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Leibniz's Early Metaphysics of Body
—From 1663 to 1686—

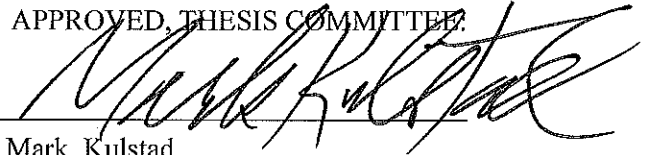
by

Shohei Edamura

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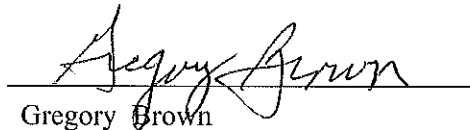
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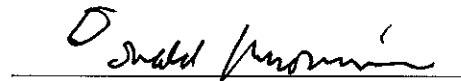
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ABSTRACT

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This dissertation aims at exploring the developmental story of the metaphysics of Gottfried Wilhelm Leibniz (1646-1716). I particularly focus upon the texts from 1663 to 1686: Leibniz wrote the *Metaphysical Discussion on the Principle of Individuation* in 1663, as his bachelor's thesis and the first philosophical work, and he wrote the *Discourse on Metaphysics* in 1686. I will focus upon Leibniz's metaphysics of body, which is also related to his cutting-edge investigations of mathematics and physics. The ontological status of body is an important philosophical topic, as is the relationship of mind and body.

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Leibniz's Early Metaphysics of Body —From 1663 to 1686—

A Dissertation

By Shohei Edamura

Introduction

Although Gottfried Wilhelm Leibniz (1646-1716) left a large number of philosophical articles and notes, access to them has not been easy. In the 19th century notable editors published important texts that had not been accessible before that time. These new texts attracted distinguished philosophers in the 20th century. While still a young man, Bertrand Russell published an important book on Leibniz.¹ C.D. Broad, an eminent philosopher who contributed to many areas of the academic philosophy, was also an influential scholar of Leibniz.² Speaking more generally, there has been a renaissance of

¹ Although Russell's major thesis that Leibniz's metaphysics is derived from his logic has been criticized and it is not accepted by a number of commentators any more, some of Russell's incites in the book present important topics for Leibniz scholars. For instance, Russell argues that according to Leibniz, "all possible worlds have general laws," and one world becomes impossible with the others by virtue of its unique set of general laws that are not shared by them (Russell 1934, p. 67; Brown 1987, p. 177). He argued so on the basis of a passage of the letter to Arnauld of 4/14 July 1686 (GP.II.51 = MA.56-57). Russell's interpretation is still worth discussing for figuring out how Leibniz understood compossibility.

² C.D. Broad presents a serious problem concerning compossibility in Leibniz's metaphysics, namely that if God needs to create the maximum number of individual substances, it seems that all the possibles things exist, and Leibniz needs to accept Spinoza's conclusion that any possible thing is actual and necessary (Broad 1975, pp. 161-2; Brown 1987, p. 175). Also, Broad introduces a famous word 'panorganism' for characterizing Leibniz's metaphysics, and it is often used by many recent scholars (Broad 1975, p. 87; Rutherford 1995, p. 201).

scholarship on Leibniz's philosophy in the English-speaking world.

In this renaissance, research methods have grown subtler. An example of this is much greater attention to developmental issues. Recently, Daniel Garber has argued that Leibniz's metaphysics in the 1680s is significantly different from his view after 1700 (Garber 1985), opposing Russell's view that Leibniz held the same system of metaphysics from the period of the *Discourse on Metaphysics* (1686) to the end of his life. In France, Michel Fichant sketches the developmental history of Leibniz's metaphysics from 1686 to 1716 in his introduction to the *Discourse and Monadology* of 1714 (Fichant 2004). Possibly scholars can reach some degree of consensus about distinct periods in Leibniz's developmental history, in something like the way this has happened in connection with the philosophy of Plato.

This dissertation aims at exploring the developmental story of Leibniz's metaphysics from 1663 to 1686: He wrote the *Metaphysical Discussion on the Principle of Individuation* in 1663, as his bachelor's thesis and the first philosophical work, and he wrote the *Discourse on Metaphysics* in 1686. I will focus upon Leibniz's metaphysics of body, which is also related to his cutting-edge investigations of mathematics and physics. The ontological status of body is an important philosophical topic, as is the relationship of mind and body.

How did Leibniz explain the ontological status of body in his early years? To be sure, we can find many refined treatments of its ontological status in the *New Essays* (1703-5), letters to De Volder (1699-1706) and Des Bosses (1706-1716), the *Theodicy* (1710), the

Monadology (1714) and other important texts after 1700. Also, remarkable discussions on the ontological status of body are found in the *Discourse on Metaphysics* and letters to Antoine Arnauld in the 1680s. But not so many intensive studies have been done on Leibniz's theory of body in the 1660s and 70s. It is true that we have Daniel Garber's *Leibniz: Body, Substance, Monad* (2009). After writing his influential articles in the 1980s, Garber has explored the development of Leibniz's view on substance and body for a long time. This book is a fruit of long-term endeavors of this distinguished scholar. However, although it is a monumental work, many discussions are on Leibniz's metaphysics in the 1680s and later. So there are some texts and topics of the early period that are not covered by this book. We also have *Leibniz's Metaphysics* of Christia Mercer. But a major part of her book is concerned with the metaphysics of God and individuals.³ We cannot find so many discussions of the ontological status of body considering Leibniz's development of mathematics and physics. Moreover, her interpretation has not been widely accepted so far. It seems that she utilizes the concepts of Leibniz's writings in the late period for the purpose of interpreting vague and ambiguous texts in the 1670s. For these reasons, I still consider my project as quite meaningful in the context of recent studies on Leibniz.

My project is based upon a methodological assumption that a group of Leibniz's texts from a fairly limited period represent a systematic view of his metaphysics. This assumption conflicts with that of Hector-Neri Castañeda. He argued that "a text written by

³ The second chapter of Mercer's book includes substantial discussions of the ontological status of body in Leibniz's early metaphysics. But the third and fourth, a major part of the whole book, is focused upon metaphysical discussions of the divinity and the relationship between God and individuals.

[Leibniz] during a specious present” is considered as discussing “the same topic” from “the same perspective” (Castañeda 1974, pp. 382-3).⁴ But he does not treat a group of many texts from the same period as sharing the same view. I think two or more texts of Leibniz from the same year often include an almost the same statement, and we can reasonably take them as expressing a substantially identical view, and thus I do not follow Castañeda’s methodology. My methodological assumption is not shared by Mercer, either, since she takes Leibniz’s metaphysics of preestablished harmony had been present since 1671.⁵ She does not recognize a substantial development of Leibniz’s metaphysics after his mid-20s. But I think, as Garber and other notable scholars argue, Leibniz corpus does show remarkably different views, and Leibniz’s metaphysics had experienced major development.

An outline of the dissertation is as follows:

Chapter One: Leibniz as a Prodigy (1663-1667)

Chapter Two: An Advanced Form of Mechanistic Philosophy (1668-1671)

Chapter Three: “To exist is to be sensed” —Leibniz’s Early Idealism (1672-1674)

Chapter Four: Leibniz’s Proto-Monadology and Panorganism (1675-1677)

Chapter Five: A Rehabilitation of Substantial Forms (1678-1679)

Chapter Six: The Late Stage of the Early Years (1680-86)

⁴ Castañeda contrasts “the Athenian approach” with “the Darwinian methodology” (Castañeda 1974, pp. 382-3). The former approach assumes that the corpus of a great philosopher must fit in a unified system that “was conceived by the philosopher more or less as one total unity from the very beginning.” The latter method, however, takes texts of a great philosopher as presenting many views, theses, and systems “interacting among themselves linked in a struggle for the survival of the fittest.”

⁵ For instance, Mercer takes a letter to Johann Friedrich of 1671 as presenting “Leibniz’s new views about mind and the cohesion between the active and passive principles in nature” (Mercer 2001, p. 331). According to her, the metaphysical framework of dominant and subordinate monads, which Leibniz explicitly proposes in a letter to De Volder of 1703 (GP.II.252), is found in this text.

Chapter Seven: A Review of Leibniz's Metaphysics in the *Discourse on Metaphysics* and letters to Arnauld

Conclusion

In the first chapter I will attempt to summarize the earliest metaphysics of Leibniz and, more specifically, how he dealt with the scholastic concept of substantial form. The second chapter will see his denial of the scholastic view and illustrate Leibniz's mechanistic philosophy in 1668-71. Here we notice that Leibniz did not introduce a thoroughgoing mechanism, and he thought that every moment bodies need to be recreated by God. The third chapter will be devoted to the analysis of the early version of Leibniz's idealism in 1672-74, which shows the ontological dependence of bodies upon minds. The fourth chapter will address Leibniz's view in 1675-77 that perceiving substances are everywhere. This is a panpsychism, the view that this world is full of mind-like entities. But Leibniz was also committed to the monistic view that God is the only substance, and finite minds and bodies are all modifications. The fifth chapter will see how Leibniz came to suppose that bodies are extended substances. We will also see his discovery of the law of collision in 1678 and how much it is relevant to his rehabilitation of substantial forms and the view that bodies can be substances. Chapter Six will discuss the last period of the early years, namely 1680-86. We will see some development of Leibniz's discussion right before the *Discourse on Metaphysics* (1686). Chapter Seven will conclude by reviewing Leibniz's metaphysics of body in the *Discourse* and letters to Arnauld, and the process by which he reached the view.

I. Leibniz as a Prodigy (1663-1667)⁶

It is remarkable that Leibniz had already written a significant number of texts when he took a doctor's degree at the age of 20 in 1666. He finished his bachelor's thesis *Metaphysical Discussion on the Principle of Individuation* [*Disputatio metaphysica de principio individui*] in 1663, and also defended his master's thesis *Specimen of Collected Philosophical Questions Concerning Law* (*Specimen Quaestionem Philosophicarum ex Jure Collectarum*; hereinafter *Specimen*) in 1664. In addition, he wrote many notes on philosophical topics. In a letter to Nicolas Remond of 1714, Leibniz noted that he had learned the ancient, medieval and modern philosophies when he had been quite young, and had decided to favor the modern mechanistic view over the scholastics:

Besides always taking care to direct my study toward edification, I have tried to uncover and unite the truth buried and scattered under the opinion of all the different philosophical sects, and I believe I have added something of my own which takes a few steps forward. The circumstances under which my studies proceeded from my earliest youth have given me some facility in this. I discovered Aristotle as lad, and even Scholastics did not repel me; even now I do not regret this. But then Plato too, and Plotinus, gave me some satisfaction, not to mention other

⁶ A major part of this chapter is taken from Edamura 2011, which was presented at the ninth international Leibniz congress in Hanover.

ancient thinkers whom I consulted later. After having finished the trivial schools, I fell upon the moderns, and I recall walking in a grove on the outskirts of Leibzig called the Rosental, at the age of fifteen, and deliberating whether to preserve substantial forms or not. Mechanism finally prevailed and led me to apply myself to mathematics. [GP.III.606-7 = L.655]

In the *Confession of Nature against Atheists* [*Confessio naturae contra atheistas*] (1669), Leibniz identified “mechanism” or mechanical explanations as “reasons from the figure and motion of bodies” (GP.IV.106 = L.110). In 1677, Leibniz also argued that, “we have no means of explaining [the reactions of liquids, the precipitations of salts etc.] except through magnitude, figure and motion, that is, through mechanism” (L.173), which is why Leibniz insisted that he did not understand why for his opponent it is absurd to suppose that “everything happens mechanically in nature, that is, according to certain mathematical laws prescribed by God” (L.189). Given that mechanism and moderns are contrasted with scholastics, we are tempted to conclude that when Leibniz was 15 he had already rejected any scholastic metaphysics which introduced substantial forms functioning as principles of action for bodies. But it should be noted that around 1663-4 (when Leibniz was 16-8 years old) he often used the term ‘form,’ and he seems to be committed to the existence of forms. If the term refers to a scholastic substantial form, then it seems that he accepted the scholastics metaphysics in this period. However, as we shall see, it is well known that in 1668-9, Leibniz believed that substantial forms are not intrinsic principles of movement for

natural bodies. Thus, in fact Leibniz spoke of two different kinds of substantial form. The first, and most common, kind of substantial form is the principle of movement in a natural substance. Sometimes these are called “scholastic forms.” The second kinds are the figures of bodies that are used in the mechanical explanations of its movements. Unlike scholastic substantial forms, these figures are inert. In letters to Jakob Thomasius of 1668 and 1669, Leibniz was willing to talk about this new concept of substantial form. According to Leibniz, Aristotle himself accepted this kind of form rather than scholastic forms. In this context, substantial form is nothing but the figure of a body, and is not a source of movement. In Leibniz’s understanding, 1) scholastic substantial forms were merely introduced by medieval scholastic philosophers who did not care about the reconciliation of mechanism and hylomorphic metaphysics, but 2) Aristotle’s own theory is consistent with modern mechanism.

Now we are confronted with a problem. As one might expect, Leibniz holds that substantial forms are essential for *substance* (GP.IV.395, 511). Here it is natural to assume that Leibniz understands that the figures of bodies make them substances, and they are substantiated through these figures. But if substances have to be active and causally efficacious, then how can these bodies be substances given that he assumed that figures are causally inert? So, although this account of substantial forms as figures may seem useful at first to reconcile metaphysics with mechanics, difficulties arise when we try to understand these figures as “substantial.” For it seems in conflict with Leibniz’s statement in this period that substance has its principle of motion. It can be found in the following passage

from *On Transubstantiation* [*De transsubstantiatione*] (1668?):

1. *Substance* is being which subsists in itself. 2. *Being which subsists in itself* is that which has a principle of action within itself. [...] 3. If that which has a principle of action within itself is a body, it has a principle of motion within itself. [...] 4. No body has a principle of motion within itself apart from a concurrent mind. This has been demonstrated in Part I of the *Catholic Demonstrations* [that is, the *Confession of Nature against the Atheists*], where the existence of God is proved. 5. Therefore no body is taken as substance, apart from a concurrent mind. [A.VI.i.508-9 = L. 115-6; Mercer 2004, p. 28]

The thing we learn here is that Leibniz regarded substances as having intrinsic principles of motion even in 1668-9.⁷ Also later on, it is clear that substances are regarded as essentially active in a letter to De Volder of 1703 (GP.II.248-9). Furthermore, a similar suggestion seems to have been made in 1663-4. According to an editor of the Akademie Edition, the *Notes on Daniel Stahl* was written in 1663 or 1664. In that text, Leibniz suggested that natural bodies have substantial forms as intrinsic principles of movement (A.VI.i.37). So, a reader of Leibniz's texts seems to have at least two tasks: First, she needs to explain how to reconcile mechanism with substantial forms as intrinsic principles of movement, if Leibniz

⁷ Laurence McCullough wrote that “[i]n *De Transsubstantiatione* Leibniz treats mind as the principle of activity of bodies, in virtue of which bodies count as substances” (McCullough 2009, p. 124). This is true, but as we have seen, in letters to Jakob Thomasius, Leibniz did not utilize the concept of substance in *On Transsubstantiation*, and in the context of the letters he supposed that bodies apart from God's mind and activity are substances.

also introduced mechanism in 1663-4. Second, she needs to explain the relationship of two different concepts of substantial form, both of which were introduced in the 1660s.

My aim is to explain Leibniz's metaphysics of body in 1663-4 by contrasting it with his view in 1668-9. As noted, in letters to Jakob Thomasius in 1668-9, Leibniz held that substantial forms are merely figures, and a body is a composite of figure and matter. However, we will see whether Leibniz took a substantial form to be a principle of movement in 1663-4. I will conclude that in spite of the passage in his letter to Remond, Leibniz did not completely move away from the scholastic framework in 1663-4. In the following, I shall question the assumption proposed by Willy Kabitz that Leibniz accepted the scholastic view since he held the framework of form and matter. Then, I shall turn to an interpretation presented by Christia Mercer. According to Mercer, Leibniz had already rejected the scholastic framework in 1663-4, since the form which Leibniz was discussing was merely a figure, not a scholastic form. Her interpretation is not wholly unproblematic, either, since Leibniz did not explicitly note that substantial forms are figures in 1663-4. Thus I shall advance another interpretation that Leibniz still held the scholastic framework in 1663-4 given the remarkable difference between the theories in 1663-4 and 1668-9.

1.1 Kabitz's Interpretation

If the term 'form' exclusively refers to a scholastic substantial form, then it might seem reasonable to say that Leibniz was committed to the existence of scholastic

substantial forms simply because he was talking about “forms” in explaining his theory of body in 1663-4. Some passages suggest that Leibniz was thinking in this way. He spoke of the substantial form [*forma substantialis*] of a natural body (A.VI.i.81). For Leibniz, it seems that a natural body is united as one thing by its substantial form. Also, in the *Specimen* from 1664, Leibniz discussed the “specification” of a body by having a form (A.VI.i.80). For Kabitz, this shows that Leibniz did not fully abandon the scholastic metaphysics (Kabitz 1909, p. 50). Leibniz was willing to talk about mathematical formulations of movements of bodies, but he in a sense accepted the Aristotelian-Scholastic tradition holding that substantial forms exist. In short, in 1663-4, Leibniz often talked about forms, and he did not explicitly claim that he threw out the scholastic theory. This may seem to suggest that the term ‘form’ always refers to a scholastic substantial form, and Leibniz accepted the framework of the scholastics at that time.

However, although it may be tempting to think that Leibniz retained this traditional concept of form consistently throughout the 1660s, I do not think that this view can be upheld. As we have noted briefly, in letters to Jakob Thomasius Leibniz introduced a new concept of substantial form. And while it is true that Leibniz spoke of substances as having intrinsic principles of action there, he also introduced a different concept of substance which is “an object of science” (A.II.i.11). In relation to this concept, Leibniz claimed that geometrical objects like triangles are considered to be substances given that geometry is one of the sciences. So, although Leibniz was prepared to talk about substances as active beings, it is far from clear that he always intended to use ‘substance’ as referring to an

active being which moves by itself. Simply, the term ‘substance’ seems to be ambiguous in this period, since this term also refers to a geometrical object, which is not a substance at all for scholastics.

All of these considerations push toward the conclusion that the term ‘form’ (and even ‘substantial form’) is ambiguous for Leibniz in the 1660s. Therefore, we cannot take ‘form’ as univocal in this period and conclude that Leibniz accepted the existence of scholastic substantial forms anytime in 1663-9 on the ground that he was willing to talk about forms. In spite of Kabitz’s interpretation, it is not right to conclude that Leibniz was committed to the existence of scholastic substantial forms on the basis of the fact that Leibniz was talking about form and matter in 1663-4.

1.2 Mercer’s Interpretation

Christia Mercer has tried to solve the problem of how we should understand the claim that bodies are specified by forms by appealing to passages from Leibniz’s correspondence with Jakob Thomasius. According to Mercer, Leibniz’s description of his youth in the letter to Remond is completely precise, since the discussion of form and matter in the *Specimen* does not imply that Leibniz was committed to the existence of scholastic substantial forms (Mercer 2001, p. 25). In brief, according to Mercer’s interpretation: (1) Leibniz sharply distinguished Aristotle’s theory from that of the scholastics; (2) for Leibniz the scholastics were committed to the existence of substantial forms as principles of

movement while Aristotle was not; (3) Leibniz believed that Aristotle's philosophy is perfectly compatible with mathematical physics; and (4) Leibniz held that substantial forms are figures even in 1663-4.

Let us turn to the correspondence with Thomasius to examine her interpretation critically. In a letter from 1669, Leibniz had broached the new concept of substantial form that we are concerned with:

Nor is it so absurd that geometry should deal with the substantial form of bodies. For note the passage in Aristotle's *Metaphysics*, Book xiii, Section 3, in which he says expressly that geometry disregards material, final, and efficient cause; this being assumed, it follows that it deals either with substantial or with accidental form. But it does not deal with accidental form, since the real definition of an accidental form involves a subject in which it inheres, or matter. But Aristotle says that geometry disregards matter. Therefore geometry deals with substantial form. [A II.i.20 = L.98]

The key for Mercer's solution lies in Leibniz's observation that "geometry deals with substantial form." Mercer suggests that this passage be understood as expressing the claim that the figure of a body is its substantial form. More precisely, she claims: for Leibniz, a body is individuated by its figure and matter, and figures are considered as substantial forms insofar as they individuate bodies and make them individual substances. To use a

more concrete example, Leibniz would claim, on Mercer's reading, that even though he was using the term 'form' in 1663-4, he was not discussing scholastic substantial forms, which are nothing but principles of action for natural bodies. This in turn would imply that when Leibniz uses the term 'form' he means a geometrical figure, and furthermore that he wasn't committed to the existence of scholastic substantial forms at all. In short, in 1663-4, he was just using the term 'form' to discuss geometrical figures in developing his theory of mathematical physics.

But it is not yet clear why we *have to* take forms in *Specimen* as figures. Obviously, Leibniz proposed his new concept of substantial form as figure in letters to Jakob Thomasius, which was written later than *Specimen*. Even if Leibniz was willing to talk about substantial forms as figures in 1668-9, it does not mean that he was also discussing this kind of substantial form in 1663-4. In short, Mercer has to project what Leibniz said in 1668-9 to *Specimen* and other texts. However, it is not appropriate to interpret earlier texts as implying something in later ones unless Leibniz made some explicit claims in these earlier ones. This is obviously a dubious interpretation.

In fact, Kabitz also notes that at least in letters to Jakob Thomasius, Leibniz proposed the new concept of substantial form. The figure of a body is its limit that sets a boundary to distinguish it from other bodies. To be sure, Kabitz is careless in that he concludes that Leibniz was discussing substantial forms in the Aristotelian-Scholastic framework in *Specimen* simply because Leibniz was talking about forms by which bodies are specified. However, it is entirely possible that, as Kabitz supposes, the theory of body in

Specimen is different from that in letters to Thomasius. Given that they were written in different time periods, theories that are proposed in them may be different. In the final section, I shall explain how I think we may be able to save the conclusion that these theories are different, and that in 1663-4 Leibniz still accepted substantial forms as principles of movement.

1.3 Alternative Interpretation

Let us begin by turning to what Leibniz himself said about natural bodies in the *Notes on Daniel Stahl* [*Notae ad Danielem Stalium*] of 1663 or 1664:

[...] [I]n physics the subject is a natural body. However, since a natural body can be considered in many ways: it can be considered as a being, a substance, or quantity, accordingly, a definite method must be added here. Indeed, in physics a natural body in so far as it is natural is to be considered, i.e., a natural body here is considered as nothing other than as it has a natural principle of motion and rest etc.

[A VI.i.37]⁸

For Leibniz, a natural body by definition has a principle of movement and rest. If it cannot

⁸ Sic in *Physicis* res considerata est corpus naturale. Cum autem corpus naturale pluribus posit considerari modis, ut nempe est ens, ut est substantia, ut est quantum, proinde addendus hic certus modus est, nempe in *physicis* considerari corpus naturale quatenus naturale, h.e. corpus naturale hic non aliter considerari, quam ut habet principia naturalia motus et quietis, etc.

move by itself, it does not deserve the name of natural body.

Apart from the passage mentioned above, I have been unable to find any places in which Leibniz explicitly regarded natural bodies as having principles of movement and rest. Thus at this point we must turn elsewhere for help. One interesting piece of evidence regarding the essential feature of natural bodies comes from Leibniz's master's thesis *Specimen* of 1664. Here Leibniz observes:

However, for them, specification is given when either one form is introduced in material, or diverse materials are compounded; the former type of specification is called formation, while the latter is called composition. Again, composition is called either conjunction, in which [different] parts cohere, or called mixture, in which they do not cohere [...] [A VI.i.80]⁹

We learn that some bodies are composed of many parts. In a later passage, Leibniz went even further, describing artificially compounded bodies as lacking substantial forms unifying them as unities:

Against all of these it can be objected that “in this example the mixture does not have one and true species, but merely is an alloy-like being constituted by

⁹ Specificatio autem illis est, cum vel in materiam unam forma introducitur, vel diversae materiae componuntur; illic Eformatio est, hic Compositio, quae rursus vel Coniunctio est, cum cohaerent partes, vel Commixtio, cum non cohaerent. Illa vel Confusio est, cum ex partibus fit una massa, et in ea interdum discernitur partium varietas, ut si aquam atramentumque confundas, interdum non discernitur, ut in vino et aqua commixta[...]

accident.” Since there is no substantial form, which unites diverse parts, and there are no alterations precede, but an artificial form is introduced by human agent, in which the union is imperfect[...] [I]t is to be responded that for them the mixture is alloy-like, but it has one species, whatever it is, even though it is merely an artificial form. [A VI.i.81]¹⁰

It seems that mixtures contain many natural bodies in which we can find substantial forms, but a mixture as a whole has an artificial form. So far we have seen how Leibniz was committed to the ontological distinction of natural and artificial bodies in 1664. Even if we try to combine many natural bodies into one thing, it does not have any natural unity. Later, however, Leibniz seems to have abandoned this ontological distinction. In 1669, Leibniz suggested that bodies change their figures in the course of movement. This implies that even natural bodies change their figures in movement. Thus a natural body cannot hold its unity through movement, and the ontological distinction between natural and artificial bodies is abolished. An important passage is to be found in a letter to Thomasius from 1669: “[F]orms must necessarily arise through motion” (A.II.i.17 = L.96 April 20/30 1669). This passage suggests that Leibniz supposed that at the final moment of movement, bodies have some settled figures. In the same letter, Leibniz went to great length to explain the generation of settled figures:

¹⁰ Adversus haec omnia objici potest, “speciem unam verumque mixtum hic nullum, sed tantum Crama ensque per accidens constitui,” quia nulla sit forma substantialis, quae diversas partes unit, neque praecedant alterationes, sed opera humano artificialis tantum forma introducatur, de qua Unione imperfect[...] [M]istum illis etiam krama esse, speciem unumque quodcunque etiam artificialem tantum formam habet.

It is no objection that generation occurs in an instant while motion involves succession, for generation is not motion but the end of motion; the motion is already finished at that instant, for a certain figure is produced or generated at the very last instant of motion, as a circle is produced in the final moment of a revolving motion.

[A II.i.18 = L.97 April 20/30 1669]

This passage suggests that Leibniz thought that figures are produced at the final moment of movement. Still, it may be that the above passage implies that any generation is a result of some motion, and thus it does not imply that any motion produces a new figure, and any body changes its shape after moving. But in another passage from the same letter, Leibniz seems to be committed to this strong view that bodies must change their figures after moving:

I have demonstrated, instead, that whatever moves is continuously created and that bodies are something at any instant in assignable motion, but that they are nothing at any time midway between the instants in motion —a view that has never been heard of until now but which is clearly necessary and will silence the atheists. (L.102)

In this passage, Leibniz argued that any moving body is “continuously created,” which suggests that at every moment the body is created as a new thing. Moreover, he argues that

bodies do not exist “any time midway between the instants in motion,” which also suggests that bodies do not have fixed figures between the instants. They always have different figures in different moments, since bodies are always surrounded by other bodies, and God recreates figures of bodies in such a way that they appear to have collisions and to change their figures. So I take it that in this letter to Thomasius Leibniz held that strictly speaking, every body changes its figure after moving. He does not say anything about how to understand the ontological distinction between natural and artificial bodies here, but it is plausible to suppose that both natural and artificial bodies change their figures or forms after they move. It is also clear that after the movement bodies have different figures.

Given these points, I want to suggest that the passage from the letter to Thomasius is evidence that Leibniz did not accept the ontological distinction between natural and artificial bodies in 1669. If both natural and artificial bodies change their figures whenever they move, we cannot conceive artificial bodies to be composed of many natural bodies. Rather, natural and artificial bodies are not ontologically distinguished since both of them merely have figures that change in every moment. Bodies perpetually fluctuate in the course of movement. New figures were said to emerge through a process of spatial movement and this idea precludes a stable unity in the course of movement for a body. Later, in the *Theory of Abstract Motion* (*Theoria motus abstracti*; hereinafter TMA), Leibniz argued that body is a momentaneous mind since it totally lacks memory and cannot endure for more than a moment (GP.IV.230). Although it was written in 1671 after the letters to Thomasius, it seems that Leibniz’s view in letters to Thomasius that the figures of

bodies perpetually change in movements remains in the later text. On this reading, according to the letters to Thomasius and TMA, strictly speaking bodies do not retain their identities for more than a moment. As we saw above, both natural and artificial bodies have their figures, but they do not endure in a process of movement.

So we understand a remarkable difference between two theories that Leibniz proposed in the 1660s. On the one hand, in 1668-9, Leibniz proposed a new theory of body. Bodies incessantly move, and change their own figures. Since their substantial forms are nothing but these figures, they substantially change in every moment. On the other hand, Leibniz seems to admit that substantial forms are much more than mere figures in 1664. Leibniz suggested that natural bodies have their intrinsic principles of movement and rest. Also, he explicitly proposed the ontological distinction between natural and artificial bodies. Even if someone makes one combined body of many natural bodies to have one figure, it is still ontologically distinct from one natural body since it does not have a substantial form that unites it.

On the basis of this reading of the texts in the 1660s, we can conclude that in spite of the passage in his letter to Remond, Leibniz still held the view that substantial forms in bodies function as principles of movement in the early 1660s. Given this, I suggest the following interpretation of that passage, namely, that Leibniz there committed himself only to his having *compared* scholastic metaphysics and the mechanical philosophy at the age of 15. The passage does not decisively state that he adopted mechanism and rejected scholastic metaphysics exactly when Leibniz was 15 years old. Perhaps he made a decision

several years later.

Finally, I have to answer the question of how Leibniz could propose a mathematical physics in the *Specimen* of 1664 while he was still committed to the existence of scholastic substantial forms. I want to suggest that an answer will emerge if we are prepared to accept that natural bodies move in accordance with mathematical laws by virtue of their substantial forms. I suggest that even if natural bodies have intrinsic principles of movement in them, it is still possible that their movements can be described by mathematical laws. But Leibniz did not explicitly argue that substantial forms move bodies following some mathematical laws, let alone that immaterial substances in bodies change in accordance with their own laws of series, as he did in a letter to De Volder of 1703 and *On Nature Itself* of 1698 (GP.II.251; IV.515, 590).

1.4 *Dissertation on the Art of Combinations*

Lastly in this chapter, I will discuss Leibniz's doctoral thesis *Dissertation on the Art of Combinations* [*Dissertatio de arte combinatoria*] (1666). The main topic of this work is how to think reasonably and to find new and fruitful ideas. Still, we can find a discussion of substance in it. The following is Leibniz's definition of substance:

I call substance whatever moves or is moved. [GP.IV.32 = L.73 cf. Garber 1982, pp. 152-3]

It seems that whatever moved is a substance, and therefore something is a substance insofar it is moved by another. Being moved by another thing is a sufficient condition for being a substance. Given this, we might be able to claim that even a merely passive thing is a substance. Also, Leibniz discussed material and immaterial substances (GP.IV.17), which implies that even material things can be substances. Leibniz seems to have admitted that bodies can be substances without having principle of action. Even if a body does not have a principle of action and is thus merely passive, it can be a substance. This kind of view is clearly different from that of the scholastics', and if Leibniz took this view, then he did not accept the Aristotelian-scholastic framework.

However, I did not find evidence that Leibniz actually held that bodies as such are merely passive in this work. In fact, Leibniz seems to suggest that bodies move and are moved by others when he gave a demonstration of God's existence. I quote the whole of the long demonstration:

5. Axiom 1. If anything is moved, there is mover.
6. Axiom 2. Every moving body is being moved.
7. Axiom 3. If all its parts are moved, the whole is moved.
8. Axiom 4. Every body whatsoever has an infinite number of parts; or, as is commonly said, the continuum is infinitely divisible.
9. Observation. There is a moving body.

Proof:

1. Body *A* is in motion, by hypothesis No. 9.
2. Therefore there is something which moves it, by No. 5.
3. and this is either incorporeal
4. because it is of infinite power, by No. 3;
5. since *A*, which it moves, has infinite parts, by No. 8;
- 6 and is a substance, by No. 2.
7. It is therefore God, by No. 1 Q.E.D.
8. Or it is a body,
9. which we may call *B*.
10. This is also moved, by No. 6,
11. and what we have demonstrated about body *A* again applies, so that
12. either we must sometime arrive at an incorporeal power, as we showed in the case of *A*, in steps 1-7 of the proof, and therefore at God;
13. or in the infinite whole there exist bodies which move each other continuously.
14. All these taken together as one whole can be called *C*, by No. 4.
15. And since all the parts of *C* are moved, by step 13,
16. *C* itself is moved, by No. 7,
17. and by some other being, by No. 5,
18. namely, by an incorporeal being, since we have already included all bodies, back to infinity, in *C*, by step 14. But we need something other than *C*, by 17 and 19,

19. which must have infinite power, by step No. 3, since *C*, which is moved by it, is infinite, by steps 13 and 14;

20. and which is a substance, by No. 2,

21. and therefore God, by No. 1.

Therefore, God exists. Q.E.D. [GP.IV.32 = L.73-4]

In this long passage, Leibniz introduced the first argument on the basis of four axioms. He started from the premise that some body is moved (call it Body *A*). So *A* is moved by another (call it Body *B*). *B* must be moved by another, and this series continues. Now we have to postulate an ultimate mover which is not itself moved, which is identified as God. Leibniz introduced the second argument considering a case in which there are “bodies which move each other continuously,” and even if it is the case, God still needs to exist. Here Leibniz’s argument seems to make a leap since he concludes that the infinite whole with bodies moving each other continuously is moved by “some other being,” namely God. He assumed that bodies cannot move themselves or others without the aid of a powerful and incorporeal being.

In these two arguments, Leibniz seems to hold that bodies can be moved by other bodies or God. If bodies can move other bodies, they are not utterly inert, since in that case they are both active and passive. In other words, they move and are moved at the same time. Given that if something is moved by another or moves another it is considered as a substance (according to the definition), certainly these bodies are considered as substances.

But Leibniz did not suggest that bodies have inherent principles of movement. Rather, he suggested that no body can move itself or another body apart from God.

I am not sure whether Leibniz already held a thoroughgoing mechanistic philosophy when he wrote *Dissertation on the Art of Combinations*. He did not declare that bodies consist in size, figure, and motion. He suggested that bodies can move other bodies and can be moved by others, but he did not state whether a body can move another body simply by virtue of its size, figure, and motion, or whether it can do so by virtue of its “natural principle of motion and rest” (A.VI.i.37). Leibniz argued that every body needs to be moved by God, but he did not argue that a divine concurrence is required for a body to move another body, and that both God and the body need to act to move the other body. Thus, we should try to find a clearer version of Leibniz’s natural philosophy in later texts.

II. An Advanced Form of Mechanistic Philosophy (1668-1671)

2.1 Letters to Jakob Thomasius (1668-69)

As Kabitz also noted, Leibniz’s letters to Thomasius show a remarkable deviation from the scholastic framework. According to Kabitz, figures determine the boundaries of bodies. Thus by virtue of figures, matter exists as individual bodies (Kabitz 1909, p. 63). This idea, according to the young Leibniz, is completely consistent with Aristotle’s philosophy. Leibniz’s idea is roughly like this: according to Aristotle, primary matter has

only extension and impenetrability, and does not have figure and motion. The figure of an individual body plays the role of “substantial form” for a body. Since Aristotle’s philosophy of body involved only form (eventually, figure) and matter (primary matter), the mechanical philosophy is perfectly consistent with Aristotle’s system:

Even Aristotle admitted that a mathematical object, i.e. space or its determination, the figure, is a substance, and it is supported by the argument that there should be the object of geometry, which is the most perfect among sciences after metaphysics. Also, an object of science, in view of Aristotle himself, is a substance. Indeed, how can a figure not be a substantial form, given that a figure is something substantial, and it is attributed to a body, and finally it is distinct from matter? [A.II.i.11 September 26 1668]¹¹

Leibniz introduced a weak concept of substantial form here. This “substantial form” is nothing but figure, which individuates a body. Bodies differ only in their figures (B.126). One may say that there are problems in Leibniz’s interpretation of Aristotle. To be sure, many scholastics take substance to be a source of action in Aristotle’s metaphysics. If this interpretation is correct, then it is unreasonable to conclude that bodies are substances because they have figures as their substantial forms. Their substantial forms, if they have

¹¹ Ipse Aristoteles ta mathematica, i.e. spatium, seu determinationem eius, figuram, substantiam esse admisit, idque vel eo argumento, quod circa haec obiecta versatur Geometria, post Metaphysicam perfectissima scientiarum. Obiectum augem scientiae, ipsius Aristotelis decretis, substantia est. Si igitur figura substantiale quiddam est, si ad corpus pertinens, si denique a material reapse distincta, quid aliud, quam forma substantialis erit?

them, are supposed to be principles of action.

