monads' bodies.

18. See quotations in chapter 5, pp.92 and 94.

19. See quotation from A Specimen of Discoveries, chapter 5, p.92.

CHAPTER 11

1. Monadology, §58, 1714: L.II.1053.

2. Also see, Leibniz to the Landgrave, Ernst von Hessen-Rheinfels, §9, 1/11 Feb.1686: Mason p.5; Leibniz to Arnauld, 30 Apr.1687: Mason pp.113 & 123; Leibniz to Arnauld, 9 Oct.1687: Mason p.147; and A New System of the Nature and the Communication of Substances, §14, 27 June 1695: L.II.747.

3. Here 'soul' is surely the same as 'monad' (see chapter 1, pp.3-9).

4. Correspondence with Arnauld, Remarks, 1685: Mason p.52.

5. For a comprehensive list of the types of things which Leibniz believed could express and be expressed, see Mark Kulstal's article, Leibniz's Conception of Expression, p.57. See bibliography.

6. A Specimen of Discoveries, c.1686: Park, p.85; New Essays, Bk.2, Chap.21, 1704: R&B 210; Principles of Nature and of
7. That God has no primary matter or primitive passive force, see On the Active Force of Body, on the Soul and on the Soul of Brutes (Letter to Wagner, 1710: Wiener p.506) - 'God alone is substance really separated from matter, since he is actus purus, endowed with no passive power, which, wherever it is, constitutes matter'.

8. Chapter 8, p.156.

9. The Latin term, 'habitudo, -inis' can also mean 'form' or 'appearance' (Handford and Herberg), which meaning would give a slightly different interpretation of expression from the one which is given in the following pages. Here we follow the more common practice of translating 'habitudo' as 'relation'.

10. Leibniz's Conception of Expression.

11. There is an even greater similarity if 'habituidines' in the first definition is translated as 'forms' or 'appearances' - see above, note 9.

12. We shall see, however, that Leibniz's explanation of the soul's expression of its own body can be regarded as an expression of the whole world, and can, therefore, be said to be a one-to-one correspondence (see chapter 13, pp.286-287).


15. For the distinction, see Russell, Critical Exposition, p.130.

16. Leibniz's Conception of Expression, pp.67-69.

17. See chapter 5, pp.92-96.

18. God has no primitive passive force, and hence no confused perceptions (see above, note 7). Must we then say that God cannot have knowledge of concurrent relations between bodies, and also that concurrent relations must arise out of the comparative relations between monads? If either is the case, then problems occur when Leibniz claims that God created monads, because causation is a concurrent relation (On the Method of Distinguishing Real from Imaginary Phenomena, n.d.: L.II.606). Leibniz might avoid this objection because he believed that in God's case, causation is closely related to perception (see Leibniz's Fifth Letter to Clarke, §87, 18 Aug.1716: Alex p.84). Since causation between bodies is not a perceptual relation, it might be possible for Leibniz to claim that God's causation is sufficiently different from that of bodies for it not to be a concurrent relation. Alternatively, Leibniz might deny that God is a monad. Also note that comparative relations are more susceptible to a reduction to non-relational qualities belonging to the related objects. This gives fuel to those who argue that all Leibnizian relations arise out of the conjunction of non-relational monadic qualities.

19. 'Just as being is revealed through a distinct concept, however, so existence is revealed through a distinct perception.' (On the Method of Distinguishing Real from Imaginary Phenomena, n.d.: L.II.602-3).