We can see how Leibniz emphasized the difference between Aristotle and the scholastics in the following passages from the same letter:

And the thing never goes against Aristotle's views. Raey sufficiently shows, in his *Key of Natural Philosophy*, that the obscurity of Aristotle is derived from the obscurity of the scholastics, and that Aristotle himself is remarkably in conformity with Galileo, Bacon, Gassendi, Hobbes, Descartes and Digby. Indeed, for Aristotle, what is primary matter other than an inert mass without movement, and as a result, if everything is full, without figure? [A II.i.10 September 26 1668]¹²

It can be shown either that the reformed philosophy can be reconciled with Aristotle's and does not conflict with it or in addition, that the one not only can but must be explained through the other, nay, that the very views which the moderns are putting forth so pompously are derived from Aristotelian principles. [A II.i.16 = L.95 April 20/30 1669]

In the first passage, Leibniz seems to criticize the scholastics for making Aristotle's philosophy extremely opaque. On Leibniz's understanding Aristotle's own view is

¹² Neque ea res Aristotelis placitis oberit quicquam. Satis ostendit Raey in clauē philosophiae naturalis, tenebras Aristotelis a scholastico fumo esse, Aristotelem ipsum Galilaeo, Bacono, Gassendo, Hobbesio, Cartesio, Digmaeo mire conformari. Quid enim aliud Aristoteli materia prima est, quam iners moles sine motu, et per consequens, si omnia plena sunt, sine figura?

consistent with the new theory suggested by Hobbes, Descartes and others. In the second, Leibniz also stated that the new mechanical philosophy can be reconciled with Aristotle's. Thus the young Leibniz thought that Aristotle's own philosophy is very different from that of the Scholastics. This allows us to consider the possibility that Aristotle's claims are consistent with the mechanical philosophy, whereas the scholastic philosophy is not. Leibniz further explained the difference between Aristotle himself and scholastics:

For to come to this problem, Aristotle seems nowhere to have imagined any substantial forms which would themselves be the cause of motion in bodies, as the Scholastics understood them. He does indeed define nature as the principle of motion and of rest and calls form and matter nature, though form more so than matter. But from this it does not follow, as the Scholastics contended, that form is a kind of immaterial being, though insensible in bodies, which spontaneously imparts motion to a body, for example, downward motion to a stone, without the help of an external thing. [A II.i.20 = L.99 April 20/30 1669]

According to Leibniz's understanding, Aristotle does not suppose that bodies have substantial forms that cause their own movements. These forms were just introduced by scholastic philosophers later, who did not consider the possibility of mathematical physics. Leibniz explicitly denied the scholastic view in the letters, and thus he rejected the view in this period.

Also, we should note that the figures of bodies perpetually fluctuate. Leibniz stated that movements bring about figures. Whenever bodies move, their figures or boundaries at least slightly change. As a result, new figures are introduced at the end of movement:

But, if it is continuous in the beginning, forms must necessarily arise through motion. [...] We shall say that they [or forms] 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, just as anyone who makes a column does nothing but remove the superfluous parts. [A II.i.18 = L.96 April 20/30 1669]

Moreover, motion produces only motion or the limits of motion, which are magnitude and figure, and from these result position, distance, number, etc. [A II.i.19 = L.98 April 20/30 1669]

Thus, at the final moment of movement, bodies have some settled figures. Leibniz also talked about “generation” of new bodies since whenever bodies change their figures, new bodies are supposed to come into existence:

It is no objection that generation occurs in an instant while motion involves succession, for generation is not motion but the end of motion; the motion is already finished at that instant, for a certain figure is produced or generated at the very last

instant of motion, as a circle is produced in the final moment of a revolving motion.

[A II.i.18 = L.97 April 20/30 1669]

Now it is obvious that figures are not principles of action for bodies since figures only tell the present shape of bodies and do not explain the successive movement in figures. Leibniz already admitted it in letters to Thomasius and stated that a body, as far as it is composed of figure and matter without anything else, is inert. Although Leibniz in some contexts regarded figures as “causes” of motion, he did so in a quite limited sense:

In that case the other body is the cause of the impressed motion, while the sphere’s figure or sphericity is the cause of the received motion, for if this sphericity had been absent, perhaps for this occasion only, the body would not give way so easily to the other one. [...] I admit therefore that form is the principle of motion within its own body, and that body is itself the principle of motion in another body. But the first principle of motion is the primary form, which is really abstracted from matter, namely mind, which is at the same time the efficient cause. [A II.i.20 = L.99 April 20/30 1669]

The motion of a body partly depends upon its figure. If a spherical body had a different figure (ex. cube), then it would have another type of motion when it collides with another body. But certainly, the figure is not a sufficient condition of realizing a motion. Without

the primary cause of motion, the figure itself never brings about a new motion. According to Leibniz in this period, the primary cause of motion is a mind (for the motion of inorganic bodies, the Mind of God). Without an immaterial substance that possesses a principle of action in itself, bodies (merely having figures and matter) cannot produce motions.

In summary, Leibniz proposed a new theory of body in 1668-9, which we cannot find in the texts of 1663-4. First, figures are considered as “substantial forms” though they alone cannot cause movements. Second, a new figure is introduced at the final moment of motion. Bodies change their figures or forms incessantly.

2.2 Theory of Abstract Motion and Other Texts (1670-71)

2.2.1 A Letter to Duke John Friedrich (1671) and Antognazza’s Interpretation

Now I will discuss Leibniz’s metaphysics of body in 1670-71. I argue that Leibniz held a view that an inorganic body merely consists in motion, that is ultimately consist in conatus.¹³ For him, conatuses are momentary motions, and continuous movements are results of these conatuses that exist at different moments. All of the physical properties of inorganic bodies are explained by conatuses. This view can be contrasted with the later view that bodies are aggregates of monads or simple and immaterial substances. In 1671,

¹³ Daniel Garber points out that Leibniz’s view of 1671 is in some tension with the Cartesian view that body consists in extension (Garber 1995, p. 277). In the letter to Arnauld of November 1671, Leibniz argued that the essence of body consists not in extension, but in motion (A.II.i.172 = L.149). Here he consciously differentiates his view from the orthodox Cartesian doctrine.

inorganic bodies are not composed of immaterial and everlasting substances. Still, they consist in some kind of forces (conatuses) that generate movements. One of the most important works of Leibniz in 1671 is his *Theory of Abstract Motion* (TMA), in which he presented his natural philosophy. In addition, recently two important notes by Leibniz have been introduced in the scholarly works of early Leibniz. In his letter to Duke John Friedrich of 21 May 1671, Leibniz wrote an essay *On the Use and Necessity of the Demonstrations of the Immortality of the Soul* (*De usu et necessitate demonstrationum immortalitatis animae*; hereinafter *Immortality*) together with an appendix *On the Resurrection of Bodies* (*De resurrectione corporum*; hereinafter *Resurrection*). If all the writings of 1671 represent a consistent theory, then TMA, *Immortality* and *Resurrection* should be consistent with one another.

However, what Maria Rosa Antognazza suggests on the basis of the *Immortality* and *Resurrection* seems to contradict my reading of TMA. Antognazza argues that Leibniz held that bodies result from imperishable “seminals” in *Immortality* and *Resurrection* (Antognazza 2009, p. 112). But in TMA, Leibniz suggested that bodies are momentaneous entities: It seems that they exist only in a moment, and do not endure for more than a moment. There seems to be an inconsistency between the view in TMA and the one in *Immortality* and *Resurrection*.

To give a solution to the problem, I would propose the following interpretation: First, I argue that Leibniz *did not* hold that all bodies result from imperishable entities in *Immortality* and *Resurrection*. Second, I argue that in 1671 Leibniz held that extended

bodies ultimately consist in conatuses, each of which does not endure for more than a moment. In TMA, a body is taken to be a “momentary mind,” which suggests that a body is a momentary being as conatus. Third, bodies with biological properties have imperishable seminals. Although Leibniz tried to explain physical properties of bodies by conatuses, he felt a difficulty in explaining biological properties of living things (e.g., the potential of a young plant to grow larger). So he believed that living bodies have seminals having special plastic powers.

We need to consider Antognazza’s interpretation first, given in the following passage:

“[A body] lacks the perception of its own actions and passions; it lacks thought.” “This”, Leibniz announced triumphantly, “opens the door to the true distinction between body and mind, which no one has explained heretofore.” [...] This new conception of corporeal substance as grounded in the last instance in an internal, mental-like principle which was unextended and indivisible was immediately put to work by Leibniz for the explanation of one of the most difficult mysteries of the Christian religion: the resurrection of bodies. [...] Leibniz argued for the existence “in every thing” —that is, not only in human beings and animals, but also in plants and minerals— of a “kernel of substance” or a “seminal centre” which remained intact no matter how drastic the changes which bodies underwent. [...] Despite the fact that the material body could change completely during its lifetime and in death

could be completely dispersed or changed into other chemical elements, the identity of that particular corporeal being remained indestructible because it was constituted by an unextended and indivisible spiritual “point” (punctum) of which the body was only a manifestation. [...] [R]esurrected bodies would become what, metaphysically, all bodies really are beyond their changing physical appearance: beings which result from an indestructible spiritual principle. The young Leibniz was already inching his way toward the theory of monads of his mature metaphysics.” [Antognazza 2009, pp. 112-3]

Antognazza argues that the view in *Immortality* and *Ressurrection* has some similarity to the one in the *Monadology*.¹⁴ According to her, Leibniz held that bodies are phenomena resulting from indestructible seminals or kernels, just as he held that bodies are aggregates that result from monads or simple substances in letters to De Volder (GP.II.250, 275). According to her, first, the three terms ‘kernel,’ ‘seminal’ and ‘point’ refer to the same imperishable entity. Second, imperishable entities exist everywhere, and every body is a result of these seminals. Any body, however small, must contain an imperishable seminal, and also be constituted by this kind of seminal. So it is considered as an appearance that results from seminals.

Now, I will critically examine these two claims.¹⁵ I do not think that ‘kernel,’

¹⁴ George MacDonald Ross has a similar view since he wrote that “a primitive form of [Leibniz’s] theory of monad” can be found in *De resurrectione corporum* of 1671 (Ross 1982, p. 44).

¹⁵ Gregory Brown already examined Antognazza’s interpretation. Although he praises her book as an achievement of a “truly herculean task,” he casts a doubt upon her reading of the letter to Johann Friedrich of 21 May 1671. For instance, he does not think that Leibniz’s view that bodies are phenomena and mind-

‘seminal’ and ‘point’ refer to the same item. Leibniz discussed “point” in *Immortality*, while “kernel” and “seminal” were discussed in *Resurrection*.¹⁶ The contexts in which they are used are quite different. The following is an important passage from *Immortality*:

(11) Indeed, about mind, I do never say what is not clearly perceived and cannot be distinctly proved by demonstration. What I say about mind is not more difficult than what geometry says about point and angles. Certainly, [it is not more difficult than] the doctrine on points and angles, that on instances, conatus, or extreme motion or minimal motion, which, certainly, emerge at an instance, within a point. For me, the key will be to explain the nature of thought. I will demonstrate, in fact, that mind is settled in a point, that thought is conatus or minimal motion, and that a plurality of conatuses are not motions, they can be in the same place. Therefore, I will demonstrate that minds can think by comparing diverse things, sensing, and being affected by pleasure and pain, while bodies cannot think. Thus, a mind can be destroyed no more than a point. For a point is indivisible and, hence, it cannot be destroyed. Therefore, let a body be burned and dispersed to all corners of the earth, the mind will persevere safe and intact in its point for ever. Who, in fact, can burn a point? [A II.i.113; De Tommaso 2014, p. 90]¹⁷

dependent is present in the letter. See Brown 2009a.

¹⁶ Stuart Brown suggests that the source of the concept of kernel is “probably in Augustine, who held that God created the seeds of all things at the beginning” (Brown 2009b, p. 57). In *De Trinitate*, Augustine argued that “hidden seeds of all things that are born corporeally and visibly are concealed in the corporeal elements of this world” (DT.III.viii.13), and Leibniz took this as a Biblical doctrine (GP.VI.534 = L.557).

¹⁷ (11) Ego vero de Mente nihil dicturus sum, qvòd non et clarè percipi, et distincta demonstratione colligi posit. Qvae à me de Mente dicentur, non erunt difficiliora qvàm qvae à geometris de puncto de anglulis. Imò doctrina de punctis et anglulis; de instanti, de conatu, seu motu extremo seu motu minimo, qvi scilicet fit per

First, Leibniz stated that what Leibniz was saying about the mind is not more difficult to understand than what is said about a point in geometry. Second, he stated that the mind can hold diverse thoughts at the same time, but it still exists within a “point.” In the last two sentences, Leibniz only stated that a point is indestructible. Leibniz did not state that bodies are made up of these points. Also, Leibniz talks about “a mind in a point.” He seems to talk about a mental action in a moment. By the term ‘point,’ he seems to express a momentaneous duration of time. By stating that a mental action is momentaneous and therefore like a point, he implied that it is indivisible. If so, a point in this context cannot be a part of body. Since the mind seems to be distinguished from a point, it is possible that unlike the mind, a point is not a real entity. It is true that just like a point, the mind is indivisible and cannot be destroyed. In this context, mind and point have something in common.

In another passage, Leibniz uses the term ‘point’ to refer to some location in space. In this context, mind and point are not the same item, either. A mind is said to be located at a point, but it is not identical to the point:

[...] [B]ecause of mind and memory of past events, we are neither flesh nor bone.

instans, intra punctum ; clavis mihi erit ad explicandam naturam cogitationis. Demonstrabo enim Mentem in puncto consistere, cogitationem esse conatum seu motum minimum, posse simil in eodem plures conatus esse, qvanqvam non motus. Mentis ergo cogitare posse, comparare diversa, sentire, coluptate et dolore affici, corpora non posse. Unde seqvetur non magis mentem destrui posse, qvàm punctum. Punctum enim indivisibile est, ergo destrui non potest. Comburatur ergo corpus, dispergatur in omnes angulos terrae, Mens in puncto suo salva intactaque perennabit. Qvis enim punctum comburet?

Even if I will not be survived by a single atom now (except that point in which the mind is implanted), or if in the Final Judgment no flesh remains that I took from my mother, it will make no difference and the loss will not be perceived, because bodies insensibly change by a continual flux and renovation. [A.II.i.116; De Tommaso 2014, p. 92]¹⁸

Leibniz seems to suggest that a mind is implanted in a point. But this point may not be a real entity. Rather, a point may be just a location of that mind. It is true that in a letter to Des Bosses of 1709 Leibniz stated that the location of a mind is its whole body, not a specific point in a brain (GP.II.371). So he rejected the view that a mind is located at a point. But at least in 1671, Leibniz seems to accept the view. And according to a traditional view, a point is abstracted from a real and concrete entity. For instance, Aristotle assumes that points and locations do not exist apart from concrete beings (i.e., tables, chairs, desks, cups and others). Points are locations known through the relationship among concrete beings. So there is a good reason to deny that a point, just like a monad, exists in a body as its real component.

So far we have seen how Leibniz discussed mind and point in *Immortality*. Unlike *Immortality*, we don't find many discussions of point in *Resurrection*, although Leibniz introduced the important concept of "seminal" there as we have noted. So let us see the

¹⁸ [...] [M]ens et memoria rerum gestarum passarumque nos eosdem facit, non caro non ossa ; etsi ne Atomus quidem (praeterquam punctum illud cui mens implantata est) mihi supersit nunc, aut in Extremo iudicio superfutura esset carnis, quam ex matre traxi, nihil diversi eveniet, nec sentietur jactura, cum corpora continuo fluxu et reparatione insensibiliter varientur. Quae resecto membro, aut putrefacto ad fontem vitae, cui ipsa anima implantata est, redit.

context in which ‘kernel’ and ‘seminal’ are used in *Resurrection*. A discussion of seminal is found in Section 7:

[...] Indeed it must be known that a certain seminal center of its own is diffused in each thing like an enclosing dye and preserving the specific motion of a thing. This is manifest from the regeneration of plants from seeds (from this at least, which is not controversial), from the plastic force of the seed in the womb, from the essences of chemists. Thus, similarly in the bones and in our flesh, besides that *terra damnata, phlegma, caput mortuum*, as the chemists call it, a more subtle part is hidden, concentrated in the spirits. This, when a limb is cut off or decays, returns to the fount of life, in which the soul itself is implanted. [A II.i.116; De Tommaso 2014, p. 92]¹⁹

An important thesis is that “some seminal center” is diffused in every thing [*in omni re*]. It seems that every body contains some seminals. Furthermore, some may be tempted to claim that bodies are collections of seminals, and all the properties of bodies are explained by these seminals. But a seminal center is not introduced to explain all the physical properties of a body. Leibniz just needed it to explain the growth of an animal or a plant, and a chemical reaction. So, it is not clear whether any body is analyzed into a collection of

¹⁹ [...] Sciendum est enim in omni re esse centrum quoddam seminale diffusivum sui, et velut tinctuam continens motumque rei specificum servans. Constat hoc ex plantarum regeneratione (eâ saltem quae controversia caret) ex seminalibus, ex vi plasticâ seminis in utero, ex essentiis Chymicorum. Similiter ergo in ossibus, in carne nostra praeter terram illam damnatam, phlegma, caput mortuum, ut Chymici vocant, pars subtilior in spiritibus concentrata latet.

seminal centers. It might be possible that a tiny body that does not have any chemical property does not have any seminal centers in it. To be sure, if we read the passage quite literally, we may have to conclude that every body, however tiny it is, must contain seminal centers in it. However, if we take “everything” as whatever we see, then it is possible to interpret the passage as suggesting that any kind of creature or mineral contains this kind of seminal center, but a super-tiny particle may not.

Leibniz also discussed important features of seminals in *Resurrection*. He claimed that seminals are not destroyed, and they subsist throughout the changes of physical things:²⁰

(8) Therefore Thyestes devours his son, and if the force swallows the total life, the son is somehow digested in his stomach. But any seminal part of all victorious violence still gathers at the center. Its subtle part can be neither crashed by teeth, nor dissolved by stomach acid, nor become nourishment, since the sample of plants subsists. Indeed, the sample scorns fire and remains in ash. [A II.i.116]²¹

Leibniz here talked about the indestructibility of a seminal center. Whatever happens in the physical world, it will not be destroyed, just as according to Leibniz’s later view, monads

²⁰ As Emilio de Tommaso points out, Leibniz mentioned the concept of *luz* or little bone which Jews had introduced (A.II.i.117; De Tommaso 2014, p. 93). In Leibniz’s explanation, both the soul and the flower of substance survive inside of this little bone since it is extremely hard.

²¹ Devoret ergo Thyestes filium suum, et si vis totum vivum deglutiatur, digeratur utcunqve in stomacho eius, pars tamen seminalis omnis violentiae victrix colliget se ad centrum suum, cuius subtilitas nec dentibus diminui nec ab acido stomachi dissolve nec in alimentum perinde verti potest, cum plantarum exemplo constet, etiam ignem spernere et in cineribus superesse.

will not naturally perish. Seminal centers seem to hold their identity even if bodies change their shapes, sizes, colors and other features. To sum up, it seems that seminal centers are real entities, while points are not. A point refers to a location of something, which itself an abstract entity, or to a momentary duration of time. In either case, a point is not a component of the world of nature. Thus, we should not conflate seminals with points. As we have noted, seminals are indestructible and so they subsist over the course of time.

2.2.2 Theory of Abstract Motion

So far we have considered Leibniz's discussions of points and seminals. Seminals are found in bodies that have biological or chemical properties. But we cannot find discussions of conatuses in the letter to Duke John Friedrich, whereas we find the discussions in TMA, in which Leibniz proposed propositions concerning natural philosophy. First, I quote the several fundamental propositions in this work:

1. There are actually parts in a continuum, although the learned Thomas White believes the contrary.
2. And they are actually infinite, for the indefinite of Descartes is not in the thing but in the thinker. [GP.IV.228 = L.139]

According to Leibniz's view in 1671, a continuum has actual parts, and the number of the

actual parts is infinite. Leibniz changed his view in 1676, and held that a continuum cannot have actual parts up until the end of his life (A.VI.iii.555 cf. GP.II.282). According to the late view, although bodies are composed of monads, monads are not infinitesimals that generate continuous bodies. Bodies always have actual parts, and thus cannot be continuous. While mathematical entities (space, plane, line etc.) are continuous, they are not real components of the actual world. But in 1671 Leibniz considered both space and body as continua, and he held that an infinite number of “indivisibles” can generate a continuous body. It should be noted that an “indivisible” is not considered as nothing, though it is smaller than any finite thing. Leibniz also argued that points are indivisibles that make up a space, while conatuses are those which generate a motion (cf. Arthur 2009, p. 13):²²

4. There are indivisibles or unextended beings, for otherwise we could conceive neither the beginning nor the end of motion or body. [...] 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.

5. There is no point whose part is 0, or whose part lacks distance. [...] This is the foundation of the method of Cavalieri. [...]

6. The ratio of rest to motion is not that of a point to space but that of nothing to one. [...]

²² Richard Arthur points out that in the *Theory of Abstract Motion* Leibniz rejected “the standard Euclidean definition of a point” as “that whose part is nothing” (Arthur 2009, p. 17). Arthur understands point in TMA as “something extended, but which nevertheless has parts that are ‘indistant’ from one another.”

10. Conatus is to motion as a point to space, or as one to infinity, for it is the beginning and end of motion. [GP.IV.229 = L.139-40]

Thus, both points and conatuses do have some size (say, infinitesimal size) and both space and motion are composed of these. The discussion here may look odd, given that Leibniz later argued that a continuum cannot be composed of individual points, and these points cannot be its actual parts. For instance, in a letter to De Volder of 1706, Leibniz argued that a continuum is an ideal entity, and it is not composed of actual parts (GP.II.281-2). But despite his later view, Leibniz had a unique concept of point in TMA, following the tradition of Cavalieri.

So far we have seen Leibniz's concepts of point, conatus and space. But to see how an extended body consists in motion that is a result of many conatuses, we need to consider other passages. Leibniz explicitly distinguished extended body from space in his letter to Arnauld of November 1671:

First, there is no cohesion or consistency in bodies at rest, contrary to what Descartes thought, and furthermore, whatever is at rest can be impelled and divided by motion, however small. This proposition I later extended still further, discovering that there is no body at rest, for such a thing would not differ from empty space. [...] From the latter principle it follows that the essence of body does not consist in extension, that is, in magnitude and figure, because empty space, even though

extended, must necessarily be different from body. From the former it follows that the essence of body consists rather in motion, since the concept of space involves nothing but magnitude, figure, or extension. [GPI.I.71 = L.148]

Leibniz explicitly argued that unlike space, extended body consists in motion. And in a later part of the letter, he argued that “[e]very body can be understood as a momentaneous mind, or mind without recollection” (L.149). He also wrote that “[t]he present motion of a body arises from the composition of preceding conatuses,” and I think it is the reason why a body lacks memory. After the composition, a collection of preceding conatuses result in a new conatus that alone does not provide sufficient information about the previous conatuses which the body had. It cannot completely hold traces of the previous events, and thus it lacks “recollection”:

17. No conatus without motion lasts longer than a moment except in minds. For what is conatus in a moment is the motion of a body in time. This opens the door to the true distinction between body and mind, which no one has explained heretofore. For every body is a momentary mind, or one lacking recollection, because it does not retain its own conatus and the other contrary one together for longer than a moment. For two things are necessary for sensing pleasure or pain —action and reaction, opposition and then harmony— and there is no sensation without them. Hence body lacks memory; it lacks the perception of its own actions and passions; it

lacks thought. [GP.IV.230 = L.140]

In this passage, Leibniz explicitly declares that every body “does not retain its own conatus and the other contrary one” for more than a moment. Leibniz seems to suggest that after the composition of the two conatuses, both of them completely disappear, and there is no trace for these two conatuses. Now since a body consists in motion, a body at a certain moment consists in momentaneous and infinitesimal motion, that is, conatus. At a moment, a moving body only has a tendency to move, which is called conatus. Thus I assume that in the context of the Proposition 17, not only conatuses, but bodies themselves exist only at a moment, since they solely consist in motion, which is ultimately consist in conatuses, each of which only lasts for a moment. Bodies lack memory, perceptions of their own actions and passions, and thoughts. It is no wonder, since they solely consist in motion, and at a moment they consist in infinitesimal motions or conatuses that do not provide sufficient information for previous states.

Against my view that body as a momentary mind only exists at a moment, Antognazza would claim that every body consists in a collection of seminals, and all the seminals are indestructible and naturally endure more than a moment, and thus it is analogous to a simple and immaterial substance (monad).²³ But considering the passages

²³ In her book *Leibniz on the Trinity and the Incarnation*, Antognazza introduces an interesting passage from 1671. Leibniz wrote that his demonstrations are “based on the difficult Doctrine of point, instant, indivisibles and *conatus*; then just as the Action of the Body consist in motion, so the Action of the mind consist in *conatus*, or the very smallest point [...] of motion” (A.II.i.108; Antognazza 2007, p. 41). Here a reader may understand that for Leibniz, conatus is the essence of mind, and it endures for more than a moment since it is essential for an enduring mind. But such a usage of ‘conatus’ is rare, and I think we should not conflate the concept of “conatus” in this context with conatus in general. In my interpretation, generally speaking, conatus is an infinitesimal element of spatial motion, and it is not essential for the human mind. And I don’t think

from *Theory of Abstract Motion* and the letter to Arnauld, we cannot conclude that according to Leibniz, every body consists in many seminals, since he explicitly argued that it actually consists in motion.

In sum, in my interpretation, Leibniz supposed that all the extended bodies consist in motion in 1671, whereas bodies with biological or chemical properties also contain “seminals.” Seminals as well as minds endure for a long time, while conatuses that generate the motion of a body are incessantly produced by God. Conatus does not endure for more than a moment, and since body consists in conatuses that instantly disappear, its ontological status is not robust. As we will see, the tendency to take the ontological status of body lower will be even more remarkable in the next period of 1672-5.

2.2.3 Chemical and Biological Properties

So far we have seen how Leibniz dealt with extension, cohesion, resistance and motion. But I did not sum up Leibniz’s consideration of chemical and biological properties that can be found in other texts as well as in *Resurrection*.

I: Traditionally, chemical properties are considered to be different from physical properties. Chemical substances sometimes undergo drastic changes when they are combined. In the *Theodicy* (1710), Leibniz also took note of two experiments (GP.VI.108 = T.10). The first was by Van Helmont, which generates a dry body from two different liquids

Leibniz suggested that since both human mind and body consist in conatuses, both of them must contain everlasting immaterial things.

(alcohols and uric acid). The second was by Friedrich Hofmann, which generates a furious fire from two cold substances (acid and palm oil). Indeed, some scholars assumed that some special powers are active in chemical reactions, while they do act in physical phenomena. For instance, Van Helmont introduced the concept of Arche [*Archaeum*], and new substances are generated by actions of Arche rather than Aristotle's forms (Van Helmont 1648, p. 33; Hirai 2005, p. 451).

Leibniz's attitude towards chemical properties is ambiguous. On the one hand, Leibniz tried to explain chemical properties by introducing a mechanical theory. In the *Theory of Concrete Motion* [*Theoria motus concreti*] (1671), Leibniz explained reactions of acid and alkali by introducing "bubbles [*bullae*]" (GP.IV.201-4 cf. GP.I.80-1). Bubbles contained in acid and alkali have opposite movements, and therefore their movements cancel out each other and disappear when they touch. Bubbles only have rotating movements, and these bubbles are produced through rotating movements of the earth (GP.IV.184). They seem to have mechanistic properties alone. Also, Leibniz argued that if we introduce bubbles we don't have to postulate the existence of Van Helmont's Arche, which suggests that Leibniz introduced bubbles to complete his mechanistic view (GP.IV.217).

On the other hand, considering that mechanical explanations of chemical properties are not easy, Leibniz introduced seminals for explanations of chemical properties, as we have seen. In *Resurrection*, seminals are supposed to explain the plastic power [*vis plastica*] of a chemical substance (A.II.i.116). Also, in a letter to John Friedrich of 1671, Leibniz stated that all the bodies, including minerals, contain a "core of its substance [*Kern seiner*

Substanz]” (A.VI.i.108). This core is introduced in the context of explaining the content of *Resurrection*, and it is likely that by the ‘core,’ Leibniz referred to the seminal of *Ressurrection*. It seems that even minerals have seminals, and chemical reactions of minerals are the result of these seminals.

How can we understand these two different discussions of chemical properties? The *Theory of Concrete Motion* was published as a part of the *New Hypothesis of Physics* in 1671, but according to an editor of the Academy Edition, it was written at the end of 1670 (A.VI.ii.219-22). So it may be possible that Leibniz thought chemical phenomena could be explained in terms of mechanics in 1670, while he changed the view and introduced seminals in the next year. But Leibniz also held the framework of the *New Hypothesis* in his letter to Arnauld of November 1671 (GPI.71-4). Leibniz still tried to explain physical properties of bodies by the theory of mechanism. So, I think that Leibniz had not yet decided whether chemical phenomena can be explained mechanically. It seems that Leibniz’s explanations of specific chemical phenomena in terms of bubbles are hypotheses, while he had a stronger commitment to the general theory of conatuses and their composition. So, chemical phenomena may be caused by bubbles, but they also may be caused by seminals.

II: Leibniz seems to be more seriously committed to the existence of seminals when he discusses biological phenomena. According to *Resurrection*, seminals cause regeneration of plants [*plantarum regeneratio*], and formation of animals (A.II.i.116). A cat has a certain type of flesh and bones because of the plastic power of her seminals. On the other hand,

although Leibniz discussed the movement of muscles in terms of subtle bubbles in the *Theory of Concrete Motion* (GP.IV.210), formations of animal bodies are not explained there. For Leibniz, plants and animals are not aggregates of conatuses, but living things that form complicated bodies by themselves. Indeed, it is difficult to tell the shapes of stem and flower by looking at the seed of a plant.

So, Leibniz seems to think that plants and animals are not formed solely by the mechanical movements of inorganic bodies, and they need seminals that do not simply observe the mechanical laws. According to this view, the laws of mechanism are violated in the bodies of plants and animals. Later, Leibniz thought if the mechanical laws in this world were violated, the world would be less perfect (GP.III.300, 368, 375, 6 544). But God would have created the most perfect world, and even formations of living bodies should not violate the laws of mechanism. So the laws are not violated by seminals or others in this actual world. Thus the late view is quite different from that of 1671, but Leibniz's view that living things contain some indestructible entities was not changed.

2.2.4 The Significance of the Theory in 1671 —As it is

I would like to review the significance of the theory in 1671 as it is. I take note of three points here.

I: We can find a version of scientific realism in the theory of 1671. Leibniz understood bodies as consisting of numerous conatuses, each of which is invisible.

According to him, bodies do not exist as we consciously perceive them. They do not consist in the colors and relatively simple figures that we see. Leibniz intentionally distanced himself from a version of naïve realism. It is also practically difficult to measure the conatuses of a body precisely, and in this sense we cannot completely grasp a specific body by figuring out all the conatuses that compose it. But still extended body as such consists in conatuses, each of which can be described by using mathematical language. Mathematical physics can precisely represent real entities that exist outside of perceiving minds. In contrast, Leibniz later argued that only monads or simple and immaterial substances are mind-independent entities, and these monads do not show up in the world of physical phenomena that is ordered in terms of space and time. Moreover, monads are causally independent of each other (M.7), and they are so different from physical objects that seemingly act upon each other and constantly change. As Robert Adams argues, Leibniz rejected a strong version of scientific realism in his late period (Adams 1994, p. 227). If so, some philosophers of science, who have the impression that Leibniz's metaphysics of *Monadology* is too phenomenalistic or idealistic, may be attracted by Leibniz's early theory of 1671.

II: Leibniz considered special features of biological and chemical properties, and he did not explain biological phenomena in terms of the mechanical principle. So, in 1671, Leibniz did not thoroughly complete a project of mechanics as Hobbes and Descartes did. But after Leibniz, many influential philosophers, such as Schelling and Bergson, opposed a thoroughgoing mechanism. Leibniz's early theory of 1671 might be considered as a

forerunner of their views.

III: Leibniz introduced an interesting view that a continuum is composed of an infinite number of infinitesimals. To be sure, Leibniz later argued that a continuum cannot be composed of points or infinitesimals, and that an infinitesimal is a “useful fiction” (GP.II.305 cf. GM.IV.110). The symbol of infinitesimal does not have a referent, just as syncategorematic terms (i.e., prepositions and conjunctions) do not. But the symbol is useful for solving mathematical questions (i.e., finding the tangential line at a point of a curve) (GM.IV. 92, 105, 569). Leibniz’s attitude in the late period may be similar to Cauchy’s, which became standard in 19th century and later. Indeed, Cauchy also did not introduce real infinitesimals in his analysis (Ishiguro 1990, pp. 79-84, p. 92). From this point of view, Leibniz’s early theory of 1671 may be considered as primitive. But in the 20th century, Abraham Robinson proposed a sophisticated theory of analysis that introduces real infinitesimals (Robinson 1996). He may assume that Leibniz’s early theory is even more interesting than the late theory that does not introduce real infinitesimals.

2.2.5 The Significance of the Theory of 1671 —With respect to the late view

Leibniz’s theory of body in 1671 has something in common with his late view. Even in 1671, as he did later, Leibniz tried to explain phenomena mechanically as much as he could. Although Leibniz did not thoroughly expand a mechanistic theory, he explained all physical properties in terms of mechanism. Biological phenomena were not explained

mechanically since they seemed to be so complicated that they do not allow any kind of mechanical explanation. In the late view, formations of living bodies were also explained from a mechanistic point of view, but perceptions of souls are still beyond mechanism (M.17). But Leibniz introduced entities that do not fit within the framework of mechanism (i.e., seminals, monads with perceptions). Leibniz, in every period, seems to try to explain phenomena on the basis of a mechanistic theory as much as possible.

Leibniz's theory of 1671 is similar to the late view for another reason, since Leibniz introduced enduring entities in both periods. In 1671, Leibniz noted special features of biological phenomena, and took them to be the result of seminals that endure through time. Leibniz found some kind of subsisting things in organic bodies. Bodies, insofar as they contain seminals, can keep their identities. According to the late theory, bodies are aggregates of monads that subsist perpetually. Even if parts of a body move away, the body contains substances that hold their identities through time.

On the other hand, the theory of 1671 differs from the late one in the following points. First, as we have seen, Leibniz introduced entities that are not explained in terms of mechanism (i.e., seminals) in relation to the formation of living bodies. Second, although conatuses only exist at a moment, they are mind-independent entities that exist outside of perceivers, and physics can deal with these mind-independent things. In this sense, the theory of 1671 can be considered to be a version of scientific realism. Third, Leibniz thought that a continuum can be composed of points or conatuses, while he changed this view later. Fourth, according to the theory of 1671, although bodies contain seminals that

endure for more than a moment, bodies do not consist solely in seminals. Physical properties of bodies consist in conatuses rather than seminals, and conatuses are not “results” from seminals. It seems that even if bodies lose all the seminals, their conatuses remain. Bodies are not results of seminals. But according to the late view, bodies are aggregate of monads, and their reality consists solely in these monads.

Fifth, according to the theory of 1671, bodies cannot spontaneously continue actions. Martial Gueroult argued that according to the *Theory of Abstract Motion*, conatuses exist only at a moment, and bodies cannot continue motions spontaneously without the aid of God (Gueroult 1934, pp. 16-7 cf. Brown 1984, p. 35). God cognizes the previous state of the natural world, and provides new conatuses so that bodies can continuously move. In *De materia prima*, written in 1670 or 71, Leibniz also suggested that through movements forms are given to bodies, and in this process bodies are actualized (A.VI.ii.42). Strictly speaking, the movements of bodies are given by God every moment, and therefore they are newly recreated by God. In contrast, according to the late view, bodies are composed of subsisting monads that continue actions spontaneously.

Lastly, bodies do not contain mind-like substances that have perceptions and appetitions in the theory of 1671. According to the late view, bodies are aggregates of monads and all the monads have perceptions and appetitions (GP.II.270; M.14-15). But a body of the *Theory of Abstract Motion*, characterized as a “momentary mind,” does not have perceptions and appetitions. So the similarity of the human mind and body is not emphasized in 1671 as it is in the late view. Indeed, Leibniz claimed that a true distinction

between mind and body can be given by understanding bodies as momentary minds (GP.IV.230). Also, in a letter to John Friedrich of October 1671, Leibniz concluded that “a mind is not a body” since minds act upon themselves, while bodies only have movements and acting upon other bodies (A.II.i.162). Moreover, in a letter to Arnauld of 1671, Leibniz declared that the essence of body consists in motion (GP.I.71 = L.148). This claim, as we have seen, should be understood to imply that at a moment, every body consists in conatuses, each of which just endures for a moment. So, when Leibniz said that bodies are momentary minds, he didn’t mean to imply that both human minds and bodies are subsisting substances that have perceptions. Rather, he wanted to show that bodies are quite different from minds since they do not subsist for more than a moment and they lack reflections and memories. So it is not appropriate to assume that a “momentary mind” is a principle of subsistence that guarantees the duration of a body, as Antognazza does. Although seminals do subsist for more than a moment, and to this extent they are similar to monads, they only have some powers to form living bodies, without having perceptions and appetitions.

Leibniz is a multi-faceted genius in many areas, but he was not so precocious that he presented all of the important metaphysical theses in 1671. Recent research reveals that his metaphysics developed through a somewhat complicated process. For this reason, Leibniz’s early metaphysics presents some interesting theses that can be connected with the late view, but also it shows an interesting system in its own right.

III. “To exist is to be sensed” —Leibniz’s Early Idealism (1672-74)

We have seen that Leibniz thought that the essence of a body consists in motion in 1671. But he did not argue that the motion of a body is mind-dependent, or that a body moves only if it is perceived as a moving body. On the contrary, in 1672, Leibniz seems to suggest that bodies are dependent upon perceiving minds. He argued that the movement of a body depends upon a mind that is perceiving it. Since Leibniz also argued that bodies consist in motions, he eventually suggested that bodies are mind-dependent. In this chapter, first, I introduce a passage in which Leibniz introduced the view that “to exist is to be sensed,” which sounds similar to Berkeley’s (3.1). Second, I will critically examine Robert Adams’s interpretation of the passage (3.2). Third, I discuss another passage that is more crucial for interpreting Leibniz’s view of 1672 (3.3). Fourth, I will critically examine another discussion of Adams (3.4). Lastly, I will discuss characteristics of Leibniz’s view on body comparing it with Berkeley’s (3.5).

3.1 Leibniz’s “Esse is Percipi”

Leibniz stated “to exist is nothing other than to be sensed” in the following passage:

I seem to myself to have discovered that to Exist is nothing other than to be Sensed [Sentiri] — to be sensed however, if not by us, then at least by the Author of things,

to be sensed by whom is nothing other than to please him, or to be Harmonious.

[A.VI.iii.56; Adams 1994, p. 235]

In this passage, Leibniz seems to suggest that things exist insofar as they are sensed by some mind. Furthermore, Leibniz says something may exist as an object of sense for the Author of things, or God. Although God may not “sense” an object as a human mind does, since God does not have a body and sense organs, God can be “pleased” by conceiving a harmony among things, or more precisely, God can find the best harmony among things, and he is motivated to actualize it.

As Adams notes, the previous passage seems to express a view similar to Berkeley’s view that body is a completely mind-dependent, and it exists insofar as it is perceived by a mind (Adams 1994, p. 235). Berkeley, as is well known, argued that “Esse is Percipi” in the *Principles of Human Knowledge* (1710). He also argued that bodies exist insofar as minds perceive them, and they cannot be independent of minds (LJ.II.242). A body needs to be an internal idea for a perceiving mind (ibid., p. 43), but the existence of bodies that are not perceived by human minds is explained by God, since he always and precisely perceives all the bodies. God is the Author of Nature, and the ideas which God provides are “real things” (ibid., p. 54). Bodies or ideas are coherent, and observe the laws of nature (ibid., pp. 53-4). So doors do not disappear when people leave rooms. They appear as they were when people come back there. Thus we don’t have to assume that houses, rivers, mountains and stones are illusions (ibid., p. 55). Now some kind of similarity is found between Leibniz’s

and Berkeley's discussions. Both of them suppose that body only exists insofar as it is sensed by some mind, and that we can perceive bodily objects since God created us in such a way that we perceive them.

3.2 Adams's Interpretation of the Passage

Robert Adams also quotes the text from 1672, and he interprets Leibniz's view in this period as close to Berkeley's:

The simplest and starkest version of phenomenalism to be found in Leibniz's writings belongs not to his mature philosophy, but to the years 1675-79. Many of its ideas persist in his thought. His later phenomenalism grows out of it much more by addition than by subtraction, and it provides an illuminating background to the complexities of his later thought. [Adams 1994, p. 235]

To examine Adams's interpretation, it is better to see the context of the quoted passage of 3.1. It is from the second draft of the *Propositions of a Certain Physics* [*Propositiones quaedam physicae*] (A.VI.iii.4-72). In short, Leibniz did not show an explicit doubt of the mind-independent existence of bodies in other passages of this work. In this second draft, Leibniz first discusses optics (from the 1st to the 13th proposition). He also discusses gravity (14th), bodies on the earth in general (17-19th), magnetic force (20-21st), elasticity

(22nd), heterogeneous bodies (23-30th). Optics is discussed again (32-34th), and lastly, Leibniz considers heat and cold (35th) and acceleration (36th). In many passages of the second draft, Leibniz seems to investigate various physical phenomena assuming that bodies certainly exist. Here it is not easy to find any specific motivation for doubting the existence of bodies. He also states that if there is no distinction between body and extension, it is impossible that a certain body occupies a space smaller than another's. In this context, Leibniz criticizes Descartes who identifies body with space (AT.VIIIa.46-7). Leibniz also denies the existence of a vacuum, and rejects the explanation of density in terms of vacuum. According to him, it is not true that bodies get denser when their parts move and occupy vacant spaces.

After confirming that body and space are distinct, Leibniz suggests that the motions of bodies produce sensations by affecting the bodies of minds. Sensations confirm the existence of bodies. If bodies were completely in rest, not even God could distinguish them from other bodies. Here he suggested that God also perceives bodies as moving things.

Also, in the passage of 3.1, Leibniz emphasizes that the existence of bodies is dependent upon God, but he did not state that it is dependent upon finite minds. Bodies exist insofar as their existence pleases God. The existence of bodies pleases him when it is considered as a part of the harmonious world. So we should not immediately conclude that bodies are nothing but objects of human minds. Even if human minds do not perceive bodies, they may still exist as an object of God's mind. Moreover, in the passage of 3.1, Leibniz may not imply that bodies exist either as objects of finite minds (i.e., human minds)

or objects of God. Leibniz may be just suggesting that bodies exist insofar as they are understood as parts of the harmonious world. In this case, bodies may exist even when they are not perceived by any mind at all. God understood bodies to be parts of the best world, and created them. These bodies may exist as semi-mind-independent beings that are only dependent upon God for their creation. If so, bodies do not exist solely as objects of finite minds.

Moreover, philosophers may claim that “bodies are objects of sense” even if they do not assume that bodies are completely mind-dependent beings. Daniel Garber points out that some atomists (namely followers of Epicurus) also suppose that bodies are objects of sensations (Garber 2009a, pp. 26-7). According to them, bodies, unlike space, have some sensible qualities. Whenever bodies stimulate sense organs of human beings, we sense these bodies. Thus bodies can be considered as objects of sense. But as atomists, the Epicureans assume that bodies are mind-independent entities, and never hold a strong version of idealism as Berkeley does. Garber assumes that Leibniz did not think bodies are completely mind-dependent, and so Garber concludes that “there is good reason to believe that Leibniz hadn’t yet signed on to any kind of phenomenalism in the early 1670s” (Garber 2009a, p. 27).

3.3 Another Important Passage of 1672

So far we haven’t seen a good reason for assuming that Leibniz thought bodies are

mind-dependent. Still, Leibniz suggested that bodies exist insofar as they are perceived by minds in another work of 1672. Consider the following passage:

If there were no minds, all bodies would be nothing.

Since to be a body is to move, it must be asked what it is to move. If it is to change place, then what is place? Isn't this determined by reference to bodies? If to move is to be transferred from the vicinity of one body to another body, the question returns, what is body? Thus body will be inexplicable, that is, impossible, unless motion can be explained without body entering into its definition. It is no good saying that to move is to change space, when we have concluded that there is no distinction between space and body. So what in the end are body and motion really, if we are to avoid this circle? What else, but being sensed by some mind. [A.VI.iii.100 = RA.17]

Let us see the context of this passage by considering texts that show up before the passage. At the beginning part of *On Minimum and Maximum: On Bodies and Minds (De minimo et maximo. De Corporibus et mentibus*; hereinafter *On Minimum and Maximum*), Leibniz denied the existence of indivisibles more thoroughly than he did in the *Theory of Abstract Motion* (1671). Leibniz argued that if the line **ab** of the square **abcd** is composed of individual points, then any point on **ab** corresponds to another point on the diagonal **ad**, and for this reason the diagonal **ad** must be composed of the same number of points. But if

we draw a circle whose center is **a**, the radius of the circle is the same as the length of **ab**, and it is obvious that the diagonal **ad** is longer than **ab** since the circle intersects with **ad** at a point between **a** and **d**. If we assume that the intersection of the circle and the diagonal is **i**, then **id** does not have any points in it. But certainly, **id** has points in it. Leibniz implied that the absurd result was derived from a false assumption that the line **ab** is composed of individual points.

Leibniz then discussed “the beginning of the body.” The beginning cannot be an individual, since the existence of an individual has been denied. Also, the beginning cannot be an infinitely small line segment for the following reason: Anything cannot be taken away from the beginning. But infinitely small line segments are larger than other infinitely small line segments, and for this reason some smaller lines can be taken away from them. Thus Leibniz concluded that “[t]here is no space without body, and no body without motion [*Nullum est spatium sine corpore, et nullum corpus sine motu*]” (A.VI.iii.99 = RA.15). This proposition is used to show that “[i]f there were no minds, all bodies would be nothing” (A.VI.iii.100 = RA.17).

According to Leibniz, the essence of bodies consists in motion. Therefore, a body cannot be defined without motion. Leibniz went even further to state that bodies cannot exist without motion. Now motion is relative in the sense that there is no absolute motion that is completely independent of the viewpoint of an observer. Thus motion cannot be given without an observing mind, and body, consisting in motion, cannot exist without a mind, either. One may suppose that bodies can completely stop, and therefore they can exist

without motion. So he may wonder why bodies need to consist in motion as Leibniz states. But we need to note that in 1671 Leibniz held the distinction between body and space, and he thought that no body is completely at rest. Leibniz thought that if bodies consist in extension and its modes (shape and size), the distinction between body and space will be lost (GPI.72). When the distinction between body and space is lost, various problems occur. First, even if bodies move, space stays at the same place. If a chair moves to another place, it exists at that place while space once occupied by the chair does not move at all. Second, bodies can move other bodies by being contiguous to them, while space can neither touch nor resist bodies. Indeed, when a body comes to some place, the place easily accepts the body. For these two reasons, body is not a part of space, and it does not consist in shape and size. Leibniz further explained the resistance of a body in terms of the motions of its parts, suggesting that the motion of another body that collides with the body is cancelled out by the motions of parts. According to him, bodies cannot resist or cohere without motions.

That was one of the reasons why Leibniz claimed that “to be a body is to move.” After considering this claim, Leibniz raised two possibilities. First, a possibility that to move is to change a position, which is defined in terms of the relation among bodies. For instance, when a train is moving on a rail, it is contiguous to one part of the rail, while it once was contiguous to another part. But for Leibniz, this definition of motion cannot be used for defining body. According to him, body is defined in terms of motion. Thus, to avoid circular definition, motion should not be defined by the concept of body.

Second, Leibniz considered the possibility that to move is to change position in

space. In fact, the reason why Leibniz denied this possibility is not clearly shown. Leibniz seems to suggest that if we pick out points from space to measure motions, these points are only given through bodies (in other words, these points are in bodies or between bodies) since space is actually filled up with bodies. If so, points in space are nothing but points in bodies, and body and space are not distinguished. But for Leibniz, space and body need to be distinguished, and it is wrong to assume that movements consist in changes of place in space. After examining these two possibilities, Leibniz concluded that there is no other way to explain movements as mind-independent, and thus they are mind-dependent.

To be sure, some passage of *On Minimum and Maximum* might be read as suggesting that bodies are dependent upon the greatest mind, namely God. Leibniz stated that “[f]or the existence of bodies, it is certain that some mind immune from body is required, different from all the others we sense” (A.VI.iii.100 = RA.17). He also stated that “[w]e derive other principles of this mind by means of other principles” (A.VI.iii.101 = RA.101). So one may think that Leibniz did not present a stark version of idealism in 1672, since he was just suggesting that God is required for the existence of bodies. But I think Leibniz’s statements are consistent with my interpretation of the theory of 1672. The claim that bodies need God to exist is consistent with the view that bodies consist in movements that are mind-dependent entities. God’s existence is required as the ultimate cause of everything. All minds are created by God, and bodies exist as objects of perception in minds. But the ultimate cause of the existence of these bodies is God, since he is one who created minds in a way that they perceive certain movements and bodies.

3.4 Adams's Interpretation Revisited

So far I have introduced an interpretation that the idealistic view in 1672 is derived from Leibniz's understanding of the relativity of movement. But Adams presents a different interpretation. For him, Leibniz's early idealism is also derived through the argument that divisible bodies do not have realities as substances (Adams 1994, pp. 236-7). Let us call it "the divisibility argument." In fact, as we can understand from Leibniz's discussions in the late period, this argument does not establish that bodies do not have any mind-independent reality, though it may show that bodies are not substances. In the late period, Leibniz concluded that since bodies are divisible, their reality needs to consist in indivisible entities if they have some reality (GP.II.267). Bodies do not have any mind-independent reality if they are not composed of indivisible substances. But in fact, there are many simple substances or monads that have perceptions and appetitions as minds do. Also, in the framework of monadology, bodies result from simple substances. If so, even if bodies are divisible, they still have mind-independent reality.

There is another problem if we take Adams's interpretation as presenting Leibniz's view in 1672. Adams quotes a passage from a volume of the Academy Edition, which was published in advance [*Vorausedition*] (Adams 1994, p. 236).

I understand, however, by body, not what the Scholastics compose of matter and a

certain intelligible form, but what the Democriteans [i.e., atomists], in another context, call mass [*moles*]. This I say is not a substance. For I shall demonstrate that if we consider mass as a substance we fall into [views] implying a contradiction, just because of the labyrinth of the continuum, where we must consider especially, first, that there cannot be Atoms, for they conflict with the divine wisdom. Next, that bodies are actually divided into infinite parts, yet not into points, and therefore that there is no way in which a single body can be marked out, but that any portion whatever of matter is a being by accident, and even in perpetual flux. But if we say only this, that bodies are coherent appearances, that puts an end to all inquiry about infinitely small things, which cannot be perceived. But here there is a place also for that Herculean argument of mine, that all those things about which it cannot be perceived by anyone whether they are or not, are nothing. Now that is the nature of bodies, for if God himself willed to create corporeal substances such as people imagine [*figunt*], he would do nothing, and even he would not be able to perceive that he had done anything, since nothing is perceived, in the end, but appearances. The sign of truth, therefore, is coherence, but its cause is the will of God, and its formal definition [*formalis ratio*] is that God perceives that something is best or most harmonious, or that something pleases God. Therefore the divine will itself, so to speak, is the existence of things. [VE.1872; Adams 1994, p. 236]

The editors of *Vorausedition* assume that the passage was written in 1677 or later, and

Adams suggests that the passage was written in 1677-79. But if so, it is not appropriate to understand Leibniz's view in 1672 on the basis of this passage. Thus I present my reading on the basis of *On Minimum and Maximum* of 1672, without mentioning *Voraussetzung*.

To sum up, first, Leibniz was committed to the view that bodies are at least dependent upon God. If God did not create things as they are, bodies may not have existed. Bodies can exist insofar as they can "please" him. In other words, they are created if they are taken to be parts of the best world. Furthermore, Leibniz suggested that movements are dependent upon perceiving minds, and bodies consist in movements. As a result, Leibniz held the view that bodies are dependent upon perceiving minds.

Although Leibniz argued that bodies exist insofar as they are created by God, he did not fully explain how God keeps bodies in existence after his creation. Perhaps God did not create bodies as mind-independent entities. God may have created finite minds, and made them have perceptions of bodies. In this case, bodies exist as objects of perceptions of finite minds, and since these finite minds are dependent upon God as creatures, bodies are ultimately dependent upon God. God does not perceive bodies and movements with a sense organ. But he understands how finite minds perceive bodies and movements, and in this sense he has knowledge about these bodies and movements.

Another possible explanation is that finite minds and God both perceive bodies, but they perceive bodies quite differently. The movements perceived by God are much more complex than those perceived by human beings. But both God and finite minds perceive "spatial" movements, and God perceives bodies as consisting in these movements. God

perfectly perceives the inner movements of a body, and how these movements influence other bodies. In this explanation, bodies may not be objects of perceptions of finite minds. Finite minds perceive bodies and movements in different ways. But God's perception of bodies and movements is the basis of the perceptions of finite minds. In other words, our perceptions are considered as objective and real insofar as they correspond to God's perception of bodies and movements. This second explanation may sound interesting. But since Leibniz did not explicitly show how God perceives bodies and movements, we had better keep a distance from this explanation.

So far we have seen how Leibniz noticed the weakness of the ontological status of bodies. Insofar as bodies consist in movements that are mind-dependent, bodies themselves are also considered as mind-dependent. This is different from a famous argument to show that bodies are mind-dependent since they are aggregates and don't have intrinsic unities (GP.II.256).²⁴ Among the texts of 1672, this argument does not show up.

3.5 Minute Bodies and Movements

In this last part of Chapter 3, I argue that Leibniz held that body consists in an infinite number of minute movements, and it cannot be reduced to a perceptual content of a finite mind that is consciously recognized. As we have seen, in the *Theory of Abstract*

²⁴ In a letter to De Volder of 10 November 1703, Leibniz argued that an aggregate cannot be a substance since it is not truly one thing (GP.II.256). According to him, an aggregate has a unity, but the unity is given by a perceiving mind that supposes the aggregate as one thing.

Motion of 1671, Leibniz argued that conatus is an actual part of a movement, even though it is infinitely small (GP.IV.430). Also, in a letter to Arnauld of 1671, he argued that body consists in movements (GPI.72).

Given that Leibniz eagerly discussed conatus in 1672, I think he did not give up the theory of conatus in this year. In the fourth draft of *A Demonstration of Incorporeal Substances* [*Demonstratio substantiarum incorporearum*], he characterized conatus as a beginning [*initium*] of action (A.VI.iii.80). Moreover, he tried to explain movement, resistance [*resistentia*], and cohesion [*cohasio*] in terms of conatus (A.VI.ii.161). A body shows its resistance when it has a conatus that opposes another body's movement. Parts of a body cohere together when they tend to move to the center of the whole body. Since a body contains numerous conatuses, it must have numerous actual parts that are not consciously perceived. For instance, a cubic body of one micro meter in each side, which we do not perceive with naked eyes, still exists as something composed of conatuses.

The view that a body has invisible actual parts is consistent with Leibniz's important suggestion that the human mind has unconscious perceptions in some early texts from 1668-9. Although the term 'small perception [*petite perception*]'²⁵ that is frequently used in the *New Essays* of 1703-5 (GP.V.48 = NE.Intro.) is not found in the texts of 1672, Leibniz argued that mind is not conscious of all of its actions in *Demonstrationum*

²⁵ In her renowned paper "Changing the Cartesian Mind: Leibniz on Sensation, Representation and Consciousness," Alison Simmons argues that small perceptions are precisely correspondent to minute motions (Simmons 2001, p. 68). According to the *New Essays*, every minute motion is precisely represented by an unconscious perception, and thus there are an infinite number of minute motions in a phenomenal world that is merely represented by a human mind. I think her reading is plausible, and Leibniz had almost the same view in 1672 as well.

Catholicarum Conspectus of 1668-9 (A.VI.i.495n; I here follow the interpretation of Kulstad 1991, p. 54). Also, in the *Confession of Nature against Atheists* of 1669, he suggested that the human mind has images even when it does not think of them (GP.IV.109; Kulstad 1991, p. 63). In short, Leibniz seems to have ascribed unconscious perceptions to a mind. If so, according to Leibniz, although minute parts of a body are not consciously perceived, it is possible that they are still objects of mental actions. And since in 1672 Leibniz did not state that the human mind only has conscious perceptions, it is reasonable to suppose that he did not substantially change his view in 1672, and he held that the human mind has unconscious perceptions for minute parts of bodies.

Leibniz's view of 1672 is so distant from Berkeley's, since Berkeley strongly rejected the notion of an infinitesimal and the calculus of Newton and Leibniz (LJ.II.94, 101). He argued that there is no unperceived part of a body (LJ.II.102), and he also suggested that infinitesimal movement is nothing but a fiction. For Berkeley, our sensory experiences of daily life are superior to physics (which perhaps contemporary phenomenologists would find to be an interesting idea), and we should not take particles that are introduced in physics to be real entities even if they explain consciously observed phenomena.

Unlike Berkeley, Leibniz never moved away from investigations of physics, and his view of 1672 is remarkably related to his physics, and especially to his investigation of special movement. He suggested that bodies are mind-dependent on the basis of the claim that bodies consist in movement and the claim that movements are relative and dependent

upon a perceiving mind. That the red color of a rose flower is a mind-dependent quality did not matter to Leibniz, since he did not hold that the body of the rose flower consists in its color and other sensible qualities. Rather, he explained the color in terms of minute movements, and he could do so since he held the view that minute movements do exist as objects of unconscious perceptions.

IV. Leibniz's Proto-Monadology and Panorganism (1675-77)²⁶

1675, 1676 and 1677 are important years for Leibniz. He spent fruitful time with other notable figures in Europe.²⁷ He discussed the leading metaphysical topics of that age with Malebranche in Paris. He promoted himself at the Royal Society as a young talented scientist from the continent.²⁸ He investigated the most advanced issues of analysis and calculus with the advice of Christian Huygens. As a result, he became even more productive than before in many areas, and his cutting-edge research into differentiation and integration were achieved in this period. Not only that, *De Summa Rerum* (hereafter DSR)

²⁶ I used the terminologies of Stewart Brown and C.D. Broad here. Brown characterizes the metaphysics of *De Summa Rerum* as “proto-monadology,” given that in his reading Leibniz was committed to many theses of monadology in this earlier text (Brown 1999a, pp. 17-18; 1999b). For instance, finite mind in *De Summa Rerum* is considered as simple, indestructible, and active. And as I mentioned, Broad introduced the term ‘panorganism’ in his book (Broad 1975). This term refers to the view that a mind-like entity united with the organic body is found anywhere in the world.

²⁷ According to Antognazza, Leibniz had an acquaintance with Malebranche “probably between January and March 1675” (Antognazza 2009, p. 162), and their correspondence lasted until 1712. Leibniz communicated with Newton through Henry Oldenburg. Leibniz met Leeuwenhoek at Delft, and Spinoza at the Haag (Aiton 1985, pp. 69-70 cf. A.II.i.379).

²⁸ Unfortunately, an anticipation of Newton’s antagonism toward Leibniz is already found in some of their letters in 1677. After receiving a copy of Newton’s letter that presents various problems of the calculus, Leibniz explained his own methods of the calculus to Henry Oldenburg in the letter of 21 June 1677 (Rescher 2013, p. 246). When Newton learned that Leibniz also had a method, he started to assume that the German mathematician had somehow stolen the ideas from him.

and other important metaphysical texts were written. Some important claims of the *Discourse on Metaphysics* and *Monadology* are found in these texts. For instance, Leibniz argued that finite mind perceives the whole universe through its body. Since the body is physically influenced by all the other bodies in the universe, the mind can indirectly represent all the other bodies by perceiving the inner movements of its body. Still, Leibniz's views in DSR are largely different from those of the *Discourse on Metaphysics* and *Monadology*. In this chapter, first, I will show that the metaphysics of DSR is monistic, and according to this metaphysics God is the only substance, and finite minds and bodies are modifications (4.1). Second, I introduce the doctrine of transcreation, according to which bodies are inert and continuously recreated by God (4.2), and the doctrine of absolute extension, according to which God has the simple attribute of extension that is the foundation of all the finite extended bodies (4.3). Then I discuss two inconsistent theories of body which Leibniz seems to introduce as hypotheses in DSR (4.4). Lastly, I will discuss the texts of 1677 before Leibniz's rehabilitation of substantial forms (4.5).

4.1 Monistic Metaphysics and Bodies as Modes

4.1.1 "All Things Are One"

DSR is perhaps the most important set of texts in 1675-77, but it is not a single work of Leibniz. This collection of metaphysical papers is named *De Summa Rerum* by the

Academy editors.²⁹ DSR is important since some claims in DSR deviate significantly from the framework of *Monadology*, and thus it shows an interesting contrast between Leibniz's views of 1675-76 and the 1700s. Leibniz argued that things are not different as substances, but as modifications. For example, human beings do not differ as substances. God is considered to be the only substance here, and thus Leibniz seems to be committed to a version of monism. Leibniz's view in this period seems to be quite different from that of the *Discourse on Metaphysics*, according to which there are individual substances in the universe. Unlike in DSR, Leibniz later implied that creatures are individual "substances" (DM.8, 13). He also stated that monads are simple and immaterial "substances" in the *Monadology* (M.61). In contrast, Leibniz explicitly stated that "things differ only modally" in DSR:

It can easily be demonstrated that all things are distinguished, not as substances (i.e., radically) but as modes. This can be demonstrated from the fact that, of those things which are radically distinct, one can be perfectly understood without another; that is, all the requisites of the one can be understood without all the requisites of the other being understood. But in the case of things, this is not so; for since the ultimate reason of things is unique, and contains by itself the aggregate of all requisites of all things, it is evident that the requisites of all things are the same. So also is their essence, given

²⁹ G.H.R. Parkinson translated many of these metaphysical papers. Richard Arthur's translation, *The Labyrinth of the continuum*, also contains a translation of *Pacidius to Philaletes* and other important texts from 1676-77.

that an essence is the aggregate of all primary requisites. Therefore the essence of all things is the same, and things differ only modally, just as a town seen from a high point differs from the town seen from a plain. If only those things are really different which can be separated, or, of which one can be perfectly understood without the other, it follows that no thing really differs from another, but that all things are one, just as Plato argues in the *Parmenides*. [A.VI.iii.573 = DSR.93-5]

This passage is from *That a Most Perfect Being is Possible* [*Quod Ens Perfectissimum Sit Possibile*] (A VI.iii.572-4). This paper presents a basis for *A Most Perfect Being Exists* [*Ens Perfectissimum Existit*] (A VI.iii.575-7) and *That a Most Perfect Being Exists* [*Quod Ens Perfectissimum Existit*] (A VI.iii.578-9), both of which were written in November 1676 as *That a Most Perfect Being is Possible* was. In *That a Most Perfect Being is Possible*, Leibniz showed that a Most Perfect Being or God is unique, and that God has all affirmative and simple attributes. As for the first point, a Most Perfect Being has all the perfections by definition. Also, a Most Perfect Being contains all affirmative and simple attributes, since all affirmative attributes [*Omnia attributa affirmative*] are compatible perfections if they are simple and do not contradict each other. As for the second, Leibniz thought that any essence or requirement of a thing is nothing but the collection of all the affirmative attributes, and there should be only one holder of these attributes. Given that two things share exactly the same essence, according to Leibniz, they do not differ as substances.

From the fact that no two things are essentially distinguished, it is concluded that there is only one substance. Leibniz stated that a substance is a “complete being [*Ens completum*],” and “that which by itself involves all things [*illud quod solum involvit omnia*]” or something “for the perfect understanding of which the understanding of nothing is required” (A.VI.iii.400 = DSR.115 December 1676). God, as the Most Perfect Being, satisfies this condition, and we cannot even conceive another substance that is essentially different from God. It is suggested that things are derived from God as modes, and completely dependent upon God.

Other passages of DSR also suggest that things are modes and God is the only substance. For instance, in *On the Origin of Things from Forms* [*De Origine Rerum Ex Formis*], where Leibniz discussed the essence of numbers and other things, he explained how various modes come to exist through the essence or the collection of all the affirmative and simple forms:

It seems to me that the origin of things from God is of the same kind as the origin of properties from an essence; just as $6 = 1+1+1+1+1+1$, therefore $6 = 3+3$, $=3 \times 2$, $=4+2$, etc. Nor may one doubt that the one expression differs from the other, for in one way we think of the number 3 or the number 2 expressly, and in another way we do not; but it is certain that the number 3 is not thought of by someone who thinks of six units at the same time. It would be thought of, if the person were to impose a limit after three had been thought. Much less does someone who thinks of six units at the same

time think of multiplication. So just as these properties differ from each other and from essence, so do things differ from each other and from God. [A.VI.iii.518-9 = DSR.77 April 1676?)

In this passage, it is suggested that 6 is essentially the result of adding six numbers together, and yet it has various “properties.” The difference between properties and essence is considered as analogous to the difference between things and God, and Leibniz argued that although there are many finite things, all of them have the same essence. Since the difference among properties is not essential, and one substance must be essentially different from another, two finite things are not different substances. The essence of any of two things is the collection of simple attributes that explain the things. In other words, the essences of two things are identical since any of these two things requires all the simple attributes. Here Leibniz’s view on attributes and modes is different from Descartes’s and Spinoza’s. According to Descartes, many different modes can be produced through one attribute. For example, cylindrical and cubic bodies can be produced through the attribute of extension (AT.VIIIa.25, 29-30, 32). Also, mind can have various modes on the basis of the attribute of thought (AT.VII 34-5, 37; VIIIa 17, 22). Spinoza also thought that many different modes exist on the basis of one certain attribute (Ethica.1P21-3, 2P6). But Leibniz thought that properties and modes arise through many simple attributes or forms being related to each other. In *On Simple Forms* [*De formis simplicibus*], where Leibniz also discussed the essences of number 6 and number 3, he stated the following:

Things are not produced by the mere combination of forms in God, but along with a subject also. The subject itself, or God, together with his ubiquity, gives the immeasurable, and this immeasurable combined with other subjects brings it about that all possible modes, or things, follow in it. [A.VI.iii.532 = DSR.85 April 1676; Kulstad 1997]³⁰

Although it is not easy to understand this passage completely, we can see the following point: Everything is produced through God and all the forms that are contained in him (cf. Brown 1984, p. 57). Thus, everything is considered as a mode.

So far we have seen some passages that suggest things are modes rather than substances. But Matthew Stewart suggests that DSR is an “aggregate” of notes that are full of working hypotheses (Stewart 2006, p. 194). If so, Leibniz may not have been committed to the claims in DSR. Indeed, there are some passages that may sound inconsistent, and this suggests that Leibniz was not serious enough and he did not strongly believe the claims of these passages when he wrote them. For instance, in *On the Seat of the Soul* [*De sede anima*], Leibniz wrote that a flower of substance is diffused throughout the body (A.VI.iii.478 = DSR.33), and a soul is firmly implanted at the flower (A.VI.iii.479 =

³⁰ As I will discuss later, Leibniz used the expression ‘other subjects’ in the passage, and readers might be tempted to take these subjects as substances that are distinguished from God. Robert Adams has this line of thought, and argues that DSR also has a passage in which Leibniz proposed the pluralistic view that there are many substances (Adams 1994, p. 130). But I do not follow Adams’ interpretation since as Mogens Lærke argues, the expression ‘other subjects’ can be taken as referring to God alone, given that God has many attributes and God as having extension, for instance, can be understood as a subject that is different from God as having thought.

DSR.33). So the soul is located in the whole body rather than at a specific point in the body (cf. GP.II.371). On the other hand, in *On the Union of Soul and Body* [*De unione animae et corporis*], Leibniz suggested that some vortex exists in the cavities of the brain [*in cerebri cavitatibus*], and a soul perceives the vortex (A.VI.iii.480 = DSR.35; Wilson 1999, pp. 236-7).³¹ It seems that a soul is located at a certain place of the brain insofar as it perceives the motions in that place. Thus, the two views of *On the Seat of the Soul* and *On the Union of Soul and Body* seem to be inconsistent, and it might be true that DSR has some inconsistent claims which Leibniz did not seriously believe. If so, Leibniz may not be seriously committed to the claim that things are modes.

But it should be noted that some texts that were written in 1675-76 and not included in DSR also suggest that God is the only substance. First, in a note on Spinoza's *Ethics*, Leibniz stated that "[God] alone is all things, for in him there are contained the requisites of the existence of all other things" (A.VI.iii. 385 Oct 1675 - Feb 1676?; Kulstad 1994). This claim is similar to the claim that "the ultimate reason of all things is the same" (A.VI.iii.573 = DSR.95 cf. Moll 1999, p. 65), and the reason needs to be found in God who contains all the affirmative and simple attributes. Also, in a note on a letter from Spinoza to Oldenberg, Leibniz stated that "[a]ll things are one, all things are in God as an effect is contained in its full cause [*causa sua plana*], and as a property of some subject is contained in the essence

³¹ As Catherine Wilson, Christia Mercer, and Emilio de Tommaso mention, Leibniz introduced the theory of the great vortex, with which the greatest mind or God is exclusively associated (A.VI.iii.474 = DSR.25). This vortex spans all over the whole universe. De Tommaso suggests that Leibniz was probably inspired by Athanasius Kircher's works, in which he argues that all the things in the universe are interconnected by virtue of some "knot" or "chain" (De Tommaso 2015).

of the same subject” (GP.I.129 n2 Oct 1676?; Kulstad 1994).³² Since all things are one, it seems that there is only one substance and things do not differ essentially, and the relation between God and things is analogous to that between essence and properties. Considering these, the claim that things are modes is not a peculiar one that is solely found in DSR.

But even if Leibniz thought of God as the only substance in the sense that he does not need anything else to be understood, and he is completely independent, this view may not be different from the views of the middle years and the late period, when Leibniz thought that things are creatures, and the source of their essence can be solely found in God. Creatures are not completely independent of God, while he is the only completely independent being. Even in these frameworks, if we understand substance as completely independent being, then only God may be a substance.

Also, in the middle years and the late period, the ultimate reason of things is found in God. For instance, in *24 Propositions* (1690), the being as the ultimate reason of things is called God (GP.VII.289). In *On the Radical Origination of Things* (1697), the dominant One [*Unum dominans*] or God is the ultimate reason of things (GP.VII.302). In *Monadology*, Leibniz wrote that the ultimate reason of things [*la dernière raison des choses*] is found in the necessary substance called God (M.38 cf. M.39-40). The discussions above are similar to the view in DSR that the ultimate reason of things is single and unique, which suggests that the view of DSR is not that different from those of the middle years and the late period. Indeed, for instance, according to G.H.R. Parkinson, the claim that

³² In 19th century, Ludwig Stein already quoted the passage from the Gerhardt Edition, and suggested that Leibniz once held a version of pantheism (Stein 1890, p. 5; Kulstad 1994, n. 9). George Friedman did not accept Stein’s interpretation since it seemed arbitrary to him (Friedman 1962, p. 14).

“[God] alone is all things, for in him there are contained the requisites of the existence of all other things” (A.VI.iii.385) only implies that God is the requisite of things, and the foundation of their ultimate reason (Parkinson 1978, p. 88; Kulstad 1994). Parkinson’s suggestion may support an interpretation that the metaphysics of DSR is not that different from those of the *Discourse on Metaphysics* and *Monadology*. Christia Mercer also opposes an interpretation that Leibniz’s metaphysics in DSR is spinozistic. According to Mercer, Leibniz already held a version of pre-established harmony in DSR. Mercer suggests that mind and body correspond to each other without interactions in the framework of DSR (Mercer 2001, p. 398). Mercer takes further steps to claim that Leibniz’s metaphysics in DSR is not spinozistic or monistic, given that he was already committed to a pre-established harmony, according to which minds exist as substances distinct from other creatures.

I do not dare to claim that Leibniz’s metaphysics in DSR is completely spinozistic. Leibniz still explicitly rejected some claims of Spinoza in DSR, by saying that God is a person and we are creatures (A.VI.iii.474-5 = DSR.27; Rateau 2008, p. 204), and that our minds do not perish when our bodies are destroyed (A.VI.iii.510 = DSR.61). But Leibniz’s metaphysics in DSR has some spinozistic aspects. In the framework of DSR, creatures are different as modes, and creatures come to exist through the simple attributes of God.

Moreover, Leibniz’s discussion of absolute extension shows that his metaphysics of DSR has something in common with Spinoza’s, and it is remarkably different from what Leibniz proposed in a letter to De Volder of April 1702 (GP.II.241), namely, the view that

extension can be analyzed and thus it is not a simple attribute. Leibniz contrasted “absolute extension” with space in *On the Origin of Things from Forms* (A.VI.iii.519 = DSR.77), and he ascribed absolute extension to God. And as Mogens Lærke argues, in DSR, Leibniz took “absolute extension [*extensum absolutum*]” as a simple attribute that cannot be analyzed into simpler and more basic components.