CHAPTER 12
2. Also see, Considerations on Vital Principles and Plastic Natures, 1705: L.II.955.
3. Leibniz does say 'Thoughts are ordered and interconnected, as motions are, for the one corresponds perfectly to the other' (New Essays, Bk.2, Chap.21: R&B 177), but the orders here are an order of thoughts and an order of motions. There is not an order of thought and motions to each other, although there is a correspondence between the two orders (of thoughts and of motions).
4. See also, Correspondence with Clarke, Leibniz's Fifth Paper, §92, 18 Aug. 1716: Alex. p.85.
5. See chapter 10, pp.199-200.
6. Leibniz may mean by 'confused thoughts' either sense perceptions or thoughts or ideas of sensible qualities. Our interpretation of this passage is that 'confused thoughts' are sense perceptions, for he writes that the most abstract thoughts are in need of some sense perceptions, and then he immediately asks what these confused thoughts (i.e. sense perceptions) are.
7. We here distinguish perceptions and appetitions. On this point, McRae (Leibniz: Perception, Apperception and Thought - see bibliography), disagrees. He believes that appetitions and perceptions are not 'two kinds of modifications or passing states of the soul, but are the same modifications viewed differently' (p.60). Observe, however, that on p.40, he has said that appetitions are 'in' perceptions.
9. For discussion on this point, see chapter 5, pp.85-87.
10. All monads are dominant over some others - 'For there is no soul or entelechy which is not dominant with respect to an infinity of others which entered into its organs, and the soul is never without an organic body which fits its present state' (Reply to the Thoughts on the System of Pre-established Harmony, 1702: L.II.944).
11. See chapter 4, note 17.
12. Evidence for the view that Leibniz did believe only confused perceptions to correspond to bodily motions is given below, pp.247-248.
13. See chapter 4, pp.55-61.
16. Chapter 11, pp.221-222. An objection to the view that perceptions are relational properties rests on the fact that perceptions are modifications, not properties. But as the term 'relational property' is a modern one, and not one which Leibniz himself used, we could say that such relational properties are not, in fact, Leibnizian properties, but are rather, Leibnizian modifications.
p.47. See bibliography.
19. The Philosophy of Leibniz, pp.74-77. See bibliography.
23. On Leibniz's Alleged Reduction of Relations. See bibliography.
27. See above, note 24.
29. See above, pp.249-250.
31. Ishiguro (Leibniz's Philosophy of Logic and Language, pp.92-93) suggests that even the sentences 'Paris loves' and 'Helen is loved' might be intrinsically relational.
32. Ishiguro makes this point (ibid. p.93), as does Hintikka (op.cit. p.164). We should observe at this point that some relational predicates may be reducible to conjunctions of non-relational predicates. The proposition expressed by the sentence 'X is similar to Y' may be the same as the conjunction of propositions expressed by the sentences 'X is a' and 'Y is 'a' (see Ishiguro, op.cit. p.90). Were all monadic predicates of this form, then the reduction or elimination of relational predicates would have a greater chance of being effected. However, this is not the case. Fatherhood and sonship are monadic predicates which are also intrinsically relational. It is, therefore, unlikely that all monadic predicates are non-relational.
33. See above, p.249.
34. If 'habitudines' is translated as 'forms' or 'appearances' (see chapter 11, note 9), then the expressive relation between the soul and the body does not fall under the description given in What is an Idea? because neither perceptions nor motions are forms. Perceptions and motions might be regarded as appearances, but only if the appearances, in the case of the soul, are perceptions, and in the case of the body, are what is perceived.
35. On this point, see Ishiguro, Leibniz's Philosophy of Logic and Language, pp.80-81. Thoughts, too, are always thoughts
about something.


37. Also 'motion apart from force (or insofar as it involves only a consideration of the geometric concepts of magnitude, figure, and their variations) is in fact nothing but change of situation; and thus that motion insofar as it is phenomenal consists in a mere relationship.' (Specimen Dynamicum, Pt.2, 1695: L.II.728-9).

38. Remember also that every monad has some primitive active force.

39. See chapter 7, pp.137-140.

40. The relational property of 'being to the left of B', which belongs to A, is not ideal, although the relation between A and B is ideal.

41. See above, pp.239-241. We shall see later how the relational properties of different bodies are themselves related to each other.

42. pp.221-223.

43. See above, p.252.

CHAPTER 13


3. For a list of relations of connection (concurrent relations) see chapter 11, p.231.

4. That is, in the world where the correspondence is total, such that everything is expressed by everything else.

5. And all monads are dominant over some others, see chapter 12, note 10.

6. Reading here, 'that they do not . . .'.

7. Also see Metaphysical Consequences of the Principle of Reason, 57, c.1712: Park. p.175.

8. Quoted above, p.265.

9. And see quotation from A New System of the Nature and the Communication of Substances in chapter 12, p.239, in which it is said that the body is expressed 'more immediately' by the soul.

10. But note that, strictly speaking, there is no 'smallest body' if bodies are divided to infinity.

11. Also see quotation from the Reply to the Thoughts on the System of Pre-established Harmony on pp.271-272 above.


15. It is important to note that in doing so bodies exhibit derivative force. Perhaps bodies only have derivative force insofar as they are phenomena.


17. It should be said that expression between bodies does not conform to the perceptive relations between monads, where there is expression of the many in the one: '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, is not truly one.' (A Specimen of Discoveries, c.1686: Park. p.85).

18. The corpuscular theory of nature had been expounded by Robert Boyle in his Tractatus de Ipsa Natura of 1682, and in his Free Inquiry of 1686.


21. As Leibniz himself says, 'that which our nature expresses more perfectly belongs to it in a particular way, because it is in this expression that its power consists.' (Discourse on Metaphysics. §16, 1686: L.I.481). Distinct expression is the result of primitive active force (i.e. the substantial form) which force is the reason why our bodies have the form that they do. Compare also, 'The soul, however, is nevertheless the form of its body, because it is an expression of the phenomena of all other bodies in accordance with the relationship to its own.' (Letter to Arnauld, 4/14 July 1686: Mason pp.65-6).

22. See chapter 4, p.52, quotation from the correspondence with de Volder.

23. See chapter 12, p.236.

24. It might be more plausible for Leibniz to claim that only confused perceptions correspond to bodily motions, see chapter 12, pp.244-246.

25. See note 21 above. Many of the quotations given in this chapter confirm this interpretation.

26. On how it can be said that the soul perceives its body distinctly even though all sense perception is confused, see chapter 5, pp.93-96.

27. Chapter 11, p.226.

CHAPTER 14

1. For this argument, see chapter 12, pp.246-256.

2. For comparison with the case of the soul and its body, see chapter 12, p.237.

3. Correspondence, it will be remembered, is a comparative relation, see chapter 12, pp.233-234.

4. By this method, Leibniz can avoid Broad's criticism (Leibniz: an introduction, p.97) that Leibniz does not account for the time-lag between effects and causes in bodies, and that, therefore, one monad's perceptions expresses not contemporary states of other monads, but previous states. For Leibniz, this time-lag is relevant only to the monad's perceptions of bodies (and there is no reason why a soul should not represent past states of other bodies). One monad can perceive a contemporary state of another monad because their respective perceptions correspond, and in order to correspond, these perceptions do not have to 'travel through space and time'.

5. See pp.304-307 below.

6. It must be said, however, that in the Conversation of Philarete and Ariste, the reality of bodies is established
from their relations with other bodies, rather than from the correspondence between monads' perceptions of them: 'My friend . . . reduces everything to monads or to simple substances and their modifications, along with the phenomena which result from them and whose reality is established by their relations, which distinguish them from dreams.' (c.1711: L.II.1017).

7. One problem here revolves around the fact that Leibniz needs to distinguish between the primitive force possessed by any one monad at a certain moment and the primitive force which is the monad itself, and which belongs to the monad from the beginning of its life to the end. In the former, the primitive force will be able to increase or decrease from one moment to the next, but in the latter, the primitive force must remain the same, for if it did not, the monad would no longer be identical with itself. The sense of primitive force which involves it being possessed by a monad at a particular moment could be said to be the monad's 'present state', but this would then be a modification, and Leibniz does not want primitive forces to be modifications. Rather, primitive forces are the substances which are modified. Compare note 19, chapter 9.

8. See chapter 8, pp.157-159.
10. See above, pp.290-291.
12. e.g. Mansion's, Harrap's New Shorter French and English Dictionary. See bibliography. Modern-day French omits the first 'p' of Leibniz's 's'appercevoir' and l'apperception'. It is worth commenting that Laiveaux, Nouveau Dictionnaire de la Langue Francais defines 'apperception' as the 'act by which the soul considers itself as a subject which has such and such a perception, and by this reflection distinguishes itself from the objects of its perceptions' (my translation). This is more than mere awareness. Rather, it is self-awareness.
13. Mark Kulstad, Leibniz, Animals and Apperception (see bibliography) believes that the evidence for saying that in Leibniz only human and higher beings can apperceive is indirect. Kulstad argues that Leibniz may have allowed animals to have apperception.
15. The Philosophy of Leibniz, p.126, but compare p.134, where he says that apperceptions are 'conscious perceptions'.
18. Leibniz: the Monadology, p.34. See bibliography.
19. Ibid., p.121.
20. Note that Leibniz does seem to say that perception is consciousness in the Monadology when he says that perception must be distinguished from 'apperception or from consciousness' ($14, 1714: L.II.1046).
22. Principles of Nature and of Grace, §4, 1714: L.II.1036, quoted above, pp.300-301. Also see Monadology, §14, 1714: L.II.1046, where apperception is defined as a perception of
perceptions (and, presumably, is a perception of the monad's own perceptions).