Furthermore, I would like to add another point in which Leibniz’s view is different from later ones: Creatures do not have abilities to produce future states by themselves. In DSR, Leibniz argues that sensation is a reaction of body, which suggests that sensation needs a body.

So my opinion is this: that the solidity or unity of the body comes from the mind; that there are as many minds as there are vortices; that there are as many vortices as solid bodies; that a body resists, and that this resistance is sensation. That is to say, a thing resists that which endeavours to divide it. Sensation is a kind of reaction. A body is as incorruptible as a mind, but various organs around it are changed in various ways. [A.VI.iii.509-10 = DSR.61]

This passage suggests that sensation needs a physical resistance of a body. Sensation cannot arise apart from a body. Further, it is suggested that sensation is not produced by spontaneous actions of a mind. Also, as Stuart Brown notes, Leibniz did not state that a mind produces future states by itself in the texts of 1675-6 (Brown 1999b, pp. 285-6). The

framework of DSR has something in common with later views, but it does not imply that a mind can produce sensations spontaneously. According to DSR, subsisting minds are perpetually affected by other things. By so doing, they have sensations. In sum, a finite mind of DSR is not the same as an individual substance in the metaphysics of the middle years. Finite minds in DSR are not substances that spontaneously produce all the states.

We have seen how Leibniz discussed minds and things in *De Summa Rerum*. They are finite and created by God.³³ Furthermore, they are considered as modes that are always dependent upon God and simple attributes of him. Since God is the only substance and anything other than him cannot be a substance, bodies are not substances. Any body is a mode of the infinite substance, and so is a human mind. As Spinoza suggests, bodies are modes that are given through the attribute of extension. They exist with certain shapes and sizes, but each of them must be extended. To sum up: first, DSR and other texts from 1675-76 present a monistic view that God is the only substance; second, the monistic view is substantially distinct from Leibniz's views of 1680s or later.

4.1.2 Three Theories of the Origin of Finite Things

However, as I have suggested before, DSR contains claims that conflict with each other: Some passage suggests that the human soul is located at a specific place of the body,

³³ According to a standard version of the Christian philosophy, God created finite things, such as human beings, as substances. God created them "from nothing [*ex nihilo*]." This view is obviously inconsistent with Leibniz's monistic claim of DSR that God is the only substance. So in a sense Leibniz introduced an extraordinary type of metaphysics, attempting to explain God's creation from a monistic point of view.

while another passage suggests that it is located at the whole body. Moreover, as we will see, concerning the ontological status of finite things, distinguished scholars suggest that DSR has some passages that present distinct theories of the origin of finite things. I grant that all the texts of DSR may not represent a systematic metaphysics, given that his discussions of DSR are so various, and some of them seem to be inconsistent. In this dissertation, however, I attempt to isolate certain important claims to which Leibniz was consistently committed throughout the period of DSR. In the following, I introduce notable interpretations concerning distinct theories inside of DSR, and argue that despite the inconsistency of some components of these theories, Leibniz consistently held some claims as true.

Mark Kulstad notices that in DSR there are actually three distinct theories concerning the origin of finite things:

It is my belief that this idea of relating a single attribute to all others to give rise to the infinite variety of the world is one of several at least nominally different Leibnizian answers to be the question of how the variety of the world arises from the forms or attributes of God present in the *De Summa Rerum*, and that answering this question is one of the driving forces of the *De Summa Rerum*. [...] What we will do in this section is to start by developing some details of the answer that we have already encountered in connection with the correspondence between Tschirnhaus and Spinoza (an answer which, for reasons that will become clearer later, we will label the ‘pure

relations theory’). The sort of numerical analogy just mentioned will be central in this. Then we will raise some questions about details that will lead us to what appears to be a related but distinct answer to the question of the origin of things (which we shall label the ‘subjects theory’). Finally we will turn to an answer which, in at least in one of its formulations, seems the furthest removed from the idea on origins suggested in Tschirnhaus’s letter to Spinoza of June 23, 1676. (We shall label this final approach the ‘matter theory.’) [Kulstad 1999a, pp. 77-8]

Following Kulstad, Lærke has made the following observation concerning distinct theories of the origin of finite things:

Leibniz occasionally advanced a plurality of hypotheses, which were proposed simultaneously in the same texts. These diverse explanations are not exclusive to each other, but rather they constitute steps in a line of reasoning which Leibniz constantly improved. By following an analysis proposed by Mark Kulstad, we find four distinct explanations: (1) the first explanation only refers to the essence of God, making things properties that necessarily follow from *the essence of God*; (2) the second refers to *a conjugation of simple forms*; (3) in addition, we find an explanation that *combines a subject with forms*; (4) finally, an explanation that *adds matter to forms*.

[Lærke 2008, p.518]³⁴

³⁴ Leibniz avance plusieurs hypothèses, parfois proposées simultanément dans les mêmes textes. Ces explications diverses ne sont pas exclusives les unes des autres, mais constituent plutôt des étapes dans un

As Kulstad and Lærke do, I notice several passages in DSR that seem to present different explanations of how finite things are produced. As we have seen, since DSR is a collection of short articles, it might be the case that Leibniz tried to write down different hypotheses for the purpose of forming a more stable and systematic metaphysics in the future. Here we have an interpretative problem. That is, if we take DSR as presenting incoherent hypotheses, then we may not be able to ascribe a stable view to Leibniz based on DSR, since in that case it seems that Leibniz was not seriously committed to what he wrote. Thus, for instance, it may be hard to ascribe what Lærke calls the “quasi-Spinozistic system” to Leibniz on the basis of DSR. But as Lærke does, I assume that DSR will look even more attractive if it presents an early version of Leibniz’s system.

Let us see the contents of the three theories. For the pure relation theory, Kulstad cites a passage from *On Simple Forms* in which Leibniz wrote:

There is the same variety in any kind of world, and this is nothing other than the same essence related in various ways, as if you were to look at the same town from various places; or, if you relate the essence of the number 6 to the number 3, it will be 3×2 or $3 + 3$, but if you relate it to the number 4 it will be $6/4 = 3/2$, or $6 = 4 \times 3/2$. [A.VI.iii. 522 = DSR.83; Kulstad 1999a, p. 78]

raisonnement que Leibniz perfectionne constamment. En suivant une analyse proposée par Mark Kulstad, nous décelons quatre explications distinctes: (1) la première explication se réfère uniquement à *l'essence de Dieu*, en faisant des choses des propriétés qui suivent nécessairement de l'essence de Dieu; (2) la seconde renvoie à *une conjugaison des formes simples*; (3) nous trouvons en outre une explication qui *joint un sujet aux formes*; (4) enfin, une explication qui *ajoute la matière aux formes*.

In this passage, Leibniz explains how “various things” are brought about by the same essence of things, which consists in an infinite number of simple forms of God. The passage seems to suggest how various things are produced by introducing some simple form related to the set of all the forms. For Kulstad, given the analogy of the passage, “nothing else is needed for the origin of things other than the relation of attributes, taken singly, to all attributes taken together” (Kulstad 1999a, p. 80). Thus the theory introduced in the passage of *On Simple Forms* is called the ‘pure relations theory.’

As for the subjects theory, Kulstad states that “[s]ome passages of the *De Summa Rerum* suggest relations involved in the origin of things extending beyond those of the pure relations theory, that is, relations which have as ‘relata’ entities distinct from the forms or attributes of God” (ibid., p. 80). Here Kulstad quotes the following passage:

Things are not produced by the mere combination of forms in God, but along with a subject also. The subject itself, or God, together with his ubiquity, gives the immeasurable, and this immeasurable combined with other subjects bring it about that all possible modes, or things, follow in it. The various results of forms, combined with a subject, bring it about the particulars result. [A.VI.iii.523 = DSR.85]

According to the subjects theory, “subjects” are required in addition to all the simple forms for producing finite things. These things cannot be produced only by relating many simple

forms together, since the forms need to be related to subjects for bringing about finite things.

Kulstad lastly offers the matter theory, and it is introduced on the basis of the following passage:

However, it is true that there cannot exist any modifications, either in space or in the mind, except with the help of matter, whose nature it is to combine the two. But matter being given, then there exist modifications in the mind and in that which is extended. [A.VI.iii.514 = DSR.75]

At a first glance, the matter theory is different from the subjects theory. The matter theory requires matter in addition to simple forms, whereas according to the subjects theory, finite things seem to need subjects and simple forms. Kulstad introduces Leibniz's theory of imperfection in explaining the ontological status of matter that is discussed in the quoted passage. Kulstad states that according to Leibniz's later view (especially, I think, one proposed in the *Discourse on Metaphysics* and letters to Arnauld), "possible finite substances have complete concepts involving limited versions of the unlimited perfections of God" (Kulstad 1999a, p. 83). Since "only God is entirely free" of imperfection, any created substance has some imperfection, and hence it is limited in power, knowledge, and moral perfection. This imperfection is called "matter."

In this dissertation, I do not dare to propose a unified and detailed system of

metaphysics of DSR.³⁵ Rather, I just suggest that even if Leibniz proposed three distinct and inconsistent theories in DSR, all of them imply that God is the only substance. We can take them as consistent with Leibniz's monistic view, according to which bodies are modifications. In my interpretation, these three theories may be consistent, and if so all of them can belong to one unified metaphysics. Both Kulstad and Lærke admit that they may be consistent as well (Kulstad 1999a, p. 78, 84; Lærke 2008, p. 518). And even if these three theories are inconsistent, it is still possible that Leibniz was at least committed to some claims in DSR, insofar as they do not contradict any of the three theories. In my view, that things do not substantially differ, and that bodies are founded on the attribute of absolute extension, are among the claims.

4.2 Doctrine of Transcreation

In this section, I discuss one of the articles in DSR, in which we find many important discussions of the features of bodies. *Pacidius to Philalethes (Pacidius Philalethi*; hereafter PP) of 1676 was written when Leibniz was on a ship in the River Thames, has been considered as one of the important texts of Leibniz in his early years. Readers find rich discussions of mathematics, physics, and metaphysics in this work. Leibniz introduced his new view on the composition of a continuum, movements of bodies,

³⁵ I presented a paper at a meeting of the Houston Circle for the Study of Early Modern Philosophy, in which I attempted to reconcile the three theories of the origin of finite things (Edamura 2014). But since whether the theories are consistent is not quite relevant to the ontological status of bodies as modes, I decided to omit detailed discussions in this dissertation.

and God's creation. But not many articles discuss PP as a part of *De Summa Rerum* (DSR), which is a collection of Leibniz's articles in 1675-6. DSR is well-known through G.H.R. Parkinson's English translation published in 1992. But PP is not translated in this volume since it is technical and contains detailed discussions of mathematics and physics. PP is a dialogue, and Pacidius (hereafter PA) is considered as a spokesman of Leibniz's own view among interlocutors, given that he often used this name as a pseudonym (Arthur 2001, p. 127). Other interlocutors, Charinus (hereafter CH), Theophilus (TH), and Gallutius (GA), may also present Leibniz's view, since Pacidius explicitly agrees with their views in some passages.

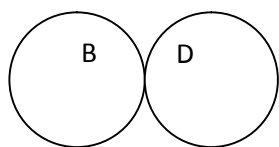
We find discussions of DSR and PP in different articles. Parkinson, Mark Kulstad, Christia Mercer, Mogens Lærke, and Andreas Blank discuss DSR, examining whether Leibniz held a version of the Spinozistic monism (Parkinson 1978; Kulstad 1994, 1997, 2002; Mercer 2001, pp. 458-9; Blank 2005, pp. 116-7). Also, Samuel Levey intensively examines PP to clarify Leibniz's view on continuity and motion.³⁶ But we do not find intensive discussions of whether PP and other texts of DSR form a unified system in their works. Our concern is to interpret claims in DSR and PP in a consistent way. So first, I introduce the doctrine of "transcreation," which is the most important component of the theory of body in PP. Then I discuss the significance of the doctrine in the framework of the monism in DSR.

³⁶ On the basis of the discussion of motion in *Pacidius to Philaletes*, Samuel Levey argues that according to Leibniz of 1676 the structure of motion is fractal (Levey 2003, p. 371). Levey's interpretation is based upon a passage in which Leibniz wrote that a division of a continuum is analogous to folding a paper, and any tiny fold cannot be dissolved into points though it can be infinitely smaller than another larger fold.

I: According to the doctrine of transcreation, God annihilates physical objects and recreates them in every moment. These physical objects do not subsist as they were:

PA.: I do not think that we can explain this better than by saying that the body *E* is somehow extinguished and annihilated at *B*, and is actually created anew and resuscitated at *D*, which you may call by the new but very beautiful name transcreation. [A.VI.iii.567 = RA.213]

Leibniz introduced two places *B* and *D*. In relation to the passage, Leibniz introduced a figure with two contiguous circles, and the point *B* in one circle is contiguous to the point *D* in the other circle. *B* and *D* are not distant. After a moment, the body *E* disappears at the place *B*. The very object that existed at *B* no longer exists. But a new object shows up at the new place of *D*.



II: Thus, bodies occupy some points contiguous to the places which they occupied at the previous moment.³⁷ Since these points are not distant, bodies are not considered as

³⁷ Samuel Levey has numerous interesting discussions of Leibniz's concepts of continuity and contiguity. He rightly points out that in a letter to Jakob Thomasius of 1669, Leibniz noticed Aristotle's definition of continuous thing (A.VI.ii.435; Levey 1999, p. 84). Leibniz here accepted Aristotle's view that parts of a continuous thing must share a boundary (Physics 231a21, 227a10–15; Metaphysics 1069a5–8). In 1669-71, Leibniz thought that a continuous thing could have actual parts, since these actual parts can still share their boundary and make up a continuous whole. But in 1676, Leibniz held that a continuous thing could not have

leaping to different places.

PA.: [...] Moreover, although this is indeed a sort of leap from one sphere *B* into the other *D*, it is not the kind of leap we refuted above, since these two spheres are not distant. [A.VI.iii.567 = RA.213]

Leibniz denied some kind of leap here. Leibniz argued that body does not move to a distant place at a moment, since a world with such a leap is not well-organized. Since God must create an ordered world, a leap to a distant place is not found in this actual world.

CH.: [...] Let us suppose that there are in our bodies animalcules that are as small compared to us as a human head is to the terrestrial sphere. If one of these animalcules were to pass through from one ear to the other, then its friends would say, if we imagine them using reason, that it had passed from one pole to the other. [...]

PA.: You do well to resist this opinion, Charinus, which is offensive to the beauty of things and the wisdom of God. [A.VI.iii.560 = RA.197-9]

Leibniz showed that any kind of leap is against the wisdom of God. If one tiny corpuscle moves from one place to another, and the distance is 10 times larger than its size, then its

actual parts. Levey especially points out that Leibniz in *Pacidius to Philaletes* argued that a continuum cannot be composed of points (Levey 1998, p. 58).

movement is supernatural since it can be considered as a teleportation. Even if we cannot observe the movement of this tiny corpuscle, a very tiny observer could see this unnatural leap.

How did Leibniz reject this kind of leap? A basic point is that God does not create a miracle without reasons, and a leap is among miracles:

PA.: [...] Finally, because He creates every thing, the supremely wise author of things does nothing without a reason; yet there is no reason why these miraculous leaps should be ascribed to this rather than that grade of corpuscles – unless, of course, we admit atoms, i.e. bodies so firm that they do not suffer any subdivision or bending. [A.VI.iii.561 = RA.199]

Perhaps he was suggesting that there is no reason to determine the distance and direction of leap, and the movements of bodies will be miraculous if they successively leap to distant places. In contrast, if a body successively occupies contiguous places, we do not have to explain why a body leaps for a certain distance.

III: Bodies, strictly speaking, do not act upon other bodies. In this sense they are inert. That is because bodies do not “move” at any moment, and therefore they cannot push other bodies to different places.

PA.: But I would like to notice something else, that this demonstrates that bodies do

not act while they are in motion.

TH.: Why is that?

PA.: Because there is no moment of change common to each of two states, and thus no state of change either, but only an aggregate of two states, old and new; and so there is no state of action in a body, that is to say, no moment can be assigned at which it acts. For by moving the body would act, and by acting it would change or be acted upon; but there is no moment of being acted upon, that is, of change or motion, in the body. [A.VI.iii.566 = RA.211]

Following a common-sensical view, we may ascribe continuous movements to bodies, and think that bodies continuously occupy different places in space enduring for some time. But according to PP, they actually do not. Bodies stay at their places. They do so at a next moment, too. They do not move, and there is no continuity between two moments. Thus movements are not continuous.

CH.: Assuming a uniform continuous motion, and taking the notion of change you spoke of as established, I cannot deny that the continuum is composed of points. For so long as the motion lasts, just as we assumed that next to one point or one moment there would be another, so there is no reason why we should not assume there to be a third next to this second. And since, continuing in this way, space and time will finally be completed, they will certainly consist of points or moments immediately

next to each other.

PA.: But we have, I believe, demonstrated that they cannot consist of these.

CH.: Therefore, however we may keep changing our minds, it must be conceded that a continuous motion, in which a moving body uniformly traverses some place in some stretch of time successively and without any intervening rest, is impossible.

[A.VI.iii.556 = RA.187]

Leibniz suggested that the path of a moving body needs to be continuous, and this path is composed of points which the body occupies at different moments. But points cannot be actual parts of a continuum. Leibniz here denied that a body has some (infinitesimal) motion at a moment. If it has, then the motion can be further divided to parts, and the duration of the moment can also be divided. But by definition, a moment is indivisible, and therefore it should not be composed of any shorter moments.

IV: There are no actual infinitesimals. A continuous line is not composed of an infinite number of indivisibles. This claim obviously contradicts what Leibniz said in 1671. In the *Theory of Abstract Motion* of 1671, he claimed that a continuum has actual parts. Also, he suggested that conatuses are infinitesimal motions, and motions and bodies are composed of an infinite number of conatuses (GP.IV.228-9). However, Leibniz claimed that the composition of the continuum is impossible, and therefore continuous space cannot be an aggregate of points:

CH.: Supposing we concede you that space is an aggregate of nothing but points and time an aggregate of nothing but moments, what do you fear so much from this?

PA.: If you admit this, you will be swamped by the whole stream of difficulties that stem from the composition of the continuum, and that are dignified by the name of the labyrinth.” [A.VI.iii.548 = RA.173]

Leibniz suggested that space cannot be an aggregate of points, since any continuum cannot be composed of points. And Leibniz suggested that a continuum is not composed of actual parts, and it cannot be a collection of infinitesimals. By definition, no continuum is actually divided:

CH.: [...] [T]here are no points before they are designated. If a sphere touches a plane, the locus of contact is a point; if a body is intersected by another body, or a surface by another surface, then the locus of intersection is a surface or a line, respectively. But there are no points, lines or surfaces anywhere else, and in general [*in universum*] there are no extremes except those that are made by a dividing [*fiunt dividendo*]: nor are there any parts in the continuum before they are produced by a division [*divisione*]. But not all the divisions that can be made are ever made. [...]

PA.: Charinus, you have made an amazing progress in this kind of reasoning, for I was not considering saying anything different myself. [A.VI.iii.553 = RA.181;

Levey 1999, p. 90]

Thus a continuum is not composed of conatuses. If it is composed of conatuses, the continuum must have actual parts, given that all the conatuses are actualized as parts. Since any part of the continuum is actual in this case, it should not have any potential part. But the passage implies that a part of the continuum is potential. The passage also shows that points can be provided only when we find designations, namely, divisions of lines. Before that, we cannot have any actual points.

Now I discuss the significance of the claims introduced above in Leibniz's monistic metaphysics. Body is characterized as a mode in DSR, and this point is related to some features of body in the framework of DSR. First, according to the monistic metaphysics, bodies do not have to endure for more than a moment. Certainly, when Leibniz suggested that God is the only substance, he argued that only God is conceived by himself. Finite things are not radically different from God, since each of them cannot be conceived completely without God. Also, as we have seen, Leibniz did not assume that finite things can produce future states by themselves. They need some interactions with others to reach future states. Although these points do not imply that any finite thing is a momentaneous entity, the monistic metaphysics allows bodies to be momentaneous. And in fact, Leibniz did not think bodies endure in DSR. Although Leibniz discussed the motion of a body in *On Matter, Motion, and the Continuum*, as if he believed that body endures for a time when

it moves, Leibniz was not committed to a strong type of identity for body. Leibniz argued that mind perpetually endures in DSR (A.VI.iii.476 = DSR.31), but Leibniz did not state that bodies endure like minds. The discussions of bodies in other texts of DSR are, I think, consistent with the doctrine of transcreation. Mode is dependent upon the substance, namely God. Furthermore, strictly speaking, bodies exist only at a moment. Unlike an enduring substance, they come to exist at a moment, but they do not exist at any successive moment.

4.3 Absolute Extension

As we have seen, Leibniz argued that movements are mind-dependent, which implies that bodies are also mind-dependent. He in fact suggested that bodies exist insofar as they are perceived. But I think in DSR Leibniz ceases to assume that bodies are completely mind-dependent. Leibniz introduced God's absolute attribute of extension, and every body is taken to be a modification of God's extension. Given that Leibniz emphasized the distinction of the attributes of thought and extension (A.VI.iii.464-5 = DSR.7), it seems that a body cannot be reduced to some modification of thought, and it does not exist as a perception of a finite mind. Thus I think that Leibniz's discussion of extension in DSR helped him to move away from his previous framework of idealism.

Let us see some important passages of DSR. Leibniz argued that extension is a simple form, and it cannot be explained in terms of another form or attribute:

As in the case of duration, so in the case of extension there is a certain simple form which is intelligible *per se*, the idea of which is present to the mind, and which is therefore inexplicable. That, therefore, with respect to which things are called “extended,” to which extension alone belongs *per se* [...] [A.VI.iii.484 = DSR.41]

The passage shows that the simple form of extension is intelligible by itself, and it cannot be explained by other items.³⁸ The following passages also suggest that extension is a simple attribute:

But those things which are perceived by one act —such as being, perception, extension— are perfectly understood. [A.VI.iii.514 = DSR.69]

Extension is a state, thinking is an action. Extension is something absolute, thinking is relative. [A.VI.iii.518 = DSR.75]

Extension is something which is most simple. [A.VI.iii.586 = DSR.111]

The first and third passages explicitly show that extension is simple, and therefore unanalyzable. Extension is completely understood by a single action of the human mind.

The second passage is more difficult. Extension is characterized as a state, and this

³⁸ To be sure, Leibniz seems to suggest that extension has parts, and thus it is not simple in some passages of DSR. “...that just as eternity *per se* does not indicate succession, so immeasurability does not indicate extension or parts.” (A.VI.iii.390 = DSR.43) “The best proof that body differs from space or extension is derived from this...” (A.VI.iii.585 = DSR.111) But as Mogens Lærke argues, this kind of usage is relatively rare.

expression may suggest that extension is a temporal, not permanent, feature of a body. This sounds wrong given that extension was considered as the permanent and essential attribute of bodies. But I think the point of the second passage is that extension is an intrinsic feature of something, and it is not constructed from the relation of many concrete things, such as physical objects which we observe. This point fits with the view that extension is an intrinsic attribute for God. Given these passages, we can understand that the simplicity of extension was not a minor issue for Leibniz. Leibniz also suggested that the attribute of absolute extension is ascribed to God, and bodies exist in God:

Our mind differs from God as absolute extension, which is a maximum and is indivisible, differs from space, or place; or, as that which is extended *per se* differs from place. Space is the entirety of place. There are parts of space, but there are no parts of that which is extended *per se*; however. there are some modes of it. [A.VI. iii.519 = DSR.77]

Leibniz introduced the concept of “absolute extension,” using the expression ‘God as absolute extension.’ God has many attributes, and in fact, an infinite number of attributes. But for any attribute, we can conceive God as having that attribute. For this reason, Leibniz used the expression “God insofar as extended” or “God insofar as having extension.”³⁹

³⁹ As we can see, some of Leibniz’s expressions are really similar to Spinoza’s. In *On the Origin of Things from Forms*, Leibniz claimed that the immeasurability is “God insofar as he is omnipresent or immense” (A. VI.iii. 519; Laerke 2008, p. 473), and Spinoza also used the expression “God insofar as [*Deus quatenus*].”

Now we should take note that modifications of an attribute are supposed to be in it. Since God is in some contexts identified with the attribute of extension, modifications of extension are also in God:

In the same way there are portions of space, or, places are extended things that are modified, and shapes in space are modifications in extension, just as sensations are modifications in the mind. However, it is true that there cannot exist any modifications, either in space or in the mind, except with the help of matter, whose nature it is to combine the two. [A.VI.iii.518 = DSR.75]

Although Leibniz did not use the term ‘body,’ he discusses extended things here, which seem to be identical to bodies. These extended things are modifications of extension, and they are “in” this attribute. Bodies as modifications are “in” extension. The meaning of ‘being in something’ is actually not so easy to understand, but I propose the following reading: If *A* is in *B*, then *A* cannot exist independently from *B*. In this reading, any finite extended thing does not have an independent existence.

Now we should note that Leibniz ceased to argue that things exist insofar as they are perceived. In 1672, Leibniz suggested that movements are mind-dependent, and bodies consist in movements. These suggestions imply that bodies are mind-dependent, and exist insofar as they are perceived. But in DSR, Leibniz does not suggest that bodies consist in movements. Instead, Leibniz seems to suggest that movements are not mind-dependent.

Leibniz talked about bodies moving spontaneously and those moved by others:

There are as many unsplittable bodies as there are vortices-that is, motions of surrounding sectors which are varied in relation to some one thing. But there is a difference between an unsplittable body which is at rest *per se* and is moved only by the motion of others, and one which is moved spontaneously in a straight line and makes other things move. [A.VI.iii.525 = DSR.89]

I think this distinction suggests that Leibniz believed some motion is real and not completely dependent upon a perceiver. If all movements may not be real, then the spontaneous motion which he discusses here may not be real, either. But Leibniz seems to imply that spontaneously moving body has some intrinsic feature that allows it to move by itself.

Also, Leibniz suggested that body has some intrinsic force for acting:

Here one must also discuss whether all movements in any direction must have the same velocity. Or is a certain wonderful proportion observed, such that the velocities of things moving in various directions are in a reciprocal relation to their magnitude, and so each atom acts with equal force on the universe? This seems to me to be most beautiful and consistent with the highest reason. So small atoms will be moved most rapidly. [A.VI.iii.525 = DSR.89]

Here Leibniz suggested that the velocities of bodies moving in different directions can be the same. For instance, if Body *A* is moving to north at 100 miles/h whereas Body *B* moves to south at 100 miles/h, they have the same speed. And Leibniz suggested that bodies act with some intrinsic forces. Actions of bodies are not mind-dependent, and produced by some entities exist within bodies. The tone of the passage seems to be inconsistent with the idealistic view of 1672 which Leibniz once held.

4.4 Mind-Body Interaction and Unity

In my interpretation, Leibniz did not think that bodies are completely mind-dependent. Their ontological status is weak, but at least they are some kind of entities. As we have seen, in DSR, Leibniz did not argue that bodies consist in movements. According to the doctrine of transcreation, a body exists with some shape and size at a moment, and it disappears at the next moment. Also, Leibniz's discussion of absolute extension seems to suggest that bodies do not exist in a finite perceiving mind. To sum up, the ontological status of body in DSR is more robust than that in the texts of 1672.

Still, Leibniz thought that mind makes the ontological status of body even more robust, since he argued that mind provides some kind of unity to body. So as later, Leibniz introduced minds as foundations of unities. Some body is united by a single mind. That is to say, the mind perceives the whole universe through the body. An inorganic body does not

have a single mind that unites it. But a part of the inorganic body is united by some mind. In fact, any part of the inorganic body is either such a united body or an aggregate of united bodies.

Every body which is an aggregate can be destroyed. There seems to be elements, i.e., indestructible bodies, because there is a mind in them. [A.VI.iii.521 = DSR.81]

Similar discussions can be found in the periods of the *Discourse on Metaphysics*. In letters to Arnauld, written rightly after the *Discourse*, Leibniz suggested that inorganic bodies are aggregates of corporeal substances. Corporeal substance is endowed with a substantial form that unites it as one thing.

Now one may wonder how mind can unite its body. In the framework of the preestablished harmony, which Leibniz proposed in 1690s and later, mind (dominant monad) immediately perceives its body, and any physical event in the body somehow correspond to some perception of the mind, while the mind and body are causally independent, and the mind does not move the body (GP.IV.540-1). However, in DSR, Leibniz seems to suggest some kind of mind-body interaction.⁴⁰ We find some explanations of how souls and bodies interact in DSR:

⁴⁰ Emilio de Tommaso argues that “the flower of substance” which Leibniz introduced in DSR is “far from being an earlier exposition of the notion of monad” (De Tommaso 2014, p. 87). Although De Tommaso takes the theory of vortex in DSR to be inconsistent with the metaphysics of the flower of substance, he understands that this theory is utterly different from Leibniz’s monadic system.

But that the soul itself agitates a vortex —that is wonderful. But it does so, for we do not act as a simple machine, but out of reflection, i.e., of action on ourselves.

[A.VI. iii.480 = DSR.37]

We need to see the context of this passage. *On the Union of Soul and Body* is a short article that starts from a discussion of ether that can be found everywhere in the whole body of a living thing (A.VI.iii.480 = DSR.35). The ether diffuses into the whole body, and animates it. Also, the movement of the ether in the body is related to the perception of the soul. Leibniz said that “every kind of gyration seems to be performed in the cavities of the brain, as the soul observes its own vortex” (A.VI.iii.480 = DSR.35).⁴¹ This vortex seems to be a gyration of the ether inside of the body to which the soul belongs. So, although every soul has its own vortex inside of its body, it does not directly act and agitate the vortex. Here Leibniz said that the soul acts upon a vortex with reflection. This does not imply that the soul physically moves a vortex. Rather, the soul reflects upon what is going on in the vortex, and recognizes it. This framework is close to the preestablished harmony.

Still, we cannot conclude that soul and body are causally independent in the framework of DSR, since Leibniz suggested that some perception of the soul needs a causal influence from the body. Leibniz stated that “the soul perceives” through the ether (A.VI.iii.

⁴¹ Richard Arthur provides a materialistic interpretation of this passage (Arthur 2014, p. 101). Leibniz suggested that “in the liquid there is a kind of fountain of motion and dilation, as in a burning candle.” (A.VI.iii.480 = DSR.35), and Arthur takes this “fountain of motion and dilation” as the soul. But even if Leibniz understood that the soul is the fountain or resource of motion, it does not mean that Leibniz thought it is a material thing. And as Arthur recognizes, Leibniz wrote that the soul does not agitate the vortex “through a simple mechanism,” which strongly suggests that its action is not physical.

480 = DSR.35). To be sure, some readers may think that the expression ‘the soul perceives through the ether’ does not necessarily mean that the ether causes the perception of the soul. One may read this statement by following the framework of the preestablished harmony: Any movement of the vortex corresponds to some perception of the soul, and in this sense the soul perceives through the vortex of the ether. But we also can take the statement as implying that the soul gets some information from the movement of the ether without moving it. The soul has an ability to “read” the movement of the ether in the brain every moment, and it regularly receives new information. If so, the soul is influenced by the body, but not vice versa.⁴²

There is another problem for the framework of DSR. There may be a contradiction between God’s transcreation of bodily movements and the continuous action of a finite mind, given the parallelism of mind and body. On the one hand, in PP, Leibniz argued that bodies do not move continuously. On the other hand, in another article of DSR, Leibniz wrote that a finite mind continuously acts since he argued that thought of a mind “is necessarily continued”:

Motion, once given, is necessarily continued. Thought, or the sensation of oneself, or action on oneself, is necessarily continued. But I do not at present see that, when an agent that acts on itself acts upon the body, this action is necessarily continued.

⁴² In *On the Incarnation of God or Hypostatic Union* of 1669-70, Leibniz once suggested that the union of soul and body (more generally, two items) consists in a causal influence of one to the other (A.VI.i.534 ; Mercer and Sleigh 1995, p. 79 ; Mercer 2005, p. 59). This idea may fit with what Leibniz suggested in DSR, and Leibniz may have thought that soul and body are united through the influence of the body upon the soul.

[A.VI.iii.588 = DSR.113]

Leibniz introduced a strong claim: it is not just that thought takes place in a mind without any interruption; it does so “necessarily.” Not only that, “thought” in this passage is analogous to motion, which suggests that it dynamically changes.

On the other hand, Leibniz suggested that mind and body are parallel in DSR.

An idea is a differentia of thoughts in respect of an object. It cannot be denied that thoughts themselves differ in respect of objects; so in thoughts themselves there is some modification, and so a modification does not exist only in that which is composed of that which thinks and that which is extended. So it is true, and can be said correctly, that there is a modification in thought. In the same way there are portions of space, or, places are extended things that are modified, and shapes in space are modifications in extension, just as sensations are modifications in the mind. However, it is true that there cannot exist any modifications, either in space or in the mind, except with the help of matter, whose nature it is to combine the two. But matter being given, then there exist modifications in the mind and in that which is extended, and these differ as action from passion, and as being a father from being a son. [A.VI.iii.518 = DSR.75]

Leibniz suggested that two modifications in space and the mind are “combined” with the

help of matter. And one modification cannot exist without the other.

If so, mind cannot act without any change of its body, since some correspondent change needs to take place whenever mind changes while acting. And it is hard to see how mind can have internal and continuous actions independently from its body, and it seems that mind cannot continuously change without any change of the body. Moreover, according to the doctrine of transcreation, bodies do not continuously change. Rather, one body exists at some place at a moment, and it occupies a different place at the next moment without any continuous movement.

Thus Leibniz's metaphysics seems to have some problem, but perhaps he can be free from this problem after giving up the doctrine of transcreation. As we will see, Leibniz seems to give up the doctrine by 1678, when he rehabilitated substantial forms and held that bodies exist for more than a moment.

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So far I have discussed Leibniz's claims which he seems to be committed to throughout the period of DSR. For instance, he thought minds and bodies are modifications of God, and bodies do not endure for more than a moment. But this is not all of Leibniz's discussions of body in DSR. In fact, DSR has some discussions that may seem to be inconsistent with each other. One example is what we have seen before, namely, the tension between the continuous action of a finite mind and the discontinuous movement of its body. In my view, this is not the only example. Actually, DSR has another pair of claims that are obviously inconsistent. One claim is that a body is either an indivisible atom or an

aggregate of atoms, and the other is that every body is divisible. I take them as Leibniz's hypotheses, which are still interesting for understanding the developmental history of his metaphysics of body.

4.5 The Atom Theory and the Points Theory

Although I think Leibniz was committed to some view throughout all the works of DSR, such as the view that finite things are not distinguished as substances, I think Leibniz proposed two distinct and inconsistent theories of body in DSR. According to the first theory, body is either an atom or a collection of atoms. Atoms cannot be naturally destroyed. I call it the atom theory. According to the second theory, every body is actually divided, and thus it is considered as a collection of physical points. The physical properties of bodies (ex. impenetrability) are explained through these points. I call it the points theory. These theories have something in common since according to both theories, the universe is a plenum. It is filled up with atoms or physical points. Both theories imply that God wills to fill up any place, since his will aims at achieving the maximum reality, and he does not intend to leave any empty space.

4.5.1 The Atom Theory

Although Leibniz explicitly denied that there are atoms in later texts, he suggested

that atoms exist in DSR. The following passage from the *Excerpts from Notes on Science and Metaphysics* of 18 March 1676 introduces the atom theory:

I think, has been satisfactorily shown elsewhere —from all this it follows that thought enters into the formation of matter, and there comes into existence a body which is one and unsplitable, i.e., an atom, of whatever size it may be, whenever it has a single mind. [A.VI.iii.393 = DSR.47]

Atoms are unsplitable, and no physical power can destroy it. Though atoms are tiny and cannot be observed, they are extended. An atom has a corresponding mind. The mind perceives what is happening around the atom, and in this sense the mind and atom have some special relationship. As for the shape of an atom, Leibniz emphasized that there are unsplitable extended bodies, and they are spherical in *On the Plenitude of the World* [*De Plenitudine Mundi*] of 1676:

I am more and more persuaded that unsplitable bodies, since they have not arisen through motion, must be most simple and therefore spherical; for all other shapes are subject to variety. [A.VI.iii.524 = DSR.85]

From this passage, we can understand that Leibniz believed that the shape of an unsplitable body must be most simple. And he thought that the shape of an unsplitable body or atom

must be spherical, under the assumption that a sphere is the simplest shape.⁴³

Although the shape of an atom is always spherical, some atoms are larger than others. In the same article of *On the Plenitude of the World*, Leibniz suggested that there are “larger globes” and “middle-sized globes” taking globes as simple and unsplittable bodies (A.VI.iii.525 = DSR.87). Leibniz also suggested that the universe is filled with atoms, and therefore it is a plenum. Leibniz explained how a space can be filled up with spherical atoms.

A wonderful plenum of the kind that I expound is rational, even though it consists of nothing but spheres. For there is no place so small that there cannot be assumed to exist in it a sphere which is less than it. [A.VI.iii.525 = DSR.87]

Suppose that there are three atoms A , B , and C . Each one's radius is r . Any of them is contiguous to the two other atoms. In this case, there is a smaller atom, contiguous to all of the three. The radius of the smaller atom D is $\frac{2\sqrt{3}-3}{3}r$. We can also think about an even smaller atom E that is contiguous to A , B , and D . We can further think about atom F , which is smaller than D , and contiguous to A , B , and E . In short, it is impossible to fill up space with atoms of the same size. But empty space surrounded by atoms of the same size can be filled with smaller atoms. In this way, any point inside of space can be either located in some atom, or contiguous to some atom. Leibniz suggested that any space, however small,

⁴³ In fact, it is not so easy to prove that sphere is the simplest among all the possible shapes. At least, no other shape is taken as a set of points that keep a constant distance from the center.

is filled with atoms. The number of sizes of atom is larger than any finite number, and even if there is a tiny space, there should be an atom that is small enough to be placed there. In this way, Leibniz wanted to believe in the plenum, and that bodies consist of unsplittable and spherical atoms.

Although space is filled up with atoms, they always move smoothly, and larger atoms produce movements of smaller ones. Leibniz suggested that vortices are produced by motions of atoms in *Excerpts from Notes on Science and Metaphysics*.

[...] [T]here comes into existence a body which is one and unsplittable, i.e., an atom, of whatever size it may be, whenever it has a single mind. Further, there are necessarily produced, simply by the motion of firm bodies, as many vortices as there are firm bodies in nature. And there are as many minds, or little worlds, or perceptions, as there are vortices in the world. [A.VI.iii.393 = DSR.47]

It seems that one vortex corresponds to one firm and unsplittable body, namely an atom. When the atom moves, smaller atoms around it also move, and their movements constitute one vortex. But here Leibniz did not fully explain how the motion of an atom produces a single vortex. We find another explanation of vortex in *On the Plenitude of the World*, in which we also find a discussion of how atoms produce vortices:

There are as many unsplittable bodies as there are vortices-that is, motions of

surrounding sectors which are varied in relation to some one thing. But there is a difference between an unsplitable body which is at rest per se and is moved only by the motion of others, and one which is moved spontaneously in a straight line and makes other things move. Unless we think it probable that any unsplitable body whatsoever moves in some straight line or other, such that no straight line can be drawn which is not parallel to the direction of some unsplitable body. [A.VI.iii.525 = DSR.89]

An atom or unsplitable body is surrounded by many smaller bodies (i.e. smaller atoms). It seems that the larger atom is considered to move other smaller atoms contiguous to it. Moved by the larger atom, smaller bodies will rotate around it, and form a vortex. A smaller atom *S* also has further smaller atoms around it, and move them in the same way. In other words, further smaller atoms rotates around *S*.

Lastly, we see how vortices are related to perceptions of minds. In fact, although I take *Excerpts from Notes on Science and Metaphysic* and *On the Plenitude of the World* as articles presenting the atom theory, I did not see a substantial explanation of how perceptions are related to vortices in them. Leibniz at most wrote that “there are as many minds, or little worlds, or perceptions, as there are vortices in the world” (A.VI.iii.393 = DSR.47), which suggests that the perception of a mind is tied with one vortex. As for other works, Leibniz argued that “the soul observes its own vortex” in *On the Union of Soul and*

Body (A.VI.iii.480 = DSR.35 Feb? 1676).⁴⁴ It seems that the soul or mind acquires some information about the universe through its vortex, since physical events of the universe are mapped into the vortex. The perception of a mind is tied to one vortex, and it seems that the vortex is the only source of information about the external world for the mind. Namely, the mind perceives the universe only through its vortex.

But the atom theory seems to have a problem. According to the atom theory, it seems that any finite mind has a corresponding atom, and the mind perceives the whole universe through the vortex which the atom produces. However, the vortex seems to be so simple that it cannot contain information rich enough to convey what happens in the whole universe. At a moment, an atom can only move in a certain direction, and by so doing it can produce a vortex that rotates around it. If the atom is the only physical cause of the vortex, it is hard to see how the vortex is complex enough to express physical events of the universe. It seems that an atom produces a vortex consisting of rotating smaller atoms around it. Although there are many atoms around the larger atom, smaller atoms seem to have merely simple movements, namely, circular movements around the larger atom. Perhaps Leibniz thought that the vortex contains an infinite number of smaller vortices, and the large vortex together with these smaller vortices convey an infinite amount of information. Still, it is not easy to see how this group of vortices is sufficient to tell what is going on in the whole universe, since any atom inside of this vortex seems to have a simple

⁴⁴ In addition, Leibniz suggested that the vortex should take place in the brain, since the soul observes what happens in the brain. It seems that the movement of a vortex is exactly correspondent to the perception of the soul.

movement, namely a movement to rotate around a larger atom. It can tell the velocity of the larger atom since its velocity seems to be proportionate to the larger one's. But of course, it is not sufficient for telling the movements of many other atoms in the whole universe, while Leibniz assumed that any mind can perceive the whole universe through perceiving its vortex.

Another problem is that the range of a vortex is not obvious. Through the movement of Atom *A*, even a larger atom *B* may be moved. But *B* will not rotate around *A*. Should we take the movement of *B* as constituting *A*'s vortex? Perhaps only the movements of atoms that are smaller than *A* can constitute *A*'s vortex. If so, even if *B* is coincidentally moving around *A*, *B*'s movement is not considered as constituting *A*'s vortex. But Leibniz did not explicitly say so.

4.5.2 The Points Theory

Unlike what he did in *Excerpt from Notes on Science and Metaphysics*, Leibniz suggested that any tiny body is actually divided in *On the Secrets of the Sublime, or on the Supreme Being (De Arcanis Sublimium Vel de Summa Rerum; hereinafter On the Secrets)* of 11 Feb 1676:

Perhaps it follows from this that matter is divided into perfect points, i.e., into all the parts into which it can be divided. No absurdity follows from this. For it will

follow that a perfect fluid is not continuous but is discrete, i.e., is a multitude of points. [A.VI.iii.473 = DSR.25]

Although Leibniz wrote ‘perhaps,’ he obviously introduced a theory that is different from atomism. According to this theory, any portion of matter, however small, is divided into points. There is no unsplittable body with a spherical shape. Thus the existence of an atom is denied. Leibniz also stated that “matter is actually divided into an infinity of points” (A.VI.iii.474 = DSR.25). This implies that the number of points of any portion of matter is more than any finite number. Thus every body consists of an infinite number of points. Points are smaller than any assignable size, and so we can conclude that points are not extended.

Just as the atom theory, the points theory suggests that there are vortices in the universe. In *On the Secrets*, Leibniz suggested that some body with resistance can produce a vortex:

Is the existence of atoms consistent with reason? If some atom once existed, it will always exist. For liquid matter which surrounds it and is a plenum will immediately endeavour to break it up since it disturbs its motion, as can easily be shown. If some large body, which resists breaking up to some extent, is moved in a liquid, it will at once form a kind of small sphere and a vortex. [A.VI.iii.473 = DSR.23]

What Leibniz is saying here is similar to the explanation of the atom theory. In brief, a moving body produces a vortex around it since the body is surrounded by smaller bodies. These bodies start to rotate around the larger body, and thus produce a vortex.

On the Secret also has the following well-known passage:

Every mind is of endless duration. Every mind is indissolubly implanted in matter; this matter is of a certain magnitude. Every mind has a vortex around itself. All the globes of the world are perhaps endowed with a mind, nor do the intelligences seem absurd. [A.VI.iii.476-7 = DSR.31]

So it is certain that according to the theory of points, each finite mind has its vortex. How does it relate to the perception? It seems that the explanation of how perceptions are related to vortices in *On the Union of Soul and Body* (Feb? 1676) can be applied to the atom theory as well. As we have seen, Leibniz argued that “the soul observes its own vortex” (A.VI.iii.480 = DSR.35). It seems that the soul or mind acquires some information about the universe through its vortex, since physical events of the universe are mapped into the vortex.

The points theory seems to be free from the problem suggested in relation to the atom theory. As I have suggested, a vortex produced by the movement of an atom may not be complex enough to convey an infinite amount of information about the universe, given that the vortex seems to be simple consisting of rotating movements of smaller atoms. But

according to the points theory, the body of a mind is not a solid atom, and it can change shape when it is moving. Given that, the body seems to be able to produce more complex movements of smaller bodies around it.

And in fact, Leibniz suggested that the point theory has some remarkable merits over the atom theory. For instance, Leibniz argued that it can explain the internal motion of a solid.

I prove this as follows: every perfect liquid is composed of points, since it can be dissolved into points. I prove this by the internal motion of a solid. Matter is therefore a discrete, not a continuous entity. It is only contiguous, and is united by motion or by a kind of mind. It seems that there is some centre of the entire universe [...] [A.VI.iii.473-4 = DSR.25]

Leibniz just assumed that there are internal motions in solid bodies. And indeed, atoms cannot have internal bodies since they are completely solid by definition. So the atom theory does not fit with his assumption here. One problem with this argument to support the point theory is that Leibniz did not prove that there is an internal motion in any solid body. Since an atom is too tiny to observe, the existence of an internal motion is not proved by an observation.

Leibniz had another argument to support the theory of points as follows:

If it is true that any part of matter, however small, contains an infinity of creatures, i.e., is a world, it follows also that matter is actually divided into an infinity of points. But this is true, provided that it is possible, for it increases the multitude of existents and the harmony of things, or, the admiration of the divine wisdom.

[A.VI.iii.474 = DSR.25]

Here he explicitly declared that matter is actually divided ad infinitum. And it is postulated by the divine wisdom, which is going to achieve the richest world. If an atom is not actually divided, it does not have an inner complexity, and it is not rich enough. Since it could be richer, God does not achieve the richest world in this case.

We have seen that Leibniz suggested at least two considerable merits of the points theory over atomism. However, Leibniz did not notice that the points theory is true and atomism is false after introducing the atom theory. The two merits of the points theory were introduced in *On the Secrets* of 11 Feb 1676, and the atom theory was presented in *Excerpts from Notes on Science and Metaphysics* of 18 March 1676. So even after showing remarkable merits of the points theory, Leibniz still introduced a version of atomism. I don't know why Leibniz did so. Perhaps despite the two advantages of the points theory he could not be sure that it was the only true theory. Or he might have seen some other considerable merits of the atom theory.

4.6 Leibniz's Skeptical Worry in 1675-76

So far we have seen how Leibniz understood bodies in *De Summa Rerum*. A body contains some “mind” or some enduring thing that perceives other things. When the human mind perceives a body, another mind that is contained in the body exists independently of the human mind. Here Leibniz was thinking about some being that is contained in a body, and he seems to suggest that many created things exist outside of the human mind.

One problem is that some passage of Leibniz’s letter to Simon Foucher, presumably written in 1676, could be read as suggesting that we cannot certainly know that the external world consisting of bodies exist. Here he did not declare that the external world that is filled with bodies does not exist. But Leibniz did not explicitly deny the possibility that the external world does not exist, though he thought that at least God exists as the creator of the perceiving mind. And considering the passage of Leibniz’s letter, he might have suggested that we cannot know whether the external world exists, or that it is epistemically possible for us that the external world does not exist since we cannot know any proposition contradicting it to be true. So, on the one hand, in DSR, Leibniz seems to be sure about that bodies contain some entities that exist independently of the perceiving mind. On the other hand, he was not sure about that in another text of the same period, as we can see from a passage of the letter to Simon Foucher:

As I see it, your purpose is to examine those truths which affirm that there is something outside of us. You seem to be most fair in this, for thus you will grant us

all hypothetical truths which affirm, not that something does exist outside of us, but only what would happen if anything existed there. [GP.I.369 = L.151]

It is not so easy to identify Leibniz's view from this passage alone. He wrote that "[Foucher] seems to be most fair in [examining those which affirm that there is something outside of us]." One possible interpretation is that for Leibniz, Foucher's effort in examining whether there is something outside of us is meaningful, and his way of examining is reasonable. This interpretation does not imply that Leibniz completely agreed with Foucher's skepticism on the existence of the external world. Rather, he just took Foucher's investigation to be interesting, and he left it open whether we are entitled to believe that there are external things other than our mind. But another possible interpretation is that in the passage above Leibniz suggested that as Foucher argued, we cannot exactly know whether external things exist. Foucher seems to imply that we don't have any means to know whether there is an external world. We have sensations, and we are inclined to believe that there are external things after having sensations. But we cannot prove the existence of external things on the basis of these sensations. According to the second interpretation, Leibniz agreed with Foucher in the passage above.

The second interpretation is problematic since it does not fit well with texts of DSR in which Leibniz discussed bodies, vortices, and "minds" that provide unities for bodies. Here we might be allowed to suppose that Leibniz was discussing possible entities that may exist, and he was not committed to the existence of bodies, vortices, and minds that are

contained in bodies. But naturally, the texts of DSR can also be read as suggesting that Leibniz did not doubt the existence of bodies outside of the human mind, and he tried to pursue the features of bodies that actually exist.

So far I introduced two possible readings for the quoted passage from the letter to Foucher, and now I will examine other passages of the letter to see what Leibniz was exactly suggesting. Although I introduced Leibniz's discussion that may look skeptical, I do not argue that Leibniz once held that few truths are known to us. At least any reader of the letter to Foucher can be sure that Leibniz was not skeptical about the truth of mathematics, and thus he was not committed to a thoroughgoing skepticism, according to which no truth is given to the human mind:

Thus the nature of the circle with its properties is something which exists and is eternal, that is, there is some constant cause outside of us which makes everyone who thinks carefully about a circle discover the same thing, not merely in the sense that their thoughts agree with each other, for this could be attributed solely to the nature of the human mind, but also in the sense that phenomena or experiences confirm them when some appearance of a circle strikes our senses. These phenomena necessarily have some cause outside of us. [GP.I.370 = L.152]

So truths concerning circles are available for the human mind. It has a capacity to understand the nature of a circle, and it can derive statements concerning some properties

of it. These statements can be verified by sensations which the mind has.

Moreover, Leibniz argued that we can at least know that there is some external cause of our sensations. Here Leibniz denied the possibility of the solipsism that only his mind exists and there is no other thing. But Leibniz did not specify this cause as a material thing. Rather, Leibniz argued that for some reason, we are inclined to “fabricate what we call matter and body,” suggesting that such a thing may not exist:

Even if we tried to say that our thoughts have no beginning, we should be obliged to assert that each of us has existed from all eternity; yet we should not escape the difficulty, for we should always have to admit that there is no reason for this variety which would have existed from all eternity in our thoughts, since there is nothing in us which determines us to one variety rather than another. Thus there is some cause outside of us for the variety of our thoughts. And since we agree that there are some subordinate causes of this variety which themselves still need a cause, we have established particular beings or substances to whom we ascribe some action, that is, from whose change we think that some change follows in us. So we make great strides toward fabricating what we call matter and body. [GP.I.372 = L.153]

Leibniz suggested that people have some tendency to imagine physical things that cause our sensations. What he suggested here has something in common with Descartes’s discussion of how we are naturally inclined to suppose that physical things cause sensations.

In the sixth meditation, Descartes argued that “[God] has given [him] a great propensity to believe that [ideas of sensible objects] are produced by corporeal things” (AT.VII.79 = Cott.55). Although he just confusedly perceives, and corporeal things do not exist as he grasps through senses, he can be sure that they exist since God is not a deceiver (AT.VII.80). But unlike Descartes, Leibniz did not prove the existence of an extended substance here. On the contrary, Leibniz’s suggestion is that we in fact don’t have good evidence for the existence of physical things.

But at this point you are right in stopping us for a while and renewing the criticisms of the ancient Academy. For at bottom all our experiences assure us of only two things: first, that there is a connection among our appearances which provides the means to predict future appearances successfully; and, second, that this connection must have a constant cause. But it does not follow strictly from this that matter or bodies exist but only that there is something which gives us appearances in a good sequence. [GP.I.372-3 = L.153]

Leibniz suggested that sensation is the only evidence for the existence of material things, and unfortunately, it is not good evidence.

Since what we can judge about the existence of material things is no more than the consistency of our senses, one has a sufficient basis for judging that we can ascribe

nothing to matter apart from being sensed in accordance with some certain laws, whose reason (I admit) remains to be sought. [A.VI.iii.508 = DSR.59]

We can find a consistency among what we sense. For instance, similar table-like objects show up whenever we enter a room to study. Body-like objects all follow certain laws of nature, and they do not suddenly disappear or fly away. But sensations tell nothing further. They cannot exactly tell the nature of external things that may cause our sensations. Also, we don't have any other resource to know about external things. As a conclusion, sensations in fact do not establish the existence of material things. Even if we have sensations, there may be no material things that correspond to them. This also implies that the human mind does not directly perceive external things, and it is covered with the veil of perception.

So far we have seen several important passages from the letter to Foucher. Although the first quoted passage can be read at least in two ways, and it does not strictly imply that Leibniz accepted the skepticism on the existence of the external world, I think the other passages suggest that he did. It does not mean that he denied that bodies exist. His suggestion seems to be that bodies may exist outside of the human mind. What can we do for interpreting his texts of 1675-76 as consistent as possible, given that he was eager to discuss bodies and their features, while he seems not to be sure about the existence of bodies? One possible interpretation, as I have suggested, is that Leibniz took bodies as entities that are possible to exist. If so, according to him, if a body exists, it contains a mind,

and it produces a vortex whenever it moves. In other words, Leibniz believed that bodies must have some features which he discussed *if they exist*. Leibniz's skeptical worry, however, ceased to show up in the next period of 1678-9. Leibniz started to emphasize that created things have substantial forms, by virtue of which they can act spontaneously. Bodies are considered as containing mind-independent entities, and thus they are not mere phenomena for a perceiving mind. But as we will see, Leibniz again needed to struggle with a skeptical worry in 1686, when he wrote a draft of the *Discourse on Metaphysics*.

4.7 Did Leibniz Really Reject Spinozistic Monism in 1677?

In the last section of Chapter IV, I discuss Leibniz's view in 1677, the last year of 1675-7. As we will see, Leibniz gave up his monistic metaphysics in 1678-9, and held the view that there are many substances in the world. Thus the year of 1677 is considered as an intermediate period. I believe that Leibniz did not substantially change his metaphysics, and he assumed that both minds and bodies are modification of the only substance, namely God. But what Leibniz stated in a letter to Jean Gallois of 1677 may look inconsistent with my interpretation. In the letter, he wrote:

Spinoza died this winter. I saw him when passing through Holland, and I spoke with him many times and at great length. He has a strange metaphysics, full of paradoxes. Among others, he believed that the world and God are basically nothing but the

same thing, that God is the substance of all the things, and that the creatures are nothing but modes or accidents. I noted that some of the pretended demonstrations that he showed me are not exact. It is not as easy as one thinks to give true demonstrations in metaphysics. Still, there are some, and quite beautiful ones, too. [A.II.i.568; Stewart 2006, p. 217]⁴⁵

Leibniz here rejected some of the claims which he ascribed to Spinoza. He rejected the view that God and the world do not substantially differ. Leibniz also did not agree that God is the substance of all the things, and creatures are merely modes or accidents. As he did in the 1680s and later, Leibniz seems to hold a pluralistic view of metaphysics that there are many finite substances created by God. But as we have seen, Leibniz held the view that things do not substantially differ in *De Summa Rerum* of 1675-6, since he stated that “all things are distinguished, not as substances (i.e., radically) but as modes,” and “all things are one” (A.VI.iii.573 = DSR.93-5).

Now at a first glance, it seems that Leibniz substantially changed his view in 1677. But I found that the discussions of other texts in 1677 are actually consistent with those of DSR. Therefore, I concede that although Leibniz may have started to feel uncomfortable in holding a monistic metaphysics in 1677, it seems that he did not have substantial tools to

⁴⁵ Spinoza est mort cet hyver. Je l'ay veu en passant par la Hollande, et je luy ay parlé plusieurs fois et fort long temps. Il a une étrange Metaphysique, pleine de paradoxes. Entre autres il croit que le monde et Dieu n'est qu'une même chose en substance, que Dieu est la substance de toutes choses, et que les creatures ne sont que des Modes ou accidens. Mais j'ay remarqué que quelques demonstrations pretendues, qu'il m'a monstrées ne sont pas exactes. Il n'est pas si aisé qu'on pense, de donner des veritables demonstrations en metaphysique. Cependant il y en a et de tres belles.

overcome this metaphysics. I will discuss four notable texts from 1677 to show that Leibniz did not drastically change his metaphysics in this year.

Conversation with Steno Concerning Freedom

The first text is *Conversation with Steno Concerning Freedom* (hereafter *Conversation*) of 7 December 1677, in which Leibniz discussed freedom and the principle of sufficient reason. Some commentators have mentioned this text as important for determining whether Leibniz was committed to an occasionalists view, according to which human beings are not free in the sense that ordinary people understand. The following passage is most cited for discussing Leibniz's view on freedom:

Properly and accurately speaking, the correct thing to say is not so much that God concurs in an action but rather that God produces the action. For let us suppose that God concurs in any given action but in such fashion that it is not produced by God alone but in part by the person. From this it follows that at least this particular concurrence of the person does not require the cooperation of God – which is contrary to our hypothesis. For that particular concurrence is also an act; therefore it follows in the end that all acts are produced in full by God, in the same way as are all creatures in the universe. He who twice produces half the thing produces the whole. Or, more accurately, he who produces half the thing, and in turn half of the remaining half, and in turn half of the remaining half of the half —to infinity—

produces the whole. This takes place in any act whatsoever, according to God's manner of operation. For let us suppose that God and a person concur in some action; it is necessary that God concur with this very concurrence of the person, and either it will proceed to infinity (nevertheless it will not any the less reduce to the same thing) or it will suffice to say right from the start that God actually produces the action, even if it is the person who acts. [A.VI.iv.1382 = CP.127]

The most important point of the passage is that Leibniz denied the concurrence of God. God himself produces an action of a human being. It seems that a human being actually does not have a power to produce his action. I think Leibniz's view here is consistent with what Leibniz argued in DSR, namely that things do not substantially differ, and they are modifications of the only substance. The passage of the *Conversation* suggests that human beings are causally inefficacious, and this claim implies that human beings are not substances if a substance must be able to act.

However, Lærke argues that the *Conversation* shows some development of Leibniz's metaphysics from 1675-6, since Leibniz's discussion of the nature of liberty in the letter suggests that Leibniz started to keep a "distance in relation to the Spinozistic unisubstantianism" (Lærke 2008, p. 562). Lærke points out that in the letter, Leibniz dared to state that "all things have a reason, either in themselves and from terms, such as what is necessary <per se, i.e., through itself>, or from another source, such as what is free and contingent, or, as I shall say, per accidens or necessary based on a hypothesis"

(A.VI.iv.1380 = CP.123; Lærke 2008, p. 826). Lærke argues that for Leibniz, God's intellect grasps all the series of possibles, and not all of them are actual entities, which is in tension with Spinoza's view that all possible things actually exist. Thus Lærke concludes that "Leibniz already started to conceive the benefits of his new ontology of possible from 1677" (Lærke 2008, p. 797), and the following is evidence for his interpretation:

Whatever is, either is per se, i.e., exists through itself, or per aliud, i.e., exists through another. If it is per se, then the reason for its existence is derived from its own nature, i.e., its essence contains existence. This holds in all truths that can be demonstrated on the basis of terms or whose contrary implies a contradiction. If something is per aliud, then it has the reason for its existence outside itself, i.e., it has a cause. Therefore, all things have a reason, either in themselves and from terms, such as what is necessary <per se, i.e., through itself>, or from another source, such as what is free and contingent, or, as I shall say, per accidens or necessary based on a hypothesis. [A.VI.iv.1380 = CP.123]

This passage is worth considering since it suggests that there are two kinds of existing things. Some things exist through itself, and does not need other things. Some exist through another thing, on which they are ontologically dependent. If this passage is showing that contingent things are also substances, it clearly introduces a pluralistic metaphysics different from DSR's. But in the passage, Leibniz did not explicitly take them as substances,

and I don't think it is evidence to show a drastic shift to a pluralistic metaphysics.

Perhaps Lærke suggests that Leibniz took finite things as substances in the passage since their existence is not necessary, but contingent. Lærke argues that Leibniz's system of DSR has some worry of necessitarianism, and Leibniz in fact could not establish that actual finite things contingently exist (Lærke 2008, pp. 546-7). But I don't think Leibniz's monistic view of DSR entails that he was committed to a necessitarian view.⁴⁶ And if Leibniz believed that finite things contingently exist in the period of DSR, the passage of *Conversation* does not show that he started to believe that finite things are substances.

Another distinguished commentator does not claim that *Conversation* shows that Leibniz introduced a new ontology, but his interpretation might suggest it. Sukjae Lee does not take *Conversation* as presenting an occasionalists view. In his reading, the metaphysics of *Conversation* is close to that of the middle years. He quotes the following passage:

[...] [I]f God does not penetrate [*influit*] into the substance of a free act, i.e., if He does not cooperate in every free act, it follows that God is not the first cause of all created entities. And that is actually to remove God from things. Since a free act is a created entity, it must acquire its own existence from God. [A.VI.iv.1381; Lee 2009,

⁴⁶ A passage of *On the Secret of Sublime, or on the Supreme Being* suggests that God contingently create finite things, since Leibniz wrote that God is not "necessity" but a person (A.VI.iii.474-5 = DSR.27). Also, Leibniz distinguished two concepts of impossibility, and he seems to suppose that "Peter did not exist" is not impossible in the strong sense, in other words, it is not necessarily false. The first kind of an impossible involves a contradiction, and it is proved to be impossible through this contradiction. The other kind is understood as something analogous to an "imaginary quantity" (A.VI.iii.462 = DSR.3). Leibniz suggested that $\sqrt{-1}$ is a possible quantity, but it is not proved to be possible by "a procedure by definitions." Rather, it is assumed to be possible by the fact that we cannot find a contradiction in its concept.

p. 115]

Lee argues that the passage does not imply that Leibniz was committed to an occasionalists view: although this statement is relevant to divine and creaturely causation, it merely shows that Leibniz accepted a minimal requirement for those who hold that God is the first cause of everything in nature: divine causal activity is required for every state of affairs. And this view, as we have seen, is common to both the concurrentist and occasionalist (Lee 2009, p. 115). The concurrentist also holds that God's causal activity is present in a human action, since God created the human being, and concurs with her whenever she acts.

Indeed, in the passage, Leibniz certainly implies that God is required as the first cause of all created things, and he "cooperates" with them. Every time a human being acts, he needs to cooperate. This expression suggests that Leibniz was a concurrentist rather than an occasionalist. According to the concurrentist view, human beings have capacities to act, and make decisions spontaneously. But human beings need God's cooperation for acting at any moment. Now in the quoted passage, Leibniz argued that God is the first cause of created things (including human beings), and a free act needs God's existence. Both points are, I think, accepted by concurrentists. They suppose that God created human beings and other things, and without his creation human beings cannot act. Since the second point merely implies that a free act will not be performed without God's creation, it does not establish an occasionalists view.

However, I think the passage which I quoted above strongly suggests that Leibniz

had an occasionalistic view. Let us see an important part again:

Properly and accurately speaking, the correct thing to say is not so much that God concurs in an action but rather that God produces the action [...] [I]t will suffice to say right from the start that God actually produces the action, even if it is the person who acts. [A.VI.iv.1382 = CP.127]

Obviously, the concurrentist view was denied here, since properly speaking, God does not concur in an action of a human being. Rather, God directly produces a human action even if human beings seemingly act by themselves. This is a strong claim, and I think it shows that Leibniz accepted a version of occasionalism in 1677. If so, we cannot demonstrate on the basis of the *Conversation* that in 1677 Leibniz held that a human being is a substance capable of acting by herself.

What is an Idea?

The second text is *What is an Idea?* (*Quid sit idea?*; hereinafter QSI), which may seem to suggest that Leibniz started to hold a new metaphysics in 1677. QSI once was understood to have been written in 1678 by Leroy E. Loemker,⁴⁷ but recently scholars take it as written in 1677. Leibniz's discussion of idea in this text attracted interests of many

⁴⁷ Loemker argues that Leibniz presented the theory of "expression or representation" in *What is an Idea?*, and this theory prepared the way of his criticism of Spinoza (L.207). Perhaps this interpretation is a reason why Loemker takes *What is an Idea?* as written in the same year with *On the Ethics of Benedict de Spinoza* of 1678. Yvon Belaval also takes it as written at the beginning of 1678 (Belaval 2005, p. 159).

scholars. Especially, they have tried to understand some influence from Spinoza to Leibniz considering this text. Although we do not find discussions of substance as such in QSI, according to Lærke, the discussion of idea in this text shows that the human mind is a substance, and an idea exists in the mind. If so, Leibniz did not hold his view of DSR that God is the only substance when he wrote QSI. Lærke's reading is based upon the following passage:

First of all, by the term idea we understand something which is in our mind. Traces impressed on the brain are therefore not ideas, for I take it as certain that the mind is something other than the brain or a more subtle part of the brain substance. There are many things in our mind, however, which we know are not ideas, though they would not occur without ideas—for example, thoughts, perceptions, and affections. In my opinion, namely, an idea consists, not in some act, but in the faculty of thinking, and we are said to have an idea of a thing even if we do not think of it, if only, on a given occasion, we can think of it. [GP.VII.263 = L.207]

This passage suggests that an idea is in the human mind, and the idea itself is not identical to the human mind. Since Spinoza states that “[t]he object of the idea constituting the human mind is the body” (Ethica.2P12), Leibniz seems to keep a distance from Spinoza's metaphysics here. However, Leibniz actually denied that the human mind is the idea of its body in DSR. So, even if Leibniz denied that the human minds is itself an idea in QSI, it

does not show that Leibniz changed his view in 1677.

Lærke, however, takes note of another passage of QSI, and argues that Leibniz was committed to a doctrine of representation, which implies that objects are really distinct from perceiving minds. For him, the doctrine of representation is not consistent with Spinoza's monism, and thus it contradicts the quasi-spinozistic system of DSR. Lærke further argues that in QSI Leibniz explained the "projective" concepts of idea and expression for the first time, and perhaps it is against the spinozistic theory of idea (Lærke 2008, p. 561).

According to Lærke, Leibniz introduced the projective concept of idea here. The human mind has ideas, and it projects these ideas onto external things. Lærke argues that Leibniz's view here is not consistent with Spinoza's system, in which the relation of expression is immanent (Lærke 2008, p. 485). For Spinoza, all the finite things are immanent for God. So, ideas are immanent for God, as modifications of his attribute of extension are. If two things are immanent for one and the same being (namely God), they are not external to each other. So, other things are not completely external for an idea. And the human mind does not have to project an idea to express another thing. Lærke also suggests that Leibniz changed his view in 1677, since Leibniz was committed to the quasi-spinozistic system of DSR, which is not consistent with the projective theory of expression.

But in my reading QSI does not show that Leibniz broke with his system of DSR in 1677. Lærke argues that Leibniz introduces a doctrine of expression as representation in QSI on the basis of the following passage:

Hence there must be something in me which not merely leads me to the thing but also expresses it. That is said to express a thing in which there are relations [*habitudines*] which correspond to the relations of the thing expressed. [GP.VII.263 = L.207]

An implication of the passage is that *A* expresses *B* when *A*'s features correspond to *B*'s. It does not imply that *A* and *B* are really distinct or that they are different substances. The implication of the passage seems to be very general and not limited to the relation of representation between the human mind and external substances.⁴⁸ The passage suggests that human mind expresses or represents objects through ideas in it, but represented objects are not necessarily substances that are distinct from the mind. Even if we accept that the human mind and an object of perception are distinct as modifications, not as substances, still there can be a general relationship of expression or correspondence.

Summary

We have found some passages from the texts of 1677 that may seem to suggest that Leibniz had adopted a new metaphysics that is different from what he proposed in DSR. But the passages actually do not show that Leibniz drastically changed his view. It is true that Leibniz did not explicitly state that things are modifications and they are not substances

⁴⁸ As Kulstad suggests, Leibniz wrote that an ellipse represents or expresses a circle, given that we can find a regular relationship of correspondence between them (C.15; GPI.383; Kulstad 1977, p. 60).

in the texts which we have examined. But he may still have believed that creatures are different as modifications, but not as substances.

Given the passage from the letter to Gallois, we may be inclined to interpret the letter as evidence that Leibniz started to hold a new metaphysics. But since only a short critical note on Spinoza is found in the letter, it does not provide any evidence to explain details of Leibniz's new metaphysics. Perhaps for some reason (for instance, for a political reason), Leibniz gave a critical note upon Spinoza's view in the letter to Gallois. But we do not find good evidence to show it.

As for the ontological status of bodies in 1677, we don't have good reasons to believe that Leibniz gave up the monistic metaphysics. So obviously bodies cannot be substances, and they need to be modifications. We have some reasons to believe that Leibniz did not deny the agency of a human being. It can determine its future states by its will, though it may not be able to determine them completely by itself. But he probably held the view of *Pacidius to Philalethes* that bodies are causally inefficacious. And this view was drastically changed after his rehabilitation of substantial forms of 1678.

4.8 Summary of 1675-1677

In a letter to Foucher, Leibniz did not claim that bodies are nothing but our perceptions. But when he was discussing sensations, he seems to suggest that bodies are objects of our sensations, and they are internal for perceiving minds. On the other hand, in

DSR, Leibniz introduced indivisible elements endowed with minds, and suggested that bodies are either elements or their aggregates. The minds in the elements are obviously indivisible, and there is no physical way to destroy them. But Leibniz did not fully explain the ontological status of a body endowed with a mind. Leibniz just argued that bodies are divisible, and cannot have intrinsic unities without minds. He also seems to assume that bodies are united by minds through the actions of the minds, but these minds do not physically affect bodies. Minds get some information from bodies through reflections, though Leibniz did not explain how these reflections provide information from bodies.

In DSR, Leibniz suggested a monistic view that all the finite minds and bodies are modifications of the only Substance, namely God. In this framework, although the ontological status of an indivisible and enduring mind is more robust than a divisible body, still neither of them is a substance. In DSR, we did not find further explanations of the ontological status of bodies. But at least, Leibniz had been concerned with it ever since, and he reinforced their ontological status in 1678-85. As we will see, he suggested that bodies have substantial forms that are intrinsic to them.

V. A Rehabilitation of Substantial Forms (1678-1679)

In this chapter, I will show how Leibniz rehabilitated substantial forms by arguing that bodies are substances. Although Leibniz once denied the existence of scholastic substantial forms in his letters to Thomasius of 1668-9, he started to assume that bodies do

not merely consist in extension, and they have some components that can be rightly called “substantial forms.” Leibniz seems to assume that not only organic bodies of animals, but many tiny particles inside of inorganic bodies are united by substantial forms, and thus they are considered as substances. Here Leibniz obviously supposed that there are many substances other than God, despite his monistic metaphysics of DSR. Before discussing passages in which Leibniz rehabilitated substantial forms, I first examine how Leibniz moved away from his monistic metaphysics of DSR. As we will see in 5.1, the notes on Spinoza’s *Ethics* show that Leibniz gave up the view that there is only one substance. In 5.2, I first discuss the date of the rehabilitation. By following Daniel Garber, I take *Conspectus libelli* as the benchmark. Then I argue that Leibniz’s discovery of the conservation law is relevant to the rehabilitation.

5.1 On the Ethics of Benedict de Spinoza and Leibniz’s Substance Pluralism

On the Ethics of Benedict de Spinoza (hereafter *On the Ethics*) of May 1678 is a collection of Leibniz’s critical notes on Spinoza’s *Ethics*. Mogens Lærke states that these notes clearly show that Leibniz started to keep a distance from the quasi-Spinozistic system of DSR, which was written in 1675-6. He began to assume that there are many substances in the universe, whereas he once suggested that God is the only substance in DSR. But how he ceased to hold the unisubstance system of DSR is not clearly understood from the notes. In this paper, I argue that Leibniz did change his view in 1678, and he started to assume

that human souls are not modifications, but substances. Moreover, I argue that human souls were taken to be substances on the basis of the assumption that acting things are substances, and thus Leibniz rejected an assumption which Spinoza utilized to define substance.

I first examine passages from *On the Ethics* and other texts, and argue that Leibniz held the view that souls are substances. Second, I discuss other passages from *On the Ethics*, and argue that Leibniz's rejection of Spinoza's view there shows that Leibniz actually rehabilitated the view that acting things are substances, which he held at least around 1668.