24. See above, note 22.
26. Kant, however, may disagree, see above, p.302. But observe also that Kant's 'I think' may not be a perception in Leibniz's sense of perception - see Critique of Pure Reason, A354: Kemp-Smith, pp.336-7.
27. See pp.297-299.
28. We are here in agreement with Gilbert Ryle, The Concept of Mind, pp.170-171 (See bibliography): 'Of course an agent can . . . announce to himself or the world 'Hallo, here I am whistling "Home sweet Home"'. His ability to do so is part of what is meant by saying that he is in that particular frame of mind that we call 'being alive to what he is doing'. But not only is his actually making such announcements not entailed by the fact that he is concentrating on whistling this tune, but his concentration would be broken each time he produced such a commentary.'
29. This holds even if the converse is not true, i.e. even if not all cases of memory are apperceptions, (conscious perceptions of past states).
30. Above, pp.300-301.
31. In the Discourse, the relationship between reflection and the necessary truths is reversed, so that knowledge of these truths depends upon reflection: 'Substances which are not spirits, do not know what they are or what they do, and since, consequently, they cannot reflect, they are unable to discover necessary and universal truths.' (Discourse on Metaphysics, §34, 1686: L.I.501).
32. For the distinction, see chapter 3, pp.33-34. For Kant's objections, see Critique of Pure Reason, B409-410: Kemp-Smith, p.370.
33. See above, pp.304-306.
34. See pp.297-299.
35. See chapter 9, p.167.

CHAPTER 15

3. Leibniz is actually only entitled to claim that God has not yet done so, if indeed he is even entitled to claim this much, for it is possible that there have been violations of natural laws, which violations have passed unnoticed by mankind.
4. Hypothetical necessity is that necessity which would be the case 'if' something else were the case. 'Physical necessity' is that necessity which exists because something else is already the case.
5. See chapter 6, pp.126-127.
6. Latta (Leibniz: the Monadology, p.107) seems to suggest that
something like this when he says that, 'Being entirely abstract, and in itself a bare possibility, body may by itself be adequately described by mechanical conceptions, under the principle of contradiction'.

7. See, Considerations on Vital Principles and Plastic Natures, 1705: L.II.956-7. A difficulty for this view lies in the fact that God has no body. God's motion must be a motion of the mind rather than a motion of the body, and it might be asked whether such mental motion can still be regarded as an efficient cause.

8. Also see, Principles of Nature and of Grace, §3, 1714: L.II.1035.

9. Note that this law is the law of the series, and is not to be confused with any law governing morality (see chapter 9, pp. 185-186). Moral laws may indeed govern all monads. However, see below, pp.332-335, where we ask whether monads have a choice whether or not to act in accordance with moral laws.

10. Here Leibniz also says that God always chooses the best, as do angels. It would seem that only man is free in the sense of not always choosing that which he perceives as good. Leibniz, therefore, says here that 'It is in a way a matter of physical necessity that God should do everything in the best way possible.' and that 'It is also a matter of physical necessity that those who are confirmed in the good - the angels or the blessed - should act in accordance with virtue, so that in certain cases, indeed, it could even be predicted with certainty by a creature what they will do.' (Necessary and Contingent Truths, c.1686: Park. p.101).

11. See quotation from the New Essays given on p.187 (chapter 9).

12. Notice that bodies also act in accordance with God's will, and so they too should be said to act in accordance with final causes.


15. See quotation from Tentamen Anagogicum, on p.328 above.


17. See chapter 9, p.171.

18. See chapter 9, p.171.

19. Architectonic determinations are those which involve some plan or design to be achieved, and so are related to final causes. See quotation from Tentamen Anagogicum on p.328 above.

20. Chapter 9, pp.180-181. This must be qualified somewhat because we noted above (p.326) that Leibniz thought that the mind can delay its actions towards the accomplishment of that which it thinks is best.