5.1.1 Soul as a Substance

On the Ethics has been discussed in the context of how Leibniz moved away from Spinozistic monism which he once presented in DSR. In fact, Loemker listed *On the Ethics* as one of the texts from 1677 (L.198), but he did not provide a precise date. Now we have a good reason to believe that it was written in 1678, since the date is provided in a volume of Academy Edition. Loemker's translation is based upon Gerhardt's edition of Leibniz's philosophical works in the 19th century, and the newer date provided in the Academy Edition is more trustworthy. A straightforward suggestion that there are many substances in the world is found in Leibniz's comment on Part 1, Proposition 14 of *Ethics*:

Proposition 14. There is no substance besides God, and none can be conceived.

Because all attributes pertain to God and there is no plurality of substances with the

same attribute, there are no substances besides God. All this presupposes the definition of substance as a being which is conceived through itself, as well as many other propositions, already noted, which cannot be granted. (It does not yet seem certain to me that bodies are substances; with minds the case is different.) [GP.I.125 = L.201]

I especially take note of the sentence “[i]t does not yet seem certain to me that bodies are substances; with minds the case is different.” Here Leibniz seems to be sure that minds are substances, while bodies may not be. If so, Leibniz had the view that there are many substances other than God, and the human mind is a substance. This view is clearly different from the monistic metaphysics of DSR.

I also think we should take note of the following passage from *Two Dialogues on Religion*, written around 1678:

It is true that our bodies are subject to the impact of other bodies and hence to dissolution. But the soul is a substance entirely different from matter and space and hence cannot be destroyed. [L.218]

The dialogue is held between Polidole and Theophile, and the latter is Leibniz’s spokesman. Since the passage is stated by Theophile, we have a good reason to believe that Leibniz held that “the soul is a substance,” and it is indestructible. Obviously, Leibniz discussed a

human soul here. If this text was written in 1678, we can reasonably infer that Leibniz thought souls are substances at that time.

5.1.2 Definition of Substance

We find Leibniz's critical notes upon Spinoza's discussion of substance in *On the Ethics*. First, Leibniz rejected Spinoza's definition of substance:

Definition 3. Substance is that which is in itself and is conceived through itself. This definition too is obscure. For what does 'to be in itself' mean? Then we must ask: Does he relate 'to be in itself' and 'to be conceived through itself' cumulatively or disjunctively? [GP.I.139 = L.198]

Here Leibniz disagreed with the definition. But from this note alone, it is not clear what kind of definition of substance he would accept. Perhaps he accepted the view that substance must be conceived through itself. Or he may suppose that some substance cannot be conceived through itself.

Lærke tries to clarify this passage, and presents his interpretation on Leibniz's view of 1678. According to Lærke, Leibniz's critique of the definition 3 of *Ethics* shows Leibniz's departure from the spinozistic system:

In the critical comments, Leibniz judges the definition of substance to be obscure since he did not see what Spinoza means by “being in itself” (CC, 1765/5). More exactly, Leibniz does not see how the determination «being in itself» relates to that of «being conceived by itself» [Lærke 2008, p. 625]⁴⁹

Lærke further argues that Leibniz’s comment on definition 3 is so decisive that it shows that Leibniz started to deny the possibility of Spinozistic monism:

If we allow ourselves the exceptional step of a retrospective interpretation, the issue of the commentary on definition 3 becomes relatively clear: This commentary indicates the fact that at the beginning of 1678, Leibniz abandoned any possibility of substance monism comparable to spinozisme. There is not a single substance, nor even a single type of substance, but rather two types of substances: those which are in themselves and conceived through themselves, and those which are in themselves but conceived through another thing, in accordance with the double sense of the notion of substance which Descartes also recognized in the *Principles of the Philosophy*[...] [ibid., p. 629]⁵⁰

⁴⁹ Dans les commentaires critiques, Leibniz estime obscure la définition de la substance parce qu’il ne voit pas ce que Spinoza peut vouloir dire par être en soi (cf. CC, 1765/5). Plus exactement, Leibniz ne voit pas comment la détermination «être en soi» se rapporte à celle d’«être conçu par soi»

⁵⁰ Si nous nous permettons exceptionnellement une interprétation rétrospective, l’enjeu du commentaire de la définition 3 devient relativement clair: ce commentaire est un indicateur du fait qu’au début 1678, Leibniz a abandonné toute possibilité unisubstantialiste comparable au spinozisme. Il n’y a pas une seule substance, ni même un seul type de substance, mais deux types de substances: celles qui sont en soi et qui sont conçues par soi, et celles qui sont en soi mais conçues par autre chose, conformément au double sens de la notion de substance que Descartes reconnaît lui aussi dans les Principes de la philosophie[...]

Here Lærke suggests that Leibniz introduced two different kinds of substance as Descartes did in the *Principles of Philosophy* (AT.VIIIa.24; Kulstad 2002, pp. 688-90; Blank 2005, pp. 116-7). One is something which is in itself and conceived through itself, like God, and the other is something which is in itself but not conceived through itself. Creatures are in the second category.

But I think the note on Proposition 3 does not clearly present Leibniz's own definition of substance. To understand Leibniz's view, it is better to see another comment from Proposition 6:

Proposition 6. One substance cannot be produced by another substance. [...] For the rest, I grant the demonstration if substance be taken as something which is conceived through itself. The case is different if substance is taken to be something which is in itself, as this commonly understood, unless he shows that to be in itself and to be conceived through itself are the same thing. [GP.I.142 = L.199]

Leibniz suggested that one substance can actually be produced by another "if substance is taken to be something which is in itself." If so, there can be two substances, and one of them creates the other. And I think Leibniz believed that there can be two or more substances, since he suggested that substance is commonly understood to be something which is in itself. Also, as we have seen, Leibniz suggested that human souls are substances.

Thus Leibniz seems to be dissatisfied with the view that “to be in itself and to be conceived through itself are the same thing.” It seems that Leibniz assumed that substance is in itself, but it is not necessarily conceived through itself (Morfino 2009, p. 240). Also, Leibniz seems to assume that if substance must be conceived through itself, there would be only one substance, namely God. For Leibniz, a finite thing cannot be conceived through itself, since it must be conceived through God as his creature. Although it is conceived through another, it is still considered as a substance being in itself. Once created, a finite thing is separate from its creator, and therefore God is transcendent for the finite thing. And on this understanding, there can be many substances in the world.

5.1.3 Substance and Action

Why did Leibniz start to assume that substance does not have to be conceived through itself? I think it is because he started to think that one thing can be a substance insofar as it acts, even if it is not “conceived through itself.” Indeed, some passages that may have been written in 1678 suggest that things that act are substances:

It can be demonstrated that these definitions coincide, for I define substance as that which can act; but the action of an extended thing is by motion, namely, local motion. [...] For every substance is actually operating, as is demonstrated in *Metaphysics*. [...] For every substance is as perfect as it can be through all the

others. [A.VI.iv.1398 = RA.245]

According to the passage, written sometime between summer 1678 and winter 1681, any acting thing must be a substance. And another passage from *On the Ethics* of 1678 suggests why Leibniz did not assume that substance is that which is conceived through itself.

For the fourth axiom does not say that ‘the cause of a thing is that without which it cannot be conceived.’ (This would be false, for a circle cannot be conceived without a center, or a line without a point, yet the center is not the cause of the circle, nor the point of the line.) [GP.I.147 = L.203]

So, Leibniz denied that the cause of a thing is that without which we cannot conceive the thing. He argued that the center of a circle is not a cause of the circle even though the circle may be conceived only through the center. Likewise, God is not the immediate cause of an action of a created substance despite that the action requires God to be conceived. An action of a creature can be understood only through God, since by definition a creature must be a thing created by God. But the action is still immediately caused by the created substance. Obviously, Leibniz’s view here is relevant to his rehabilitation of substantial forms.

5.2 How Did Leibniz Reestablish Substantial Forms in 1678-9?

Early on, as we have seen, Leibniz rejected substantial forms in bodies. But in 1678-79, he started to believe once again that they actually exist in bodies, and that they give rise to the unity and activity of bodies. This point was confirmed in the *Discourse on Metaphysics* of 1686. According to Michel Fichant, the discovery of the conservation law is deeply connected with the rehabilitation of substantial forms. But according to Daniel Garber, the discovery and the rehabilitation are almost independent. In this section, I argue that pace Garber, Leibniz's discovery of the conservation law actually had a great impact upon his rehabilitation of substantial forms. I introduce Leibniz's three distinct arguments for the existence of substantial forms, which Fichant does not discuss, and through them confirm the relevance of the discovery of the conservation law for the rehabilitation of substantial forms.

After Aristotle, many philosophers believed that an individual substance consists in form and matter, and this view was typically emphasized in the tradition of the medieval scholastic philosophy. Form is associated with actuality, conceivability, and some specific shape. One specific thing is individuated by having such and such form. On the other hand, matter is associated with potentiality and inconceivability. Any matter can be formed in many different ways, and in this sense it can be any one of multiple actualized things, but only potentially.

After Descartes, Hobbes, and other eminent philosophers of the 17th century, many philosophers started to doubt the existence of substantial forms. For these philosophers,

first, the concept of substantial form is too obscure and cannot be clearly understood, and second, substantial forms seemed to be superfluous entities in the sense that physical phenomena can be explained without them. Descartes doubted that a dog has its own substantial form or soul. According to him, some animal is considered to be a dog simply because the whole body has some physical structure, and its parts function to produce the behaviors of a dog. Leibniz was impressed by Descartes's view, and claimed that there are no scholastic substantial forms. In a letter to Jakob Thomasius of 1668, he suggested that there are substantial forms, but these forms are nothing but geometrical figures of bodies (A.II.i.11). Here he accepted the doctrine of the modern mechanistic philosophy that body only has shape, size, and motion.

However, Leibniz changed his view, and started to suggest that there are substantial forms as principles of activity. Leibniz's rehabilitation of substantial form is perhaps best known from some sections of the *Discourse on Metaphysics*, written in 1686. In section 10, Leibniz wrote:

It seems that the ancients, as well as many able men accustomed to deep meditation who have taught theology and philosophy some centuries ago (some of whom are respected for their saintliness) have had some knowledge of what we have just said; this is why they introduced and maintained the substantial forms which are so decried today. [AG.42]

For Leibniz, "the belief in substantial forms has some basis" (AG.42). These forms should

not be introduced to explain motions of balls, for instance, since they can be explained mechanically. But through substantial forms we “properly know the first principles or elevate our minds sufficiently well to the knowledge of incorporeal natures and the wonders of God” (ibid.). In the following section, Leibniz suggested that he had noticed the importance of the old philosophy “after having myself carried out certain studies” (AG.43). Seemingly, Leibniz started to suppose that there are substantial forms before writing the *Discourse*.

5.2.1 When Did Leibniz Rehabilitate Forms?

When did Leibniz rehabilitate substantial forms?⁵¹ The exact date is not easy to pick out, but I argue that ① *An Outline of a Little Book [Conspectus libelli]* (summer 1679 to winter 1678/9) is the first text in which Leibniz explicitly rehabilitated substantial forms as far as I know, as Daniel Garber suggests, and ② Leibniz had not rehabilitated substantial forms, at least until 29 March 1678, as André Robinet argues.

Many commentators discuss the exact date of the rehabilitation. Robinet argues that Leibniz rehabilitated substantial forms in a letter to Johann Friedrich of Autumn 1679 for the first time:

⁵¹ A text of 1677 is interesting in relation to the rehabilitation of substantial forms, since it suggests that Leibniz believed that physical phenomena requires a life, namely, something like a substantial form. In the *Animal Machine* of 3 October 1677, Leibniz argued that the peristaltic motion of the intestines, and other complicated inner motions require the first motion of the whole organism, namely the life (Smith 2011, p. 289; Pasini 1996). Leibniz suggested that the body of an animal does need its principle of action, and I think it can be taken as a substantial form. But Leibniz did not argue that an inorganic body must contain a substantial form in this text, and I don’t think Leibniz rehabilitated substantial forms in general in 1677.

There is one more thing that is quite important in my philosophy, which gives it a way of approaching the Jesuits and other theologians. It is that I reestablish the substantial forms, which the atomists and Cartesians claim to have eliminated. Now, it is known that without these forms, and without the difference there is between them and real accidents, it is impossible to maintain our mysteries: since if the nature of body consists in extension, as Descartes claims, it would be contradictory to maintain that a body exists in many places at the same time. But since that which has been said up until now about the essence of body has not been intelligible, one shouldn't be astonished if these substantial forms have passed for chimeras among the best minds. In place of this, that which I will say will be as intelligible as everything which the Cartesians have ever said about other things. [A.II.i.754; Garber 2009a, pp. 225-6 cf. Robinet 1986, p. 250]

Here Leibniz was addressing a theological doctrine of mystery that a body can exist in different places at the same time. In relation to this doctrine, Leibniz introduced a rational argument, stating that “if the nature of body consists in extension,” then “it would be contradictory to maintain that a body exists in many places at the same time.” Although Leibniz here supposed that the doctrine of mystery is true, he introduces substantial forms with his reasoning. Still, some readers may assume that Leibniz only introduced substantial forms here to please Johann Friedrich, Duke of Hanover, given that the Duke was a

Catholic and interested in how to explain the mystery of Eucharist. But in any case, the passage is clearly one where Leibniz explicitly declared that there are substantial forms.

Robinet's dating of Leibniz's rehabilitation is debatable, since we can find an earlier text in which Leibniz suggests that there are substantial forms in bodies. Against Robinet's interpretation, Daniel Garber suggests that the date of the rehabilitation is somewhat earlier. According to Garber, Leibniz was explicitly committed to the existence of substantial forms in *An Outline of a Little Book (Conspectus libelli; hereafter Conspectus)*, which is dated at summer 1678 to winter 1678/9 (Garber 2009a, p. 49):

[...] [T]he operation of a body cannot be understood adequately unless we know what its parts contribute; hence we cannot hope for the explanation of any corporeal phenomenon without taking up the arrangement of its parts. But from this it does not at all follow that nothing can be understood as true in bodies save what happens materially and mechanically, nor does it follow that only extension is to be found in matter. [...] Mathematical science provides magnitude, figure, situation, and their variations, but metaphysics provides existence, duration, action and passion, force of acting, and end of action, or the perception of the agent. Hence I believe that there is in every body a kind of sense and appetite, or a soul, and furthermore, that to ascribe a substantial form and perception, or a soul, to man alone is as ridiculous as to believe that everything has been made for man alone and that the earth is the center of the universe. But on the other hand, I think that when once we have demonstrated

the general mechanical laws from the wisdom of God and the nature of the soul, then it is as improper to revert to the soul or to substantial forms everywhere in explaining the particular phenomena of nature as it is to refer everything to the absolute will of God. [A.VI.iv.2009-2010 = L.289; Garber 2009a, p. 50]

Leibniz suggested that things other than human beings have substantial forms. This claim may appear to suggest that only animals have substantial forms, but in fact he introduced a stronger claim that “there is in every body a kind of sense and appetite, or a soul, and furthermore, that to ascribe a substantial form.” For Leibniz, metaphysical considerations are needed to figure out causes of observable changes, and such considerations lead us to realize the existence of substantial forms. Thus I think the passage shows that Leibniz was committed to the existence of substantial forms at sometime between summer 1678 and winter 1678/9. So as Garber suggests, I think *Conspectus* is the earliest text of the rehabilitation of substantial forms insofar as we know.

As for ②, on the basis of passages from 1678-9, Robinet argues that a letter to Conring seems to show that Leibniz was not committed to the existence of substantial forms on 29 March 1678:

Who would deny substantial forms, that is, essential differences between bodies? You say that I have somewhere wrongly ascribed to you the view that forms originate out of nothing. I do not remember where I did this; nor do I know why you should

consider as most absurd the view that everything happens mechanically in nature, that is, according to certain mathematical laws prescribed by God. I recognize nothing in the world but bodies and minds, and nothing in minds but intellect and will, nor anything in bodies insofar as they are separated from mind but magnitude, figure, situation, and changes in these, either partial or total. Everything else is merely said, not understood; it is sounds without meaning. [A.II.i.400 = L.189; Robinet 1986, p. 246]

Leibniz argued that “everything happens mechanically in nature.” Any phenomenon in the world of nature can be explained by shape, size, and spatial movements of bodies. This claim does not show that Leibniz did not hold that there are substantial forms, since in the late period he was a mechanist in terms of explaining the phenomenal world while he believed that soul-like beings are in bodies.⁵² But I think that Leibniz’s view in this letter to Conring is quite different from his late view, since he argued that “we cannot assert with certainty that there is a sentient soul in beasts unless we observe phenomena which cannot be explained mechanically” (L.190). According to his late view, the behaviors of beasts can be explained mechanically (M.79), and nonetheless beasts have sentient souls (M.25-26). But in the letter to Conring, Leibniz was not even sure about the existence of sentient souls of animals, and it is hard to suppose that he was convinced of the existence of substantial

⁵² Gregory Brown emphasizes that “[w]ith respect to the phenomenal world of bodies, Leibniz was a committed mechanist” (Brown 2012). Here he presents Leibniz’s view of his fifth letter to Clarke in 1716 (GP.VII.398). Although Leibniz held the doctrine of simple substance or monad at the last year of his life, he did not thoroughly keep away from mechanistic philosophy.

forms in inorganic bodies. He also wrote that there is nothing “in bodies insofar as they are separated from mind but magnitude, figure, situation, and changes in these, either partial or total” (L.189). Here he did not explicitly deny that there are minds, or mind-like entities in bodies. But again, since he did not firmly believe that beasts have souls, I do not think that he was committed to the existence of mind-like entities contained in bodies when he wrote the letter.

So far Robinet is right. But I think he misinterpreted another passage of June 1679, suggesting that Leibniz at that time did not hold that there are substantial forms:

Everything happens mechanically. For me, those who agree with this seem not to be so distant from scholastic philosophers: For, doesn't what refers to anything related to powers of some forms, refer to particular figures and motions, if those are some kind of things which you do not explain? [A letter to Craanen June 1679 A.II.i.469; Robinet 1986, p. 246]⁵³

Again, Leibniz stated that “[e]verything happens mechanically,” suggesting that any movement is considered as a change of place, and that any movement of a body is brought about by contiguous bodies that are moving. However, Leibniz may have been talking about the phenomenal world, and if so his suggestion is consistent with his metaphysics of the late period. And his suggestion is consistent with a belief that there are substantial

⁵³ Omnia fieri mechanicè. Mihi vero qui generalibus istis contenti sunt non multum distare videntur a philosophis de Schola: quid enim refert an Omnia ad facultates quasdam formasve referas, an vero ad particularum figuras motusque, si qualesnam sint illae, non explices?

forms in bodies. Furthermore, he did not explicitly refer to a substantial form or a soul-like being, while he did so in the previous passage of the letter to Conring. It is hard to find any clear denial of the existence of substantial forms here. So I do not think that Leibniz denied that there are substantial forms in bodies in June 1679. But at least Robinet's discussion of the letter to Conring of 29 March 1679 is plausible, and I conclude that on that day Leibniz had not rehabilitated substantial forms.

So far following distinguished commentators, I have argued that ① *Conspectus* (summer 1678 to winter 1678/9) is the first text in which Leibniz explicitly introduced substantial forms as far as I know, and ② Leibniz had not rehabilitated substantial forms at least until 29 March 1678. But some interpretations made by other commentators are in tension with my view. I will examine two interpretations in the following. First, I examine G.H.R. Parkinson's interpretation that Leibniz in fact held that there are substantial forms in 1676. If he is right, Leibniz obviously did not have to "rehabilitate" substantial forms a few years later. Parkinson wrote:

Leibniz does not use the term "substantial form" in the *De Summa Rerum*; but there is reason to think that the concept of a substantial form is present in the work at any rate in an embryonic form. The evidence is provided by the thesis, defended in the *De Summa Rerum*, that for every material thing there must be a mind. Leibniz offers more than one argument for this thesis. [Parkinson 1992, p. xxxii]

So, Parkinson argues that the thesis “for every material thing there must be a mind” implies that a body has a substantial form. But we should not conflate “mind” with substantial form. As we have seen, according to the discussions in DSR, mind cannot exercise a physical force upon bodies by agitating them (A.VI.iv.480 = DSR.37). But in 1678-79, Leibniz held that substantial form is the principle of action for a body, and he wrote that “body is extended substance,” and “the action of an extended thing is by motion, namely, local motion” (A.VI.iv.1399 = RA.245). Thus he suggested that a body is a substance that acts by locomotion.

Leibniz also provided a clear definition of substance, since he defined substance as “that which can act” (ibid.). Here Leibniz understands substance differently from what he did in DSR, since Leibniz did not think finite things can act by themselves in DSR: Rather, he there suggested an occasionalists view in terms of the movements of bodies.

Moreover, the substantial form of a body seems to have different actions from those of a mind in DSR. Leibniz argued that mind does not physically influence upon bodies in DSR, whereas substantial forms seem to have both mental and physical actions. Substantial forms are considered as soul-like beings, and seem to have mental properties. But not only that, they are principles of action for bodies, and the actions of bodies are locomotions. This implies that substantial forms cause locomotions. In short, I think the metaphysics of substantial form is distinguished from minds discussed in DSR in that the form is considered as the principle of action and duration, and it exercises physical forces. So I do not think Parkinson’s interpretation is plausible.

Second, I examine Robert Adams's interpretation. He argues that a text dated 1678-9 shows that Leibniz held bodies do not have substantial forms before the time it was written (Adams 1994, pp. 235-8). This interpretation does not necessarily contradict mine since Adams's text may have been written earlier than the *Conspectus*, which is dated at "summer 1678 to winter 1678/9" (Garber 2009a, p. 49). But Adams's interpretation implies that if it was written after *Conspectus*, Leibniz did not hold that there are substantial forms in bodies in *Conspectus*. I do not accept this consequence, and moreover, I don't think Adams's text implies that Leibniz did not hold that there are substantial forms in bodies:

By 'body', however, I do not mean what the Scholastics compose out of matter and a certain intelligible form, but what the Democriteans elsewhere call bulk. This, I say, is not a substance. For I shall demonstrate that if we consider bulk as a substance, we will fall into contradiction as a result of the labyrinth of the continuum. In this context we must above all consider: first, that there cannot be atoms, since they conflict with divine wisdom; and second, that bodies are really divided into infinite parts, but not into points. Consequently, there is no way one can designate one body, rather, any portion of matter whatever is an accidental entity, and, indeed, is in perpetual flux. But if we say only this, that bodies are coherent appearances, this puts an end to all inquiry about the infinitely small, which cannot be perceived. But this is also a good place for that Herculean argument of mine, that all those things which are such that it is impossible for anyone to perceive whether they exist or not, are nothing. Now this

is the nature of bodies, for if God himself wished to create corporeal substances of the kind people imagine, he would have done nothing, nor could he perceive himself to have done anything, since in the last analysis nothing but appearances are perceived. So coherence is the sign of truth, but its cause is the will of God, and its formal reason is that God perceives something to be the best or most harmonious, i.e. that something is pleasing to God. So divine will itself, so to speak, is the existence of things. [A.VI.iv.1637 = RA.259-61] (c. 1678-79?)

According to Adams, Leibniz presented two arguments here. The first argument can be stated as follows: Bodies can be divided ad infinitum, and we cannot pick out indivisible unities from them. And bodies do not have reality unless they contain indivisible unities. Therefore, bodies are not real things but coherent appearances. The second argument is the following: Anything which anyone cannot perceive whether it exists is nothing. No one can perceive whether corporeal substances exist. Therefore, corporeal substance is nothing. According to Adams, these arguments are not consistent with the belief that there are substantial forms in bodies, and so the passage was written before the rehabilitation.

Now as Richard Arthur does, I interpret the passage of the first argument as presenting a different kind of argument. Against Adams, Arthur provides a different interpretation of the passage above, taking special note of Leibniz's claim that "if we consider bulk as a substance, we will fall":

To recapitulate: if matter consists only in bulk, then there is no unit of matter, but only an infinite regress of parts within parts, with no undivided wholes. Again, if matter consists only in bulk, then each of these parts will be ephemeral: the parts out of which it is in turn constituted last only for an instant, due to the changing motions that define them.

It is worth stressing the hypothetical character of this argument. For some commentators have seen Leibniz's claims that "Matter and motion are only phenomena" and that "Body is not a substance, but only a mode of being or coherent appearance" as indicating a commitment to phenomenalism at this time. Robert Merrihew Adams, in particular, has used this to argue that the fragment with the latter statement as title must have been written prior to Leibniz's revival of substantial forms in 1679. But Leibniz is at pains to point out there that his conclusions only apply to body in the sense of what the "Democriteans elsewhere call bulk," not to body composed of "matter and a certain intelligible form" (Aiv316). Thus the logic of this fragment (and, I would argue, of Aiv277) is all of a piece with the reasoning he presents in manuscripts written after he has introduced substantial forms; indeed, it is part of the argument *for* introducing them! [Arthur 2001, p. lxvii]

So, according to Arthur, the passage quoted by Adams just shows that *if* a body is a bulk, it is not real. For Arthur, this implication does not establish the conclusion that bodies are

merely phenomena for perceiving minds. To be sure, Leibniz stated that if we say “that bodies are coherent appearances,” we can put “an end to all inquiry about the infinitely small” (A.VI.iv.1637 = RA.259). Here Leibniz explicitly suggested that once we assume that bodies are coherent appearances, the problem of infinitesimals is solved, and we can avoid falling into the so-called labyrinth of the continuum. But still, Leibniz just suggested that to suppose that bodies are appearances is one of the possible solutions for avoiding the labyrinth.

Now I consider the second argument:

Now this is the nature of bodies, for if God himself wished to create corporeal substances of the kind people imagine, he would have done nothing, nor could he perceive himself to have done anything, since in the last analysis nothing but appearances are perceived. So coherence is the sign of truth, but its cause is the will of God, and its formal reason is that God perceives something to be the best or most harmonious, i.e. that something is pleasing to God. So divine will itself, so to speak, is the existence of things. [A.VI.iv.1637 = RA.259-61] (c. 1678-79?)

The passage implies that “corporeal substances of the kind people imagine” do not exist, namely that there is no corporeal substance that consists in extension alone. So, it does not imply that corporeal substances with substantial forms don’t exist. Leibniz wrote “coherence is the sign of truth,” but he merely argued that God is the ultimate cause of

coherent appearances, and this does not imply that bodies are phenomena for perceiving minds. In short, I think Leibniz was seriously committed to the existence of substantial forms in 1678-9. Although, as we will see later, a skeptical focus reappears in his thinking in 1686, it did not play a significant role in his thought in this period.

Now we understand important features of Leibniz's views on substantial forms at this point in his development. But we have not yet seen how Leibniz justified the claim that there are substantial forms. When he rehabilitated substantial forms, he not only thought that substantial forms are possible, but that they actually exist. How did he justify that? In the following, I introduce Michel Fichant's interpretation, according to which the conservation law played an important role in the rehabilitation of substantial forms in 1678-79. In light of this, I introduce distinct arguments made by Leibniz to show that there are substantial forms in bodies, and I evaluate these arguments to show the extent to which they are related to the conservation law. I conclude that the conservation law is essential for one of these arguments, and that it is the strongest among these three in that it shows a robust connection between how a certain quantity is conserved in nature and the existence of substantial forms.

5.2.2 Fichant's Interpretation

Michel Fichant has argued that Leibniz rehabilitated substantial forms in 1679, after writing *On Collision of Bodies* (*De corporum concursu*; hereinafter DCC) of 1678. In DCC, Leibniz showed that the quantity of mv^2 is conserved in the course of collision. More

specifically, when Body *A* (whose mass is M_a , and whose velocity is V_a) and Body *B* (whose mass is M_b , and whose velocity is V_b) collide with each other, the quantity of $M_aV_a^2 + M_bV_b^2$ is always constant. According to Fichant, DCC also plays an essential role in Leibniz's rehabilitation of substantial forms. Let us consider his interpretation in detail.

Fichant summarizes the development of how Leibniz dealt with substantial forms. According to Fichant, Leibniz actually did not rehabilitate substantial forms right after writing DCC in January 1678. Fichant refers to another text *De motu tractationis conspectus* (hereinafter *De Motu*) of February 1678, in which Leibniz examined movement from a metaphysical view point as well as others (Fichant 1998, p. 180). According to Fichant, Leibniz's discussion in *De Motu* is still occasionalist as that in *Pacidius to Philalethes* of 1676, since he seems to postulate an action of God for explaining future movements:

Here the consideration of the Author is added to the consideration of space and impenetrability, for it [or a future movement] can be completed by this alone, certainly not by the consideration of space and impenetrability alone. For this mover does not act without reason. [Gerland.114; Fichant 1998, p. 180]⁵⁴

⁵⁴ Hic praeter considerationem spatii impenetrabilitatis adhibetur consideratione auctoris, nam ex hac sola absolve potest, non vero ex sola consideratione spatii et impenetrabilitatis. Nam motor ille non aget sine ratione.

De Motu strongly suggests that Leibniz did not rehabilitate substantial forms right after writing DCC. According to the passage, we cannot figure out how bodies move only by considering space and impenetrability, and thus we need to postulate “the consideration of the Author.” To be sure, this passage itself may be read as suggesting that God just planned to create bodies with immanent forces that cannot be explained only in terms of space and impenetrability, with an implication that bodies do not consist in shape, size, and impenetrability. However, Leibniz also wrote that “this motor does not act without reason.” “This motor” seems not to be the immanent force of a body, since it is not specifically mentioned before. So it probably refers to God, which suggests that God himself acts for moving bodies.

Although the previous passage seems to show that Leibniz had an occasionalists view, not all the passages of *De Motu* suggest that Leibniz firmly believed in that view. In the later part of *De Motu*, Leibniz mentioned “power [*potentia*]”:

[...] For traces result from concomitants, nor concomitants from traces. So there appear to be two effects of motion, one in mind, namely appearances, the other in a different body, namely powers. [Gerland.115; Fichant 1998, p. 182]⁵⁵ .

Here Leibniz suggested that both phenomenal and real realms exist. Appearances belong to the former realm of phenomenon, and thus they exist in perceiving minds. But bodies and

⁵⁵ Nam ex comitantiis resultant vestigia, non vero ex vestigiis concomitantiae. Itaque duo videntur esse effectus Motus unus in Mente, nempe apparentias, alter in alio corpore, nempe potentiae.

their powers belong to another realm. Hereby Leibniz suggested that bodies, which have some mind-independent reality, exist with immanent powers for acting. What Leibniz suggested seems not consistent with his previous occasionalistic view. Thus I take *De Motu* to be a complex text, in which two distinct ideas are found. Perhaps it is a transitory text, and Leibniz was in the process of developing a new view when he wrote it. And according to Fichant, Leibniz was committed to the existence of substantial forms after writing it.

However, against Fichant, Daniel Garber has argued that there is no evidence to show that Leibniz's investigation of the conservation law has a significant impact upon his rehabilitation of substantial forms. Garber compares the metaphysics of body in the mid-1670s and that of the mid and late 1680s. As for the mid-1670s, Garber wrote that Leibniz already introduced the principle that "the effect involves its cause" in a fragment from 1 April 1676, which is found in *De Summa Rerum* (A.VI.iii.490; Garber 2009b, pp. 71-72). Moreover, Leibniz also wrote that "God always conserves the same quantity of motion in the universe," commenting on Part II 36 of Descartes's *Principia* (A.VI.iii.215 = RA.25). This comment was written in winter 1675/6 or early 1676. Thus Garber suggests that Leibniz already noticed that some quantity is conserved in the universe before writing DCC.

I attempt to see how Leibniz justified that there are substantial forms, and argue that pace Garber, there is a remarkable connection between the conservation law and the rehabilitation. When Leibniz rehabilitated substantial forms, I think, he not only thought that substantial forms are possible, but also that they actually exist. So we need to examine his arguments for substantial forms. I found three distinct arguments. They are considered below.

5.2.3 Parts Argument

I introduce three arguments of Leibniz to show that there are substantial forms in bodies. First, I introduce an argument based upon the assumption that without a form, a body consists merely of its parts. We can find the argument in the following passage:

Unless there were a soul, i.e., a kind of form, a body would not be an entity, since no part of it can be assigned which would not again consist of further parts, and so nothing could be assigned in body which could be called this something or some one thing. That it is the nature of a soul or form to have some perception and appetite, which are passions and actions of the soul, and why; namely, because souls result from God thinking of things, that is, they are imitations of his ideas. All souls are inextinguishable, but precisely those are immortal which are citizens in the Republic of the Universe, i.e., those of which God is not only Author, but King. [A.VI.iv. 1988-9 = RA.233-5] (Summer 1678 —Winter 1678-79?)

Leibniz argued that any entity cannot merely consist of parts, each of which again consists of further parts. He also argued that any part of a body consists of further parts if the body does not have a form, namely, a substantial form. His conclusion is that if a body is an

entity, it needs to have a substantial form. On the basis of this passage, we can formulate the parts argument as follows:

The parts argument

1 Without a form, every part of a body consists of further parts.

2 If every part of a body consists of further parts, the body is not an entity.

3 If a body is an entity, there is a form in it. (from 1-2)

This argument does not fully establish the existence of a substantial form in a body. The conclusion is given only when a body is an entity. And at least in the passage above, it is not proved that a body is an entity. Also, the parts argument does not show that Leibniz adopted a drastically new view, given that Leibniz had already presented a similar idea in *De Summa Rerum* (DSR) saying that bodies need minds to unite them. In DSR, Leibniz argued that a body is either an aggregate of indivisible elements, or a single indivisible element (A.VI.iii.521 = DSR.81). And he argued that an indivisible element or indestructible has a mind. Since a similar discussion is found in DSR of 1675-6, we should seek another argument to see what is new in Leibniz's view of 1678-9.

5.2.4 Action Argument

Second, I introduce an argument to show that forces are nothing but forms. It is found in a passage from *Metaphysical Definitions and Reflections* [*Definitiones cogitationesque metaphysicae*]:

Body is a movable extended thing, or body is extended substance. It can be demonstrated that these definitions coincide, for I define substance as that which can act; but the action of an extended thing is by motion, namely, local motion. [A.VI.iv. 1398 = RA.245] (Summer 1678—Winter 1680-81)

Leibniz used a strong word ‘demonstrate’ here, but we cannot clearly understand his demonstration for the existence of substantial forms. He just demonstrates the equivalence of two sentences. But at least we can understand that the passage suggests that some assumptions imply that bodies are substances. The implicit argument seems to be formulated as follows: first, an extended body has a motion; second, motion is an action; third, any acting thing is a substance; therefore, an extended body is a substance.

The action argument

1 Body is a movable extended thing.

2 A movable extended thing can act by motion.

3 That which can act is a substance.

4 Therefore, body is a substance. (from 1-3)

One problem is that Leibniz did not explicitly talk about substantial forms. He just implied that body is a substance. But in another passage of *Metaphysical Definitions and Reflections*, he declared that “[e]very body is animate, i.e. has sensation and appetite” (A.VI.iv.1398 = RA.245). Here he explicitly suggested that every body has “a substantial form” or “soul” as the principle of action, and a form is needed for a substance (A.VI.iv.1399 = RA.245). So maybe from this passage, we can be sure that Leibniz believed in the existence of substantial forms. Still, this does not show how exactly the conservation law is related to the rehabilitation of substantial forms. Leibniz argued that bodies can act since they can move. It seems that insofar as bodies move, they “act” even if the quantity of their force is not conserved. Here we cannot demonstrate that Leibniz’s rehabilitation of substantial forms is based upon his discovery of the conservation law simply in virtue of the action argument.

5.2.5 Equality Argument

As we have seen, the two previous arguments do not establish the existence of substantial forms on the basis of the conservation law. But I think Leibniz had another argument to show that there are substantial forms based upon the assumption that the conservation law holds. The argument is introduced in the following passage:

Now there follows the subject of incorporeals. There turn out to be certain things in body which cannot be explained by the necessity of matter alone. Such are the laws of motion, which depend on the metaphysical principle of the equality of cause and effect. Here therefore the soul must be treated, and it must be shown that all things are animated. [A.VI.iv.1988 = RA.233] (Summer 1678—Winter 1678-79?)

Leibniz postulates the existence of “souls” that animate all things. These souls animate not only animals and plants, but also inorganic things. Thus souls in this context can be taken as substantial forms. And Leibniz shows the existence of substantial forms on the basis of “the laws of motion.” I think Leibniz assumed that the conservation law is one of the laws of motion. According to the conservation law, the speeds of two elastic bodies that collide with each other need to be such that the sum of mv^2 remains constant before and after the collision. Since the speeds of the two bodies are certainly related to their motions, the conservation law is considered as one of the laws of motion. Indeed, when Leibniz wrote *Conspectus for a Little Book on the Elements of Physics*, from which the previous passage was quoted, he explicitly suggested that the conservation law is one of “the laws of motion” that are based upon the metaphysical principle of the equality of cause and effect. After writing the passage of the equality argument, at the next paragraph, Leibniz wrote the following:

Force of power should now be treated; when it is to be known, it must be estimated from the quantity of the effect. But the power of the effect and of the cause are equal to each other, for if that of the effect were greater, we would have a mechanical perpetual motion, if less, we would not have physical perpetual motion. Here it is worth showing that the same quantity of power is conserved. [A.VI.iv.1989 = RA.235]

Leibniz explicitly suggested that since we do not have a perpetual motion, “the same quantity of power” is conserved. And he introduced the principle that “the power of the effect and of the cause are equal to each other” for discussing the conservation law. So I assume that he thought that the conservation law depends upon the principle.

Now, we need to see how the conservation law “depends” upon the metaphysical principle of equality of cause and effect. I think Leibniz suggested that there should be some metaphysical entity that causes bodily phenomena observing some formula. On my interpretation, Leibniz thought that if the motion of a body always follows some law for a certain period of time, the motion should be caused by some entity that observes the law. The conservation law says that bodily phenomena follow some formula for a certain period of time. Leibniz discussed the conservation law when he estimated the speed of a body falling from a certain height. In this context, the falling body needs to satisfy the condition of the conservation law for a certain period of time. For instance, if a ball falls from the height of 4.9 meter, then one second later it will hit the ground. Since the sum of the kinetic

and gravitational potential energies is always constant, and the quantity of $mv^2/2 + mgh$ does not change, the speed of the ball observes the conservation law at each moment during the free fall.

On my interpretation, Leibniz did not assume that the metaphysical cause of bodily phenomena is God himself, since if he perpetually produced all the bodily phenomena all by himself, then he would perform miracles at every moment. Leibniz believed the metaphysical cause of bodily phenomena is the immanent nature of bodies. And this immanent nature is called substantial form. Considering what I have discussed, the equality argument can be formulated as the following:

The equality argument

1 The conservation law holds.

2 If the conservation law holds, then the metaphysical principle of the equality of cause and effect also holds since the former depends upon the latter.

3 If the metaphysical principle holds, then there must be some immanent metaphysical entity that acts in accordance with the principle.

4 There must be some immanent metaphysical entity that acts in accordance with the metaphysical principle. (from 1-3)

To sum up, the equality argument establishes that if phenomena follow some kind of law, then phenomena imply the existence of an immanent persisting being that observes the law. And Leibniz empirically knew that phenomena actually follow the conservation law. These two points are logically sufficient to establish the existence of an immanent persisting being. If we take this to be a substantial form, then the equality argument is sufficient for Leibniz's rehabilitation of substantial form. Our discussion still did not show that the equality argument was essential for Leibniz's rehabilitation, or the argument was the only path for the rehabilitation. But at least the argument is a way to reach the existence of substantial forms.

Of course, some may doubt one of the assumptions of the argument, and thus doubt the conclusion as well. For instance, according to Berkeley, any movement of a body is considered as a phenomenon in a perceiving mind. If so, even if body appears to follow the conservation law, the metaphysical principle of the equality of cause and effect does not hold since body does not have any mind-independent reality, and nothing happens outside of a perceiving mind. As a result, there is no effect produced by an antecedent cause in the external world.

Perhaps Leibniz accepted a strong version of premise 1, namely that the conservation law holds in the world of mind-independent entities. As Fichant notes, Leibniz noticed that there are two realms to consider. Leibniz suggested that an effect of a collision exists in a perceiving mind, and another effect of collision exists in body as well (Garland.115; Fichant 1998, p. 182). So, when Leibniz assumes that the conservation law holds, he seems to think that it holds in both of the realms.

5.2.6 A Critical Exposition of Garber's Interpretation

According to Garber, Leibniz's rehabilitation of substantial forms is presumably based upon his discovery of active force, but it is independent of his discovery of the conservation law (Garber 2009b). Garber also argues that Leibniz's discovery of passive force is also independent of the conservation law. Indeed, Leibniz started to suppose that body has some passive force when he realized that body resists being moved, and as a result there is no perpetual motion. But Leibniz noticed that body has some passive force before 1678, the year when he discovered the conservation law. Thus Garber concludes that Leibniz's rehabilitation of substantial forms is independent of the conservation law.

Against Garber, I argue that Leibniz's discussions before 1678 were not sufficient for establishing the existence of substantial forms, and the discovery of active force which Garber introduces is not necessary for rehabilitating substantial forms. Garber rightly suggests that Leibniz discussed how to attribute a motion in 1676 (A.VI.iii.104-10; Garber 2009b, p. 78). But Leibniz simply suggested that we can attribute a motion to a human body if it approaches a town, and yet, generally speaking, we cannot properly attribute an absolute motion to some body "from the phenomena of change of position alone" (A.VI.iii.110). For Leibniz, although a human body is known to be active, we cannot know which body is truly active by observing phenomena alone. Here I don't see how Leibniz could have established the existence of substantial forms by discussing how to attribute motion. He merely claimed that we don't have a clue as to how to attribute an absolute

motion in the phenomenal realm.

Perhaps Garber thinks that another text of 1677 shows that Leibniz had an idea about how to attribute an absolute motion apart from his discovery of the conservation law. In that text, Leibniz wrote that “when we consider motion not formally as it is in itself, but with respect to its cause, it can be attributed to the body of that thing by whose contact change is brought about” (A.VI.iv.1970; Garber 2009b, p. 79). But this passage does not show a substantial development of Leibniz’s inquiry, since he previously required finding the cause of the change, as in the text of 1676 he wrote that “motion should be attributed to the one of the two bodies in which is situated the cause of change” (A.VI.iv.104; Garber 2009b, p. 78). I don’t think this discussion shows that Leibniz did not need the conservation law to attribute a motion to some body. Leibniz just realized that we need to figure out the cause of change to attribute a motion to some body. But he may not have realized how to figure out the cause.

And indeed, a passage of the *Discourse on Metaphysics* suggests that Leibniz needed the conservation law to rehabilitate substantial forms:

This consideration, the distinction between force and quantity of motion, is rather important, not only in physics and mechanics [...] But the force or proximate cause of these changes is something more real, and there is sufficient basis to attribute it to one body more than to another. Also, it is only in this way that we can know to which body the motion belongs. Now, this force is something different from size, shape, and motion, and one can therefore judge that not everything conceived in body consists solely in extension and in its modifications, as our moderns have persuaded themselves.

Thus we are once again obliged to reestablish some beings or forms they have banished. [DM.18 = AG.51]

This passage suggests that Leibniz's consideration of the conservation law, distinguishing force from quantity of motion, provides "sufficient basis to attribute" the cause of change to one body, and makes him reestablish substantial forms. Garber may point out that the passage does not show that the conservation law was the only way to reestablish substantial forms, and perhaps Leibniz had another way to see that there are substantial forms. But certainly it is a way to reestablish forms, and it should have a great importance given that it showed up as a major topic in relation to the rehabilitation of substantial forms.

Moreover, although Garber introduced a detailed discussion of passive force, it is not, as he admits, an essential part of the rehabilitation of substantial forms since substantial form is the principle of action. As Garber argues, passive force allows body to "do work" depending upon its mass.⁵⁶ A massive body is hard to stop, as it has a large passive force. And this may make one realize that body does not merely consist in size, shape, and motion. But it does not demonstrate that body has an immanent principle of action.

To sum up, as Garber himself notices, *Conspectus* is a remarkable text to show Leibniz's rehabilitation of substantial forms. We have a good reason to suppose that Leibniz rehabilitated substantial forms in the Summer of 1678 at the earliest. As for the connection between the rehabilitation and the conservation law, the *Discourse on Metaphysics* and an earlier text show that the conservation law provides a way to establish the existence of

⁵⁶ For instance, if body *A* (1 pound, 2 m/s) and body *B* (4 pounds, 1 m/s) have a direct and perfectly elastic collision, both of them stop since their kinetic energies are equal. The kinetic energy of a body is proportionate to its speed.

substantial forms. More precisely, an argument for the existence of substantial forms, which I labeled as the “equality argument,” needs the premise that the metaphysical principle of the equality of cause and effect holds. And the validity of this metaphysical principle is shown through the conservation law.

5.2.7 Features of Body in 1678-9

We have seen that Leibniz rehabilitated substantial form in 1678-79, but we have not yet discussed what kind of features bodies have in the framework of this period. More specifically, I have not yet discussed whether body is infinitely divided, whether it consists in movement, how hard it is, and other important topics at stake. As we have seen, Leibniz introduced two theories as hypotheses in DSR. He introduced the atom theory, according to which every body is either an unsplittable and spherical body, or an aggregate of these kinds of bodies. He also introduced the points theory, according to which every body is a collection of unextended points. In the framework of the points theory, every tiny body is actually divided into further smaller parts. But Leibniz may have denied the atom theory in 1678, since Leibniz argued that every body is actually divided in texts that may have been written in that year. In *Conspectus*, Leibniz explicitly denied the existence of atoms:

It must also be demonstrated that every body is actually divided into smaller parts, i.e. that there are no such things as atoms, and that no continuum can be accurately assigned in body. The fluid and the firm have their origin in this division alone[...]

[A.VI.iv.1988 = RA.233]

Leibniz suggested that fluid can only be explained by the actual division of bodies. This suggestion is quite different from what he said in DSR, where he suggested that fluid can be explained by spherical atoms. I don't know what kind of difficulty Leibniz found in the atom theory when he wrote *Conspectus*, from which the passage above is taken. Perhaps Leibniz started to assume that every body is fluid to some degree, since it has some degree of flexibility and elasticity. The existence of an atom is rejected by this assumption, since it cannot change its shape, and it is not flexible at all. Or perhaps he was really worried about the problem which he suggested in the text of the points theory, namely that the world of atoms is not the richest among the possible worlds, since the spatial parts of an atom are homogenous, and thus it would not be chosen by God's wisdom.

Leibniz also argued that every body is actually divided in *Created Things Are Actually Infinite* [*Actu infinitae sunt creaturae*] (Summer 1678 – Winter 1680-81):

Created things are actually infinite. For any body whatever is actually divided into several parts, since any body whatever is acted upon by other bodies. And any part whatever of a body is a body, by the very definition of body. So bodies are actually infinite. [A.VI.iv.1393 = RA.235]

Here Leibniz suggested that every body is actually infinite, since it is actually divided into

several parts, each of which also has actual smaller parts. Thus any finite number is not large enough to count all the parts of one body.

In addition, in *Metaphysical Definitions and Reflections* [*Definitiones cogitationesque metaphysicae*] (Summer 1678–Winter 1680-81), after discussing substantial forms, Leibniz argued that body is actually divided owing to different motions of its parts:

Substantial form, or soul, is the principle of unity and of duration, matter is that of multiplicity and change. For since we have said that body is actually divided into parts, each of which is agitated with a different motion, and since for the same reason each part is again divided, then certainly if we consider matter alone, no point will be assignable that will remain together with another, nor a moment at which a body will remain identical with itself [...] [A.VI.iv.1399 = RA.245]

Leibniz wrote that “body is actually divided,” since two parts of the body do not share the exactly the same motion, and they do not stick together for more than a moment. Now if body is a pure form without matter, it wouldn’t have any parts and it could not change. Since body is in fact prone to change, it needs matter in addition to form, and it must have parts.

Moreover, in *A Body Is Not a Substance* [*Corpus non est substantia*] (1678-9?), Leibniz explicitly denied that there are atoms:

In this context we must above all consider: first, that there cannot be atoms, since they conflict with divine wisdom; and second, that bodies are really divided into infinite parts, but not into points. Consequently, there is no way one can designate one body, rather, any portion of matter whatever is an accidental entity, and, indeed, is in perpetual flux. [A.VI.iv.1637 = RA.259-61]

Here Leibniz denied the atom theory. Leibniz repeated the point he made in DSR, namely that the existence of atoms is inconsistent with God's wisdom. God must have intended to realize the maximum reality, and thus he did not create a completely homogenous body. An atom is completely homogenous and it is not actually divided, which is against God's plan.

In conclusion, Leibniz completely rejected the atom theory in 1678-9. Instead, he consistently emphasized that any body, however small, is actually divided, since its parts have different motions. Leibniz introduced this view on the basis of his natural theology, especially the view that God must have created the richest world, where any part of it has a complicated inner structure.

5.3. Summary of 1678-1679

Leibniz introduced a pluralistic view that there are many substances in addition to the most perfect substance, God. He did this in writing up his critical notes on Spinoza's

Ethics. Against Spinoza, Leibniz suggested that the human mind is a substance, and it can continuously act by itself.

Also, Leibniz started to assume that there are substantial things in a body. He rehabilitated substantial forms, which he once denied in 1671, and substantial form is supposed to provide an intrinsic unity to a body (just as he suggested that mind provides some kind of unity to a body in DSR). Substantial form is considered as a source of action in a body. Owing to substantial form, a body moves in accordance with the laws of motion, and it is actually divided since its parts have mutually different motions.

VI. The Late Stage of the Early Years (1680-1686)

The present chapter is the place for a review of important texts concerning Leibniz's metaphysics of body from 1680-86. Here I will offer a more general examination of the representative discussions of the features of body. I believe this investigation will show how Leibniz's discussions crystallized in the *Discourse on Metaphysics* of 1686. I hope it will also illuminate Leibniz's doctrine on substance, which leads us to consider its complete concept based upon his investigation of logic. My discussion will not proceed exactly in accordance with the time period. In other words, I do not necessarily discuss, for instance, texts of 1681 right after those of 1680. Rather, I will roughly sum up Leibniz's view of 1680-86, and how it developed out of the views discussed above.

In 1680-86, Leibniz introduced a list of ontological categories, and it is useful for

understanding the ontological status of body in this period. Donald Rutherford had an intensive study on Leibniz's discussion of term and ontology in the 1680s (Rutherford 1995, pp. 105-11). On the basis of a text, written between September 1680 and February 1685, he introduces five stages for explaining Leibniz's doctrine of complete individual concept and his ontology of individual substance. The first stage distinguishes impossible terms from possible ones, saying that only possible ones can refer to beings. For instance, the term of "round triangle" is incoherent and impossible, while "winged horse" is possible. Since some actual entity could be created on the basis of a possible term, utilized by God, he could also create a winged horse. The second stage differentiates concrete and abstract terms. "God," "man," "body," "circle," "hour," "hot," acting are concrete, whereas "divinity," "magnitude," "heat," "state" and "action" are abstract. Any term that "involves a subject" is concrete, and according to Leibniz, "hot" is used to refer to a specific hot thing or subject, whereas "heat" can be predicated of any hot thing. The third stage distinguishes substantial and adjective terms. For Leibniz, "man [*homo*]" is a substantial term whereas "hot [*calidum*]" is an adjective. Substantial term "straightforwardly" involves a subject of some predication, whereas an adjective term does not. The fourth differentiates complete and incomplete terms. Complete term involves all the predicates of the same subject. "Man" is still incomplete since it does not involve all the predicate of a specific man, while "Alexander" involves all of his predicates. The fifth stage distinguishes a singular substance from a real phenomenon. A divisible body can be an ultimate subject of predications, but it is not a complete being with an intrinsic unity. It may have many

predicates (moves with the speed of 100 miles/h, weighs 10 pounds, etc.), but it can be (and it is) divided into parts, each of which can have many predicates as well. So it cannot be taken as a singular substance.

Now, it is evident that Leibniz introduced two necessary conditions of a truly complete being: Individuality and Unity. These are different conditions, and both need to be satisfied. Leibniz's discussion seems to suggest that even an individual entity can be divided. Some specific body, like the tomb of Archimedes, can be considered as an individual entity, and yet it is divisible. But, as we will see, Leibniz did not characterize a particular and yet divisible thing as an individual substance. Somehow Leibniz was strongly conscious of the condition of indivisibility as necessary for a substance. In the following sections, I will see how Leibniz dealt with unity and individuality in the early 1680s.

6.1 Further Discussions of Unity

I start from Leibniz's discussions of unity of body, which was already found in the previous chapter. Leibniz argued that substantial form provides an intrinsic unity to a body. Leibniz further developed his view on the unity of a body in the early 1680s. Leibniz started to use the expressions "unity [*unum*]" and "entity [*ens*] per se." Leibniz introduced a well-known distinction between "unity in itself" and "accidental unity" in 1684-6.

Every real entity is either a unity in itself, or an accidental entity. An *entity (unity) in itself* is, for instance, a man; an *accidental entity (unity)* —for instance, a woodpile, a machine— is what is only a unity by aggregation, and there is no real union in it other than a connection: perhaps a contact or even a running together into the same thing, or at least an agreement observed by a mind gathering it into a unity. But in an entity per se some real union is required, consisting not in the situation and motion of parts, as in a chain, a house, or a ship, but in some unique individual principle and subject of its attributes and operations, which in us is called a soul, and in every body a substantial form, provided the body is a unity in itself. [A.VI.iv.301 = RA.283 March 1684-Spring 1686]

Here Leibniz argued that body is an entity per se insofar as it is united by its substantial form. In another passage, Leibniz used the expression ‘substantial forms, such as minds, and souls or primary entelechies,’ suggesting that “primary entelechy” is among substantial forms (A.VI.iv.627 = RA.271 Mid-1685). Here primary entelechies may be considered as soul-like entities in plants. Or they may refer to soul-like entities that can be found even in inorganic bodies. Also, “a unity per se” is considered to have a substantial form here, suggesting that substantial form is the principle of unity.

As we have seen, Leibniz already suggested that some bodies have an intrinsic unity in DSR without using the term ‘unity.’ He argued that some bodies have a mind, and because of that these bodies are indestructible elements (A.VI.iii.521 = RA.121). Also, he

argued that some bodies are aggregated from smaller bodies with minds, and these aggregates bodies can be destroyed.

But there is one new and remarkable point in the quoted passage: That bodies are considered to have mind-dependent unities. Leibniz started to introduce the view that aggregate has an accidental unity, and this unity comes from a perceiving mind. Although Leibniz already argued that mind provides a unity for its body in DSR, he did not argue that the unity of a table is provided by the human mind that perceives it.

In the late period, Leibniz also argued that bodies are aggregates of simple substances or monads, and the unity of a body is provided by the human mind that regards it as one thing. So one may have an impression that Leibniz's view in 1680s is substantially the same as the late view. But I think what Leibniz suggested is still different from his later view. He wrote that body is aggregated by "a contact or even a running together into the same thing, or at least an agreement observed by a mind gathering it into a unity." This may be taken as claiming that not all aggregated bodies are mind-dependent. That is to say, some aggregated bodies have a mind-independent unity based upon spatial contact. In a sense, Leibniz's later view is more idealistic since he later argued that all aggregated bodies are considered as mind-dependent.

Another notable point of the passage is that new features of an "entity in itself" are introduced. It needs to have a "real union," which consists in "some unique individual principle and subject of its attributes and operations," which is called "in every body a substantial form." So, three features of a substantial form are introduced: (1) It is

individuated as a unique entity. (2) It is a subject of attributes. (3) It is a subject of operations. Although (3) was already introduced in 1678-9, (1) and (2) are not explained enough at that period. Here Leibniz did not provide an example of an attribute. Even if extension is an attribute, it is not ascribed to a substantial form. If thought is an attribute, it may be ascribed to it since any substantial form seems have some kind of cognitive ability.

6.2 Corporeal Substance

Another important claim of Leibniz's developed theory of substantial form is that there are corporeal substances, and each of them has a substantial form.⁵⁷ In 1678-79, Leibniz did not use the term 'corporeal substance' when he reintroduced substantial forms in his metaphysics. But Leibniz started to use the term, suggesting that it is a composite of form and matter:

Corporeal substances have parts and species. The parts are matter and form. Matter is the principle of passion, or primitive force of resisting, which is commonly called bulk or antitypy, from which flows the impenetrability of body. Substantial form is the principle of action, or primitive force of acting. But in every substantial form there

⁵⁷ As I have pointed out in the introduction of the dissertation, some commentators have intensive discussions of corporeal substance on the basis of the texts from 1686 and later. Moreover, Pauline Phemister even argues that according to Leibniz's mature metaphysics, any genuine substance is corporeal, and thus any of immaterial being is incomplete and should not be counted as a genuine substance (Phemister 2005, pp. 73-4). I do not agree with her interpretation, but as she suggests Leibniz showed a strong interest for corporeal substance in the texts of 1686 and later. And I think Leibniz did so before in 1686, as I discuss in the present chapter.

is a kind of cognition, that is, an expression or representation of external things in a certain individual thing, according to which the body is a unity in itself, namely, in the substantial form itself. [A.VI.iv.1507-8 = RA.285-7 March 1684 – Spring 1686]

So, every corporeal substance has the principles of passion and action. Substantial form as the principle of action is also referred to as “soul,” for Leibniz said that “[e]very corporeal substance has a soul” (A.VI.iv.1466 = RA.265).

Leibniz suggested that there are corporeal substances everywhere in the universe. He wrote that “[e]very created thing has matter and form, i.e. is corporeal” (A.VI.iv.1466 = RA.265). Any created being has some body, and needs to be corporeal. In a text dated at 29 March 1683, Leibniz also stated that “[t]here are as many souls as there are substantial atoms or corporeal substances” (A.VI.iv.1466 = RA.265). Then what is the difference between the discussion here and the one in letters to Arnauld? Unlike in the letters to Arnauld, Leibniz did not suggest that there are many smaller corporeal substances inside of a corporeal substance here. Leibniz did not assume that corporeal substances are purely material, since he suggested that a corporeal substance has cognitive ability. In the following passage, Leibniz argued that every corporeal substance is “confusedly omniscient”:

For every soul, or rather every corporeal substance, is confusedly omniscient and diffusedly omnipotent. [A.VI.iv.1466 = RA.265 29 March 1683]

So just like souls of human beings, substantial forms of bodies have perceptions, and at least confusedly grasp the whole world. Also, there are different types of corporeal substances. Leibniz wrote that “if beasts are not mere machines, it is necessary for them to have substantial forms, and these are called *souls*” (A.VI.iv.1508 = RA.287).

But as we can gather from the terminology, Leibniz also suggested that a corporeal substance produces physical actions:

Every substance has within it a kind of operation, and this operation is either of the same thing on itself, in which case it is called reflection or thought, and such a substance is spiritual, i.e. a mind; or it is the operation of its various parts, and such a substance is called a corporeal substance. [A.VI.iv.1507 = RA.285 March 1684 – Spring 1686]

So, corporeal substance produces physical actions. This point may differentiate it from the corporeal substance in letters to Arnauld of 1686, given that Leibniz there suggested that corporeal substances act spontaneously, and other created substances cannot act upon them (GP.II.58 = MA.66). In order to be clear about this, we need to see what is meant by “the operation of [a corporeal substance’s] various parts.” In a text dated at summer 1678 to winter 1680-81, Leibniz argued that “body is extended substance,” and its action is by “local motion” (A.VI.iv.1398 = RA.245). Here we need to understand that the local motion

as an action of a body is not mind-dependent. In other words, local motions are not mere appearances for perceiving minds. These motions exist outside of perceivers, and are considered to be something absolute.

But how corporeal substances move their parts is not clear. At least, Leibniz seems to have assumed that extension alone cannot be the cause of motions, and we need to seek something beyond it as their cause. This point does not show that substantial forms are causes of movements, but they can be since they do not consist solely of extension.

To sum up, for Leibniz, all finite substances have mental properties. They are “confusedly omniscient,” and they perceive all the other finite substances though they do not clearly understand all the features of the other finite substances. Not all, but some substances produce physical actions. This kind of substance is corporeal, and a corporeal substance has “the operation” of its various parts. This may suggest that a corporeal substance acts upon another smaller corporeal substance if this smaller one is a part of the larger one, though Leibniz did not clearly write that a corporeal substance has many smaller corporeal substances as its parts. Whether a human being is among corporeal substances is not clear. At least, the human mind and corporeal substance seem to be different, and yet the human mind is united to a body since Leibniz wrote that “[m]ind is either separate from or united to a body: separate, as is God; united to a body, as is our soul” (A.VI.iv.1507 = RA.285). Still, a human being, or the whole union of the human mind and the body may be categorized as a corporeal substance.

6.3 Individual Substance

Lastly, I discuss the well-known concept of individual substance. Unlike the metaphysics of corporeal substance, Leibniz's discussion of individual substance may not look so relevant to how Leibniz understood the ontological status of body. But an introduction of his discussion of individual substance helps us to understand how Leibniz understood the notion of one complete individual, and whether it is completely immaterial. In the following passage, presumably written before the *Discourse on Metaphysics*, Leibniz used the expression 'individual substance':

Every entity is either a substance, or an accident or mode. A substance is, for instance, a mind, a body; a mode, for instance, heat, motion. Now from an accident or mode one can form a concrete term, which is predicated of a substance or even of another accident. But whereas the concept 'substance' is already a concrete concept, and cannot be predicated of anything but a substance, and an individual substance is not contained in any other individual thing, an individual accident, on the other hand, is contained in an individual substance, with several accidents in one substance. And indeed the concept of an individual substance is something complete, which already potentially contains everything, whatever can be understood of it. [A.VI.iv.1506-7 = RA.283-5 March 1684—Spring 1686]

Here we can find several features of individual substance. It is not contained in anything else. It contains individual accidents. Its concept is complete. The doctrine of complete individual concepts in the *Discourse on Metaphysics* was already introduced here. Another text also has a discussion of “the notion of individual substance”:

From the notion of individual substance it also follows in metaphysical rigor that all the operations of substances, both actions and passions, are spontaneous, and that with the exception of the dependence of creatures on God, no real influence of them on one another is intelligible. [A.VI.iv.1620 = RA.311 1686?]

Leibniz thought that the essence of an individual is based upon how God understands it, and God creates the individual in such a way that all the events that happen to the individual are spontaneously produced by it. As we have seen above, the view that an individual has its unique essence that is not shared by any other individual, and the individual produces future states in accordance with its essence, provided Leibniz some basis for overcoming the monistic view that God is the only substance. In DSR, form is considered as a positive and simple attribute (A.VI.iii.513-4 = DSR.69). It is contained in God, and together with other forms, by being combined and related in many ways, produces many modes. Properties, which arise through forms being related to each other in many different ways, are not essential features. Thus individuals that are differentiated from each other are not considered as substances. But in 1684-86, Leibniz wrote that “the

concept of an individual substance” is complete, and it potentially contains “whatever can be understood of it” (A.VI.iv.301 = RA.283). Although it is not clear whether Leibniz held any component of the concept of an individual substance is a part of the essence of the substance,⁵⁸ he did not introduce the distinction between essence and property, nor suggest that two individuals cannot be different substances if they share the same essence. Also, Leibniz rehabilitated scholastic substantial forms. Form is not shared by individuals any more. Rather, it exclusively belongs to an individual, and it enables the individual to act successively. Leibniz still discusses simple terms [*termini*] and notions (GP.VII.517 1696), and they are similar to simple forms of DSR since none of them can be analyzed any more. But his understanding of forms changed. Although his understanding came to be “scholastic,” it is not an imitation of old thoughts. In Leibniz’s new framework, even sensations are spontaneously produced by an individual. Actions and passions have something in common here. Any experience or any perception, coming from spontaneous actions, is considered as an expression of the whole universe. An individual keeps its identity even while undergoing change. As we will see in the next subsection, Leibniz seems to hold the view that any individual substance, whether it is corporeal or immaterial, has a complete concept that contains the information about all that happens to it. Later on, Leibniz needed to examine whether this kind of individual substance is corporeal or

⁵⁸ Whether Leibniz was committed to superessentialism, according to which any trivial feature of an individual substance is a part of its essence is debatable. According to Robert Sleigh, Leibniz was not a superessentialist when he wrote the *Discourse on Metaphysics* and letters to Arnauld (Sleigh 1990, p. 79). I do not dare to reject Sleigh’s reading here, but at least I can point out that Leibniz’s discussion in 1684-86 has a reminiscence of Leibniz’s claim in his bachelor’s thesis of 1663: “Any individual is individuated through its whole Being [*omne individuum sua tota Entitate individuatur*]” (GP.IV.18), though thesis alone may not be sufficient to ascribe superessentialism to the young Leibniz.

immaterial.

6.4. Summary of 1680-1686

Leibniz developed his doctrine of unity, and suggested that an aggregate has a mind-dependent unity. An inorganic body is considered as one thing by a perceiving mind, but it does not have an intrinsic unity. Leibniz held this view in later periods as well. Moreover, succeeding his view of 1678-9, he argued that the intrinsic unity of a body can neither consist in its shape, nor in the firmness. It should come from its substantial form.

Leibniz started to discuss corporeal substance on the basis of his rehabilitation of substantial forms. Corporeal substance is thought to produce physical actions owing to its substantial form. But corporeal substance has something in common with mind, since it has perceptions as well. It perceives the whole universe, at least unconsciously.

Leibniz also introduced the doctrine of individual substance that an individual substance is causally independent of another individual substance, and its concrete concept involves all the predicates which the individual substance could ever have. Still, Leibniz did not try to explain individual and corporeal substances together as fitting in to a consistent system of metaphysics.

VII. A Review of Leibniz's Metaphysics in the *Discourse on Metaphysics* and Letters to Arnauld

In this chapter, I will briefly review Leibniz's theory of body in the *Discourse on Metaphysics* (1686) and the letters to Arnauld, and explain its relationship with the theories in the early years. Since the main purpose of this dissertation is to discuss Leibniz's metaphysics of body in the early years, or the years *before* the *Discourse on Metaphysics*, this chapter is rather like an appendix to the previous chapters than one of the main parts of the whole dissertation. Here I introduce modest suggestions for interpreting Leibniz's metaphysics of the middle years (1686-1700)⁵⁹ on the basis of what I learned from Leibniz's earlier works — suggestions for further research, if you will.

In this chapter, I do not argue that Leibniz had a unified system of metaphysics in 1686. As suggested by notable commentators, it's not easy to find it, and it may be true that we can find a plurality of systems in the texts of 1686. Catherine Wilson introduced three metaphysics within the *Discourse on Metaphysics*: the metaphysics of individual substance, the metaphysics of spiritual substance, and the metaphysics of corporeal substance (Wilson 1989, pp. 88-109). The metaphysics of individual substance is founded on Leibniz's logic, according to which an individual substance can be a subject of a proposition, but it cannot be a predicate. The metaphysics of spiritual substance implies that only spiritual substances or minds are substances, and all the bodies are phenomena for perceiving minds. According to the metaphysics of corporeal substance, however, animals are substances, and even an

⁵⁹ It is not easy to limit the span of the "middle years," even for Daniel Garber who introduced this terminology. But in his book, Garber argues that Leibniz was at least committed to the existence of simple substances in a letter to Sophie of June 1700 (Garber 2009a, p. 341; A.I.xiii.89-93). He seems to suppose that the middle years ended in this month.

inorganic body is a collection of substances, each of which has unconscious perceptions. Daniel Garber explicated the metaphysics of corporeal substance in detail, and argued that Leibniz did not introduce it merely for compromising with Arnauld, who strongly believed that bodies are substances (Garber 1985). Rather, according to Garber, Leibniz had his own concerns for the ontological status of bodies, inspired by his investigations of physics, and thus he was internally motivated to discuss the metaphysics of corporeal substance. But Garber notes that this metaphysics is not consistent with the view that only minds are substances. Considering the discussions of these commentators, it is not easy to unify all the suggested metaphysics into one consistent system. I do not defend a view that Leibniz had several distinct and mutually inconsistent systems, either, since it would require serious examination of other interpretations. For instance, Robert Adams argued that the *Discourse on Metaphysics* and letters to Arnauld present a unified system, and one of its doctrines is that all the substances are immaterial (Adams 1994, pp. 262-307). Robert Sleigh also attempts to read discussions of corporeal substance as consistent with the metaphysics of monadology, the view that any organism is a collection of simple and immaterial substances (Sleigh 1990, p. 101). I will not critically examine their interpretations in this chapter.

As in the previous chapter, I do not follow Leibniz's discussions in the order of their composition. In other words, I do not necessarily discuss letters to Arnauld right after the *Discourse on Metaphysics*, although these letters were written after the *Discourse*, but I pick up notable topics of 1686 in the context of what I have discussed in the previous

chapters.

7.1 Substantial Form

I start from substantial form since it is a major topic of the two previous chapters.

(1) Leibniz held that substantial form was considered the principle of duration and identity. The tenth section of DM is entitled “That the belief in substantial forms has some basis, but that these forms do not change anything in the phenomena and must not be used to explain particular effects” (AG.42). “[A]ncients” and “many able men accustomed to deep meditation who have taught theology and philosophy some centuries ago” are “not distant from the truth” (ibid.). Leibniz also suggested that substantial forms do exist, since Leibniz wrote that “we must necessarily recognize in body something related to souls, something we commonly call substantial form” (DM.12 = AG.44). This substantial form is considered as having perceptions, though it may lack consciousness and memory. It also provides some kind of unity and duration for a body.

Leibniz’s introduction of substantial form in letters to Arnauld was a bit more modest, since he suggested the existence of substantial forms based upon some unproved assumptions. In his letter of 4/14 July 1686, Leibniz wrote that “[i]f 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” (GP.II.58 = MA.66). In this

passage, Leibniz explicitly wrote assumptions to conclude that bodies have substantial forms, suggesting that the conclusion is established only based upon these assumptions or premises. Also, in his draft of a letter, Leibniz wrote that “the substance of a body, if bodies have one, must be indivisible; whether it is called soul or form does not concern me” (GP.II.72 = MA.88). Here Leibniz thought that if body endures and has some identity, the endurance and identity are based upon its substantial form. Along with this line of thought, Leibniz suggested that bodies move continuously. In *A Specimen of Discoveries of the Admirable Secrets of Nature in General* [*Specimen inventorum de admirandis naturae generalis arcanis*], presumably written in 1686, Leibniz argued that motions of bodies are continuous, and there is no leap:

There is no transition to rest by a leap, and nothing passes from motion to rest or to a contrary motion without passing through all the intermediate degrees of motion. And just as no motion from place to place occurs in an instant, so no change from degree to degree occurs in an instant. [A.VI.iv.1630 = RA.333]

I think Leibniz here rejected his previous view in *Pacidius to Philalethes* (PP), where he claimed that bodies are recreated at every moment. Bodies do not move continuously in the framework of PP, but Leibniz suggested in the passage above that bodily movements are continuous since they must pass “through all the intermediate degrees of motion.” Leibniz already rejected leaps in PP, but he assumed that bodies instantaneously move to

contiguous places from moment to moment. In this case, there is no intermediate state between the states of these two moments. But Leibniz changed his view in 1680s. He accepted the view that bodies can continuously produce changes by themselves, and any of two successive states of a body must have an intermediate state. In this view, the movement of a body has no leap, and to that extent, the movement is considered as “continuous.”⁶⁰

(2) As he did in 1680-85, Leibniz held the view that substantial forms make bodies actually divided. According to him, any portion of matter has a plurality of substantial forms, and owing to these forms, any part of the matter is substantially different from others. Any portion of matter is not homogeneous and continuous, but their parts are really distinct from others. Leibniz suggested the actual division of bodies owing to “different motions”:

No body is so very small that it is not in turn actually divided into parts excited by different motions; and therefore in every body there are actually infinitely many bodies. [A.VI.iv.1626 = RA.323]

The view suggested in the passage seems to be different from what Leibniz introduced in DSR, namely that there are indivisible bodies with indivisible minds. Inorganic bodies in general are divisible and considered as aggregates. But some part of an inorganic body has only one mind, and it cannot be divided further. In DSR, it seems that an organic body has

⁶⁰ This movement, however, is not continuous in the modern sense, since according to the modern view, even a collection of mutually contiguous points do not form a continuum.

an intrinsic unity through the mind. But according to the passage above, every body, including an organic body, is actually divided.

7.2 Corporeal Substance

Leibniz argued that every body is actually divided. And according to his view, an organism has a complicated structure: An organism is united by a substantial form, but without this substantial form, the organism is taken as a collection of parts, each of which further contains other substantial forms. Even an organic body is thus actually divided into smaller parts. In 1686, Leibniz tried to explain this complicated structure of organism by discussing corporeal substance.

(1) As well-known, the letters to Arnauld include detailed discussions of corporeal substance:

However, it seems to me certain that if there are bodily substances, they do not belong to man alone, and it appears probable that animals have souls although they lack consciousness. [GP.II.73 = MA.90 The draft of the letter of 28 November/8 December 1686]

Although Haydn T. Mason used the expression ‘bodily substances’ in his translation, Leibniz was discussing corporeal substance here since the original term is ‘*substance*

corporelle.' Leibniz's claim is that if there are corporeal substances, animals are probably among them. One animal is united by its soul, and cannot be taken as an aggregate.