21. Leibniz's Fourth letter to Clarke, §§1-3, 2 June 1716: Alex. p.36.

22. Chapter 9, pp.185-186.


24. See also, Leibniz's Fourth letter to Clarke, §4, 2 June 1716: Alex. p.56.

25. Ibid., §8, 2 June 1716: Alex. p.57.

26. We could say that Leibniz tried to locate freedom in the
monads' own individual natures, but that he failed to realize that monads are equally constrained (and hence not-free) by their own natures.

27. Chapter 9, pp.183-184.
28. Again, reflection seems to be restricted to reflection upon the self, see chapter 14, pp.310-312.
30. In the Theodicy, Leibniz raises a related question - should God Himself not rather be punished for having created sinful creatures? (Theodicy, §411; Huggard p.368). In reply, Leibniz appeals to the principle that this is the best of all possible worlds.
31. Monadology, §89, 1714: L.II.1060 can be read in this way. However, Leibniz probably adopted the traditional Christian stance which holds that God Himself punishes and rewards, rather than the view that rewards and punishments are parts of our nature.

CHAPTER 16

1. In chapter, 9, pp.189-190, we distinguished between the fact that all monads' appetities strive towards the good of the world as a whole and the fact that only some monads can be conscious of this striving (i.e. the rational monads and higher beings). These rational monads can therefore strive towards their own personal good. Insofar as all monads' appetites strive towards the good, all monads follow final causes, but only those monads which are also rational can make decisions in accordance with the laws of final causes, i.e. by considerations of good and bad. All monads will act in accordance with the laws of final causes, but only rational monads are able to do so consciously.

2. pp.126-127. Also see chapter 7, p.140.
4. Also see quotation from §124 the same letter on p.341 above.
5. The idea being put forward here is that of God creating primary matter (primitive passive force) and then 'informing' it by giving it substantial form (primitive active force). Forms will give matter unity and motion, being, as they are, principles of motion.
6. Here, 'soul' is to be understood as 'dominant monad'.
7. See also, discussion in chapter 14, pp.289-292.
9. Chapter 4, pp.64-65.
10. Observe that if the subordinate monads are primitive active forces, rather than combinations of primitive active and passive force, then the dominant monad's confused perception of its body will influence the number of primitive active forces in the aggregate body. This may be one reason why Leibniz claimed that the dominant monad's primary matter was proportional to both the primitive and derivative active force in the aggregate body. But, still, this need not entail that the subordinate monads have primitive active force to any specific degree.
14. See chapter 7, pp.130-134.
16. Compare above, p.344 and note 5.
17. See chapter 1, pp.2-5.
22. See chapter 15, p.317.
23. Note that both Russell (Critical Exposition, pp.136-8) and Rescher (The Philosophy of Leibniz, pp.55-6) conceive of the pre-established harmony as a harmony between dominant and subordinate monads or as a harmony between monads and bodies. Only Gottfried Martin (Leibniz: Logic and Metaphysics, pp.158-160) interprets the pre-established harmony as a harmony between final and efficient causes. But Martin sees Leibniz's doctrine as artificial, though he does admit that Leibniz clarified the problem of human freedom versus material determinism.
24. See quotation from the Discourse on Metaphysics, above, p.344 above. For confirmation that primary matter is fluid, see chapter 2, pp.27-28.
25. Another reason for such dependence arises from the fact that bodies are composed of monads, see New System, and Explanation of the New System, 1695-6: Park. p.116.
26. Where 'nature' is the realm of bodies, and not inclusive also of the realm of perceiving beings. This is in keeping with 17th. century usage, where nature is that which is studied by physics. See Ivor Leclerc, The Philosophy of Nature in the Seventeenth and Eighteenth Centuries, p.105. See bibliography.
28. Did Leibniz Have a Practical Philosophy of Science? Or, Does 'Least-Work' Work?
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Two conferences were held in Canada in 1982. Some of the papers presented there may be of interest. It is impossible to be more certain than this as they have not yet appeared in published form.


Graeme Hunter, What's the Matter with Leibniz's Metaphysics.


Daniel Garber, Leibniz and the Foundations of Physics: the Middle Years.
Kathleen Okruhlik, *Passive Force in Leibniz's Dynamics*.

Graeme Hunter, *Monadic Relations*. 