Leibniz also suggested that a human body united by a soul is a corporeal substance:

I reply that in my opinion our body in itself, leaving the soul aside, i.e. the corpse, cannot be correctly called a substance, like a machine or a heap of stones, which are only entities through aggregation; for regular or irregular arrangement has no effect on substantial unity. [GP.II.75 = MA.93]

Leibniz here argued that organic body without a soul cannot be a substance, but an aggregate. But the discussion of the passage suggests that an organism can be a substance if it endowed with a soul.

Furthermore, Leibniz suggested that the soul of an animal is the form of its body:

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.
[GP.II.58 = MA.65-6]

But the relationship between the form and body is not as tight as that of the Aristotelean form and body. In the Aristotelean framework, soul and body cannot be separated, and they causally interact. On the other hand, the relationship between soul and body here seems to

be fairly similar to their relationship in the framework of the preestablished harmony, according to which soul and body correspond to each other without any causal interaction. Robert Sleigh also takes the theory proposed in the letters to Arnauld as close to the preestablished harmony. He introduces the “modified corporeal substance theory,” claiming that a soul is a substance, and also functions as the substantial form of its organic body:

We should also bear in mind a variant of this theory —what we will call the “modified corporeal substance theory.” [...] [O]n St. Thomas’s theory, the human soul behaves in some ways like a substance in abstracto —as a form of matter—and in some ways like a substance in concreto—as an immaterial form. [...] On the modified corporeal substance theory, all substantial forms— not just human spirits are viewed as occupying this dual position[...] [Sleigh 1990, p. 99]

According to the modified theory, the soul is a complete substance, and it can continue to exist even if it is separated from the body. In fact, I could not find a passage of the *Discourse on Metaphysics* or a letter to Arnauld to show that the soul is not a complete substance. If there is no passage of that kind, Leibniz may have proposed the modified theory. This theory is quite similar to Leibniz’s later view, namely that the human soul is a dominant monad, and it is a complete simple substance that can exist independently from other simple substances that constitute the organic body, though it never lacks its organic body in the course of nature.

(2) Compared to his previous discussions, Leibniz became more careful in his discussion of physical actions of corporeal substances. In the letters to Arnauld, Leibniz did not argue that corporeal substances physically act upon their parts. Rather, he seems to introduce non-physical actions of corporeal substances.

Leibniz thought that corporeal substance is spontaneous. It can produce actions and changes by itself. Although body seems to interact and be changed by others, corporeal substance is not acted upon and caused to change by other corporeal substances. In *A Specimen of Discoveries of the Admirable Secrets of Nature in General*, written around 1686, Leibniz claimed that “no impetus is transferred from one body to another”:⁶¹

These things are true to the extent that in physics too, on careful investigation of the matter, it is evident that no impetus is transferred from one body to another, but each body moves by an innate force, which is determined only on the occasion of, i.e. with respect to, another. [A.VI.iv.1620 = RA.311]

One may have a difficulty in understanding how bodies spontaneously move, given that they seem to be moved by others. Bodies always appear to be contiguous to other bodies, and their movements seem to be caused by them. Leibniz introduced an example of elasticity to claim that corporeal substances are actually not moved by others (A.VI.iv.1620

⁶¹ Gregory Brown argues that according to Leibniz, not only substances, but aggregates are causally independent of others, since an aggregate ultimately consists in substances, each of which is not causally influenced by other created substances (Brown 1992).

= RA.311-3). Elastic bodies change their shapes by virtue of their internal force. For instance, when they shrink and become smaller, they tend to have a larger volume since their inner pressures will be larger. Likewise, any corporeal substance has some tendency to have a new state, and the new state will be brought about by the immanent force of the corporeal substance. By assuming this kind of the immanent force, Leibniz suggested that bodies have some absolute (non-relative) properties that allow us to ascribe an action to some of them rather than others:

Just as when a body swims in water, there is an infinite number of movements by the parts of the water, as is necessary in order that the place which this body vacates be always filled by the shortest possible path. That is why we say that this body is the cause of it, because by means of it we can explain distinctly what happens; but if one examines what physical reality exists in motion, one can as well assume that this body is at rest, and that everything else is moving in conformity with this hypothesis, since the whole movement in itself is only relative, that is to say a change of location, which cannot be attributed to anything with mathematical precision; but one attributes it to a body by whose means everything is distinctly explained. [GP.II.69 = MA.84-5]

Leibniz here suggested that movements are relative, and moving bodies may seem to be at rest when they are seen from another point of view. But he still suggested that a body has

some absolute quality when it seems to be moving. That is to say, it can have some quality that explains the event of moving more distinctly than other bodies, and in this case it is considered as more active than the other bodies. And he suggested that one body involves something that explains a physical event more distinctly than another body. I think Leibniz's discussion concerning corporeal substance changed after he developed his view on individual substance, as we will see in the next section.

7.3 Individual Substance

Although Leibniz's discussion of individual substance may not primarily belong to his metaphysics of body, it is a major topic of his metaphysics in general. Furthermore, he was considering whether one animal with an organic body is an individual substance. In the framework of pan-organism, an inorganic body is a collection of many tiny organisms, and therefore it is considered as a collection of individual substances. Thus Leibniz's discussion of this topic is related to how to understand inorganic body, and body in general. I start from the doctrine of individual substance since it is a major part of Leibniz's discussion of substance in 1686, and eventually the ontological status of body in that year.

(1) In 1686, Leibniz emphasized his doctrine of individual substance and complete individual concepts. He put special emphasis on the view that individual substances are spontaneous, which seemingly led him to assume that corporeal substances are also spontaneous. We find a detailed explanation of examples of individual substance in the

Discourse. In section 8, Leibniz wrote:

Since this is so, we can say that the nature of an individual substance or of a complete being is to have a notion so complete that it is sufficient to contain and to allow us to deduce from it all the predicates of the subject to which this notion is attributed. An accident, on the other hand, is a being whose notion does not include everything that can be attributed to the subject to which the notion is attributed.

[AG41]

Here Leibniz introduced the doctrine of complete individual concepts. Every individual substance has a concept that involves complete information about any event that happens to it. Still, this discussion is not so new for us, since we have seen the doctrine introduced in another text in the previous chapter. Leibniz thought that individual has its unique essence, and it has a substantial form that can produce future states. The unique essence of an individual involves everything that will happen to the individual, and the individual has a power to produce events following the information about them provided by its essence. Leibniz uses the expression ‘the essence or individual notion’ in the *Discourse on Metaphysics* (DM.16). Also, in a letter to Hessen-Rheinhels of 1686, Leibniz stated that since soul is an individual substance, its notion, idea, essence or nature needs to contain whatever will happen to it (GP.II.69). It seems that individual notion is the essence of the individual. Also, the individual notion is unique, and no two individuals share the same

individual notion, while in the period of DSR, Leibniz did not use the term ‘individual notion’ as G.H.R Parkinson notices (Parkinson 1992, pp. li-lii cf. Wilson 1989, p. 78).

In the *Discourse*, Leibniz claimed that an individual substance can be a subject, but it cannot be a predicate. Everything that happens to an individual are contained in its individual notion (DM.8), which contains complete information about the individual, and no other information is needed. The individual is dependent upon God as a creature, and it owes its existence to God. But an individual is also a complete being in the sense that its notion is sufficient for understanding it.

Moreover, Leibniz refers to an opinion that the nature or form of Alexander the Great corresponds to his individual notion. Leibniz then claims that even if this is true, still all the events that happen to Alexander are contingent. But Leibniz accepts that Alexander has a form that corresponds to his individual notion (DM.13). Since God provided such a form, all the contingent events in the future need to correspond to the form. Leibniz here suggests that a form is the principle of the production of events.

In light of the foregoing discussion, we understand that Leibniz assumed that forms are principles of successive actions in the period of the *Discourse on Metaphysics*. Furthermore, the mutual independence of individual substances is shown by the fact that an individual substance has a form that corresponds to the individual notion, and the individual changes itself by continuing to act. In the *Discourse on Metaphysics*, Leibniz stated that strictly speaking “one particular substance never acts upon another particular substance nor is acted upon by it” (DM.14). This view continued into Leibniz’s late

philosophy, and in the *Monadology*, for instance, Leibniz stated that “[t]he monads have no windows through which something can enter or leave” (M.7). How is this causal independence of individual substances related to the previous discussion? If an individual can produce all the events spontaneously, it does not need to be changed by being affected by other individuals. Thus not only human thoughts, but their sensations, arise independently of the actions of other individuals. Indeed, as we have seen in the previous chapter, Leibniz explicitly stated that “[f]rom the notion of individual substance it also follows in metaphysical rigor that all the operations of substances, both actions and passions, are spontaneous” (A.VI.iv.1620 = RA.311).

(2) Leibniz argued that every individual substance is qualitatively different from the others, and he suggested that every individual substance has a unique degree of perfection that is not shared by any other substance. Concerning the uniqueness of individual substance, Leibniz contrasted the concept of a sphere with that of the sphere “that Archimedes had placed on his tomb” in *Remarks upon M. Arnauld’s letter* of 1686:

[...] [T]he concept of the sphere that Archimedes had placed on his tomb is complete and must contain all that pertains to the subject of that form. That is why in individual or practical considerations, which are related to individuals, in addition to the form of the sphere one is concerned with the substance of which it is made, the place, the time and the other circumstances which by a continual sequence would finally embrace the whole succession of the universe, if one could pursue

everything contained in these concepts. [GP.II.39 = MA.41-42]

The concept of a sphere cannot be complete since it does not differentiate one particular sphere from another. It just expresses an abstract entity that may have another such entity that is indistinguishable from it:

But on the contrary two ellipses, which differ, not in the ratio of their axes, and thus by no distinction explicable in itself, but only by their size, i.e. relatively to one another, possess no specific difference. One must know however that complete entities cannot differ in size alone. [GP.II.132 = MA.74]

In a sense, two similar ellipses that are different in their size alone are “different.” But Leibniz did not recognize their qualitative difference here. He assumed that merely quantitative difference of two things is not sufficient to identify one individual substance.

However, although Leibniz did not think individual substances are merely different in their size, he seems to assume that substances can be differentiated by their degrees of perfection. In relation to this point, Leibniz suggested that there are many degrees of souls, and some exist with unconscious perceptions. It is relevant to the view that even inorganic bodies contain soul-like substances with unconscious perceptions. In *There Can Be Infinite Degrees of Souls* [*Infiniti possunt gradus esse inter animas*], perhaps written in 1686, Leibniz suggested that there are many kinds of souls in addition to human minds.

A body corresponds to the situation of a point or present state; but souls correspond to the degree of change in the motion of the point. And the soul of lowest degree corresponds to tendency in a given direction, a soul of second degree to the first osculation, a soul of the third degree to the second osculation; and so on. But mind corresponds to an osculation of infinitieth degree[...] [A.VI.iv.1525 = RA.299]

Leibniz suggested some kind of continuity between “the soul of lowest degree” and mind. And any kind of soul is supposed to have osculation. It seems that soul has more distinct perceptions if its osculation is larger. There can be infinitely many kinds of souls, given that Leibniz suggested that starting from the first degree of osculation, soul can have infinitely many and distinct degrees of osculation.

One difficulty remains. It is not easy to conceive of an osculation of infinitieth degree. Some functions can be differentiated for many times, while others cannot. If a function of parabola $y = x^2$ is differentiated three times, it will be zero, and no further differentiation is possible. In contrast, a sine curve can be differentiated for an infinite number of times. But any time there is a simple pattern for finding a result, and we will not have any complicated result. Thus, neither a function of parabola, nor that of a sine curve do not help us to understand what Leibniz meant. Moreover, the ontological status of a soul is not clear. It can be a complete substance. It can be a component of a complete substance.

As for whether soul is a substance, Leibniz suggested that the soul of Alexander the

Great is an individual substance. In the same section, Leibniz wrote:

Thus when we consider carefully the connection of things, we can say that from all time in Alexander's soul there were vestiges of everything that has happened to him and marks of everything that will happen to him and even traces of everything that happens in the universe, even though God alone could recognize them all. [AG.41]

Leibniz also stated that soul is an individual substance in the draft of a letter to Arnauld of 1686:

Now, since the soul is an individual substance, its concept, notion, essence or nature must include/everything that is to happen to it; and God, who sees it perfectly, sees what actions it will perform or undergo for evermore, and all the thought it will have. [GP.II.68-9 = MA.84]

Here Leibniz simply assumed that the human soul is an individual substance. It experiences many events, and its complete concept contains sufficient information about what happens to it. Thus Leibniz did not follow the traditional view of Thomas Aquinas that the human soul alone requires its body to be an individual.

To sum up, Leibniz seems to have a hard time to decide whether there are soul-like substances that only have lower level perceptions, and whether bodies contain such

substances. Obviously, we perceive physical phenomena, but as Leibniz already noticed in letters to Foucher, they do not establish the existence of substances in bodies.

7.4 Skeptical Worry

Given that Leibniz argued that bodies are substances in 1678-9, one may be tempted to conclude that Leibniz strongly believed that body is a substance in 1686. But in fact, Leibniz was still oscillating between two views. According to the first view, body is a substance, or at least a collection of substances. It contains a substantial form as the principle of action, as he argued in 1678-9. According to the second view, however, human minds or souls do exist, but body only exists within a perceiving mind, as a phenomenon or appearance that is internal for the mind.⁶² Robert Sleigh has suggested that Leibniz's phenomenalism in the *Discourse on Metaphysics* made him suppose that any substance

⁶² Later, Leibniz used the term "internal phenomenon" to specify what he was discussing in a draft of the *New System*, written in 1694:

The soul was created from the beginning in such a way that everything that the body can offer, and is presented in it by virtue of the representative nature which was given to it with its being, for being produced at a designated point. After that by a series of thoughts and, so to speak, like by dreams (or rather internal phenomena) which are regulated and so veritable that they are foreseen with success[...] (GP.IV.477)

Leibniz argued that soul has a capacity to produce a series of successive experiences by itself. Since they exist within the soul, it is called "internal phenomena." Leibniz used the same expression in the *Conversation of Philalète and Ariste* of 1711 as well:

But even granting that everything takes place in us ordinarily just as it would in the case of bodily annihilation, that is, admitting that we ourselves always produce within us (as I in fact believe) or that God produces in us (as Theodore believes) internal phenomena without the body having any influence over us, must this necessarily involve external ideas? Is it not sufficient to hold that phenomena are simple new transitory modifications of our souls? (GP.VI.591 = L.626)

must be a mind (Sleigh 1990, p. 98), since other things can merely exist as perceptions of minds.

Also, when Leibniz suggested that bodies may be substances, his view may be different from the later theory. Leibniz's conception of corporeal substance in the letters to Arnauld may be different from his conception of corporeal substance after 1700. He may have been thinking about an Aristotelian corporeal substance, which has a substantial form and an extended body at the same time. Later Leibniz explained his view more clearly. For instance, when Leibniz talked about corporeal substance in a letter to De Volder of 1703, he was thinking about a collection of simple substances, among which we can find one and only one dominant monad (GP.II.252).⁶³

In brief, Leibniz was still thinking about two possibilities at least, and the theories he proposed seem to be different from the late theory. First, for Leibniz, it may be that bodies have subsisting beings in them given the conservation of kinetic energy or *vis viva*. Second, Leibniz still supposed that this conservation does not necessarily establish that body, or at least organism, is a substance. We might have perceptions as if there were external and real bodies, and as if forces in them were conserved and constant. I will introduce Leibniz's

⁶³ In a famous passage of the letter to De Volder 20 June 1703, Leibniz distinguished five ontological categories:

I therefore distinguish: (1) the primitive entelechy or soul; (2) primary matter or primitive passive power; (3) the complete monad formed by these two; (4) mass or secondary matter, or the organic machine in which innumerable subordinate monads concur; and (5) the animal or corporeal substance which the dominating monad makes into one machine. (GP.II.252 = L.530-1)

The fifth entity, corporeal substance is a composite of one dominant monad and many subordinate monads. The whole group is called a "machine." But it is not a composite of substantial form and its extended body, since the body of the dominant monad is nothing but a collection of many monads, each of which is simple and immaterial.

skeptical worries in detail.

(1) At some time during 1686, Leibniz was not sure whether any body is an individual substance. In the margin of a draft of the section 8 of the *Discourse*, after writing that “[a]n accident, on the other hand, is a being whose notion does not include everything that can be attributed to the subject to which the notion is attributed,” Leibniz added:

Thus the circular shape of the ring of [Gyges] [Polycrates] does not contain everything that the notion of this particular ring contains, unlike God [knowing] seeing the individual notion of this ring [seeing, for example, that it will be swallowed by a fish and yet returned to its owner]. (Words in brackets were deleted by Leibniz) [AG.41]

Thus Leibniz suggested that the ring of Gyges is an individual, and it has its complete notion. Obviously, however, it is not an individual substance since the ring is not an organic body that is united by one substantial form. Maybe that is the reason why Leibniz didn't leave it in the final version of the *Discourse*. Another issue is whether a part of the ring, at least, is an individual substance. If every inorganic body is an aggregate of organisms, and an organism is a corporeal substance, a part of the ring can be a substance. Perhaps Leibniz was not sure that it is, since as other drafts of the *Discourse on Metaphysics* show, he was not sure if body can be a substance. Leibniz added:

I speak here as if it were assumed that this ring [has consciousness] [is a substance].

[AG.41]

Leibniz seems to imply that the ring is actually not an individual substance. The reason can be understood from the discussions in the letters to Arnauld. Leibniz ascribed a substantial form that unites the whole body only to an organism, not to an inorganic body like the ring.

(2) Leibniz assumed that bodies might be phenomena for perceiving minds. Passages in the draft of the *Discourse on Metaphysics* show that Leibniz was not completely sure that there are corporeal substances. At the beginning of Section 9 of *Discourse on Metaphysics*, Leibniz wrote:

Several notable paradoxes follow from this; among others, it follows that it is not true that two substances can resemble each other completely and differ only in number [*solo numero*], and that what Saint Thomas asserts on this point about angels or intelligences (that here every individual is a lowest species) is true of all substances, provided that one takes the specific difference as the geometers do with respect to their figures. [AG.42-3]

This passage is introduced after the introduction of the doctrine of individual substance and complete individual concepts in Section 8. And Leibniz asserts that according to this doctrine, any two substances are not completely similar to each other, since the complete

notion of one of them contains some predicate that differentiates it from the other. After writing ‘*solo numero*,’ Leibniz added the following in the draft:

[...] [A]lso, that if bodies are substances, it is not possible that their nature consists only in size, shape, and motion, but that something else is needed. [AG.42]

This is a hypothetical statement, and Leibniz was not committed to the view that bodies are substances here. Similar discussions based upon hypotheses are found in other sections as well. At the beginning of section 11, Leibniz wrote:

I know that I am advancing a great paradox by attempting to rehabilitate the old philosophy in some fashion and to restore the almost banished substantial forms to their former place. [AG.43]

But at the last part of the sentence, Leibniz added in the draft:

I do this, however, only under a hypothesis, insofar as one can say that bodies are substances. [AG.43]

Leibniz used the term ‘hypothesis,’ and he is more explicit about his position here. Namely, he did not hold the view that bodies are substances. Also, the beginning of Section 12 is the

following:

But, to resume the thread of our discussion, I believe that anyone who will meditate about the nature of substance, as I have explained it above, will find that the nature of body does not consist merely in extension, that is, in size, shape, and motion, but that we must necessarily recognize in body something related to souls, something we commonly call substantial form, even though it makes no change in the phenomena, any more than do the souls of animals, if they have any. [AG.44]

And after writing 'will find,' Leibniz added in the draft:

[...] [E]ither that bodies are not substances in metaphysical rigor (which was, in fact, the view of the Platonists), or [...] [AG.44]

Leibniz did not write the last part of the sentence. However, he was obviously about to write they possess substantial forms to finish the sentence. Furthermore, the beginning of section 34 is the following:

Assuming that the bodies that make up an unum per se, as does man, are substances, that they have substantial forms, and that animals have souls, we must admit that these souls and these substantial forms cannot entirely perish, no more than atoms

or the ultimate parts of matter can, on the view of other philosophers. [AG.65]

Commenting on this first sentence of section 34, Leibniz wrote:

I do not attempt to determine if bodies are substances in metaphysical rigor or if they are only true phenomena like the rainbow and, consequently, if there are true substances, souls, or substantial forms which are not intelligent. [AG.65]

Leibniz is more explicit about his agnostic view in this comment than he is in section 12. He mentioned two different and possible views, and confessed that he does not have sufficient evidence to show that one of them is true. Lastly, Leibniz wrote the following in section 35:

But so that we may judge by natural reasons that God will always preserve not only our substance, but also our person, that is, the memory and knowledge of what we are (though distinct knowledge is sometimes suspended during sleep and fainting spells), we must join morals to metaphysics, that is, we must not only consider God as the principle and cause of all substances and all beings, but also as the leader of all persons or intelligent substances and as the absolute monarch of the most perfect city or republic, which is what the universe composed of all minds together is, God himself being the most perfect of all minds and the greatest of all beings. For

certainly minds are the most perfect beings and best express divinity. [AG.66]

After writing ‘the most perfect beings,’ Leibniz added in the draft:

[...] [M]inds are either the only substances one finds in the world, in the case in which bodies are only true phenomena, or else they are at least the most perfect[...] [AG.66]

Here Leibniz did not explicitly and thoroughly explain two different views. He just introduced one possible case in which only minds are substances and bodies are phenomena for perceiving minds. But at least what he added seems to match the view that bodies are not substances in metaphysical rigor.

Leibniz also suggested that the human mind can perceive phenomena without any help from other substances since the mind can spontaneously produce all its perceptions:

From the notion of individual substance[...] It also follows either that there are no corporeal substances and bodies are only true or mutually consistent phenomena, such as a rainbow or a perfectly coherent dream; or that in all corporeal substances there is something analogous to the soul, which the ancients called form or species. [A.VI.iv.1621-2 = RA.315]

Why does one of these two cases follow from “the notion of individual substance”? From this doctrine, it follows that the human mind has all its perceptions from the inside, and it is not influenced by other substances. So it might be true that we just produce bodily phenomena by ourselves, but no corporeal substance exists. But if there is a substance outside of perceiving minds, then it must have a spontaneous nature, which makes it “analogous to the soul.” Thus, though it is possible that body contains a substance, it may not be the case.

As Robert Sleigh noted, this type of skeptical worry do not show up in letters to Arnauld. Probably the reason is that Arnauld would strongly oppose the skeptical view, and Leibniz did not want to trigger needless controversies. But a passage in the letter to Arnauld of July 1686 suggests that Leibniz was not completely sure that body is a substance, since he argued that “if the body is a substance,” then “it cannot consist of extension”:

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 there something that one calls substantial form, and that corresponds in some way to the soul. [GP.II.58 = MA.66; Sleigh 1990, p. 103]

Obviously, Leibniz was not committed to the truth of the antecedent of this hypothetical statement. We also find another passage from the same letter in which Leibniz introduced a

similar hypothetical statement:

One will perhaps be more surprised to find that I deny the action of one bodily substance upon the other, though this appears to be so evident. But apart from the fact that others have already done so, one must consider that it is a play of the imagination rather than a distinct idea. 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. I have been convinced of it finally, as though against my will, after having rather far removed from it in the past. Nevertheless, 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 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.

[GP.II.58 = MA.66]

Leibniz's discussion is fairly similar to what he wrote in the draft of the *Discourse*. Leibniz argued that corporeal substance may exist, and if so, it must have a substantial form. But he

did not declare that it actually exists. Leibniz also suggested that he was not sure if bodies are substances in another passage from the draft of a letter to Arnauld:

The other difficulty is incomparably greater, concerning substantial forms and the souls of bodies; and I confess that I am not satisfied about it. In the first place, one would have to be sure that bodies are substances and not merely true phenomena like the rainbow. But once that is granted, I believe one can infer that bodily substance does not consist of extension or divisibility; for it will be conceded that two bodies set apart from one another, for instance two triangles, are not really one substance[...] [GP.II.71-2 = MA.88]

As Sleigh points out, Leibniz did not explicitly confess that he was not sure about the existence of substantial forms (Sleigh 1990, p. 103). Rather, he just argued that one needs to grant that bodies are substances to conclude that body does not consist of extension alone. But Leibniz did not declare that he was sure that bodily substance exists.⁶⁴ After the quoted passage, as Sleigh notes in the following, Leibniz was not given the chance to discuss the case in which bodies are not substances:

Surely, part of Leibniz's purpose in sending the quoted passage was to pique

⁶⁴ As Sleigh argues, Leibniz was suggesting two possible scenarios in a letter to Arnauld. He was eager to pursue both of them, and consider conclusions coming from assumptions on which these scenarios are based. But Leibniz came to understand that Arnauld was not interested in the possible scenario that bodies are not substances at all, and Leibniz thought it was better not to talk about it anymore.

Arnauld's interest in the possibility that there are no corporeal substances, so that he and Arnauld might engage in a serious discussion of alternative theories, including, one would conjecture, the spiritual theory[...] In truth, in the correspondence Arnauld never gave serious consideration to the hypothesis that there are no extended items that are substances, and so never gave serious thought to the spiritual theory. [Sleigh 1990, p. 103]

According to the "spiritual theory," all the substances are conscious minds, and bodies are phenomena in perceiving minds (Sleigh 1990, p. 98). Sleigh goes on to argue that Arnauld was not so interested in the spiritual theory, and he was not willing to discuss it. But Leibniz himself, even when he was exchanging letters with Arnauld, was thinking of the theory as one possible option.

The spiritual theory obviously implies that body is a mere phenomenon that only exists in a perceiving mind, and sensation does not show the existence of substances in the external world. This kind of skeptical worry, however, ceased to show up in later discussions. Leibniz started to be sure that body is at least a collection of many substances.⁶⁵ In a letter to Bayle of 1702, Leibniz declared that "there must be simple beings," namely, simple substances or monads, since "otherwise there would not be composite beings or being through aggregation" (GP.III.69). Here Leibniz granted that body is an aggregate of substances, and it certainly requires the existence of simple

⁶⁵ In a letter to De Volder of 1704, Leibniz wrote that "[m]atter and motion, however, are not so much substances or things as they are the phenomena of percipient beings" (GP.II.270 = L.537).

substances that compose it. Also, in the letter to De Volder of 30 June 1704, Leibniz argued that “there are indivisible unities in things” since a physical thing or body must “borrow” some reality from these unities (GP.II.267). Leibniz tried to establish the existence of indivisible unities, namely simple substances, on the basis of the premise that body has some reality, and it is not a mere appearance within a perceiving mind.

Leibniz seems to utilize his natural theology to show that body is an aggregate of substances. In fact, he held that there is no vacuum, and any extended object is an aggregate of substances. Leibniz states that though God can destroy a body and create a vacuum God does not do so since “that is not in agreement with the natural order” (GP.V.227 = NE.2.27.23 = Lan 255). This comment suggests that God actually created many substances which constitute a body in such a way that there is no vacuum. Leibniz suggests that every part of space is full of matter, however small it is (GP.II.170). According to Leibniz, God realizes the perfect harmony (GP.V.286 = NE 3.6.12; GP.VI.41; GP.VI.604 = AG 211). For Leibniz, harmony is unity in variety (Grua 12). So God is supposed to maximize the variety and the order in this universe (Brown 2007, p. 9). As a result, this universe is “a cosmos, full of ornament” (GP.VII.290), and there is no vacuum in nature. So every mental phenomenon in a perceiver corresponds to other substances. God instituted the correspondence among created substance since it is the best way to maximize the harmony or perfection of this universe.

But again, the discussion above was introduced much later, and Leibniz took a significant amount of time to arrive at this view after exchanging letters with Arnauld.

Conclusion

To sum up the whole dissertation, I introduce several key topics for the development of Leibniz's metaphysics in the early period, and how his discussion of a key topic changed.

(1) As for substantial form, Leibniz once denied its existence. He accepted a mechanistic philosophy, and thought that bodies consist in shape, size, and motion. Although he used the term 'substantial form' in his letters to Jakob Thomasius, he actually referred to a geometrical figure rather than a scholastic substantial form. But he rehabilitated substantial forms in 1678. His discovery of the conservation law is relevant to the rehabilitation. Still, Leibniz's explanations of substantial forms are opaque in the *Discourse* and letters to Arnauld. In some context, the term 'substantial form' seems to refer to an immaterial substance that provides some kind of unity to an organism, while it refers to an incomplete being rather than an immaterial substance in another context.

(2) As for corporeal substance, he did not introduce his original concept of corporeal substance until the 1680s. Leibniz used the term 'corporeal substance' in the context of the Cartesian philosophy, as referring to a merely extended substance (GP.I.16). But a new concept was introduced with the same term, namely extended substance capable of exercising some physical force. Corporeal substance got less corporeal in 1686, since he ceased to introduce physical actions of corporeal substance.

Next, I summarize Leibniz's development of the metaphysics of body by means of

a time line.

(1) 1663-67. Under the influence of mechanism, Leibniz assumed that bodies consist in figure and size. Still, he suggested that the substantial form of a body is its figure. He did not sufficiently explain the cause of the movement of bodies.

(2) 1668-71. Leibniz argued that bodies are moved by God since bodies cannot move by themselves. He suggested that body consists in an infinite number of momentaneous movements or conatuses. He believed that a continuum can have actual parts, and the continuous extension of a body is composed of conatuses.

(3) 1672-74. Leibniz started to assume that spatial movements are dependent upon perceivers. Since Leibniz had assumed that bodies consist in movements, they are considered as mind-dependent entities. He thought that body only exists within a perceiving mind. But unlike Berkeley, Leibniz thought that mind unconsciously perceives micro-movements of small molecules.

(4) 1675-77. Leibniz started to assume that God is the only substance, and that finite minds and bodies are his modifications. These finite things, strictly speaking, exist only at a moment, and they do not endure. Leibniz also introduced the attribute of absolute extension, and bodies are taken as modifications of this attribute. The mind-dependence of bodies seems somewhat weakened, since they do not depend upon finite perceiving minds, while they are completely dependent upon God's attribute. Leibniz started to assume that body is united by mind. Although finite mind is merely a modification, its ontological status is higher than that of body, and it provides some kind of unity to a body. Some body

is indivisible since it has only one mind that cannot be divided. Some body is divisible since it is a collection of smaller bodies, each of which has its own mind. Leibniz proposed two distinct hypotheses in DSR. According to the atom theory, there are tiny indivisible bodies, and any large bodies are collections of indivisible bodies or atoms. According to the points theory, any body is actually divided, and it consists in an infinite number of physical points. No tiny body is indivisible since they are further divided into smaller parts.

(5) 1678-79. Leibniz rehabilitated substantial forms, inspired by his discovery of the conservation law. There was a drastic discovery for Leibniz: Something must be conserved in the course of nature. Unlike in 1675-77, he believed that there are many substances, and bodies have substantial forms by which they can act by themselves.

(6) 1680-86. Leibniz developed his discussions of corporeal and individual substances. Corporeal substance acts spontaneously, and thus it is the foundation of physical actions. He suggested that corporeal substances physically act upon their parts, and move them. But he did not clearly explain how this is possible. In addition to corporeal substance, individual substance is introduced in the context of logic, and it is supposed to be the subject of all the predicates. It is individuated through all the predicates. But he did not specify whether it is corporeal or immaterial.

(7) 1686- Leibniz started to be reluctant to talk about physical actions of corporeal substance. Rather, he emphasizes that corporeal substance is causally independent of other substances, and continues to act and change by itself. Also, a major skeptical worry revealed itself to him in this period, and he was not sure whether bodies are phenomena for

perceiving minds. As we have seen, Leibniz was thinking about two possibilities: Bodies may be phenomena or appearances for perceivers. Or bodies are collections of corporeal substances, which are united by their substantial forms.

Later, he became more distant from a strong version of idealism. When Leibniz said that bodies are phenomena, usually he was saying that a body is divisible, but it contains indivisible substances and thus it is an aggregate of substances. Leibniz's proposal is more complicated in letters to Des Bosses, where he talked about two possibilities: either there are only simple and immaterial substances, and bodies do not have any real extension, or there are corporeal substances which are united by substantial chains, and inorganic bodies are collections of these corporeal substances (GP.II.435).⁶⁶ But on either view, bodies are real in the sense that they are collections of substances. How did Leibniz become convinced of the reality of bodies? I hypothesize that, sometime in the 1690s, Leibniz

⁶⁶ Leibniz introduces the concept of "substantial chain" for the first time in the letter to Des Bosses 5 February 1712:

It is in the change of this being that your transubstantiation would have to be located, for monads are not truly ingredients of this added being but requisites, even if they may be needed for it not by an absolute metaphysical necessity, but by exigency only. Thus the substance of a body may change, but the monads be saved, and sensible phenomena based upon them. A nonmodal accident seems to be hard to explain, and I do not hold extension to be one. It can be said that even though monads are not accidents, it nevertheless happens to a unifying substance that it may have them by physical necessity, just as it happens to a body that it may be struck by another body, even though a body is not an accident. [...] If this substantial chain of monads [*monadum substantiale vinculum*] were absent, all bodies along with all their qualities would be nothing but well-founded phenomena, like the rainbow or an image in a mirror – in a word, continued dreams in perfect agreement with each other —and the reality of these phenomena would consist in this one fact. (GP.II.435 = L.600)

As he did in the draft of the *Discourse on Metaphysics*, he introduced two possible cases: That substantial chain exists, and it unites one dominant monad and many subordinate monads as one thing, and consequently, the whole collection has a substantial unity. And that substantial chain does not exist, and an organism is merely an aggregate of many monads, and consequently, any body is a phenomenon. But even if the latter is true, Leibniz was still not committed to a strong version of idealism, since he at least believed that body, as an aggregate of monads, has some mind-independent reality based upon these monads that exist outside of perceivers (cf. Rutherford 2007).

thought that their reality consists in substances which exist outside of perceivers. However, given the present focus on Leibniz's early metaphysics, I cannot tell the story in this dissertation.

Abbreviations

A *Sämtliche Schriften und Briefe*. Herausgegeben von der Deutschen Akademie der Wissenschaften zu Berlin. Darmstadt, 1923 ff., Leipzig, 1938 ff., Berlin, 1950 ff. Cited by series, volume, and page.

AT *Oeuvres de Descartes*. Ed. Adam and P. Tannery. Paris: L. Cerf, 1897-1913. Cited by volume and page.

B *Leibniz-Thomasius Correspondance 1663-1672*. Trans. and ed. by Richard Bodéüs. Librairie Philosophique J. Vrin. 1993.

C *Opuscules et fragments inédits de Leibniz*. Ed. by Louis Couturat. Paris : Félix Alcan, 1903. Reprint, Hildesheim: Georg Olms, 1966.

Cott *The Philosophical Writings of Descartes*. Trans. and eds. by John Cottingham, Robert Stoothoff, and Dugald Murdoch. Cambridge: Cambridge University Press.

CP *Confessio Philosophi*. Trans. and ed. by Robert Sleigh Jr. New Haven: Yale University Press, 2006.

DT St. Augustine. *De Trinitate*. Cited by book, chapter, and section.

- DM *Discours de métaphysique*. Cited by section number.
- DSR *De Summa Rerum*. Trans. and ed. by G.H.R. Parkinson. Yale University Press.
- Ethica Spinoza. *Ethica*. Cited by Book, Proposition.
- Geb *Spinoza Sämtliche Werke*. Sieben Bände in drei Bänden. Hrsg. von O. Baensch, A. Buchenau, C. Gebhardt, C. Schaarschmidt, Leipzig: Dürr, 1907–1914. Cited by volume and page.
- Gerland *G.W. Leibniz: Nachgelassene Schriften physicalischen Inhalts*. Ed. by Ernst Gerland. 1906. Ausgabe Leibzig: Leibzig
- GM *Leibnizens Mathematische Schriften*. Ed. C. I. Gerhardt. Berlin: A. Asher, and Halle: H.W.Schmidt, 1849-1863. Cited by volume and page.
- GP *Die philosophischen Schriften von G. W. Leibniz*. Ed. C. I. Gerhardt. Berlin: Weidmann, 1875-1890. Reprint, Hildesheim: Georg Olms, 1978. Cited by volume and page.
- Grua *Textes inédits*. Ed. by Gaston Grua. Paris: Presses Universitaires de France, 1948.
- L *Philosophical Papers and Letters*. Trans. and ed. by Leroy E. Loemker. 2nd ed. Dordrecht and Boston: Reidel, 1969.
- Lan *New Essays Concerning Human Understanding*. Trans. and ed. by Alfred G. Langley. Chicago: Open Court, 1916.
- LDS *Leibniz, Descartes et Spinoza*. 1862. L.A. Foucher de Careil. Librairie Philosophique de Lagrange.
- LJ *The Works of George Berkeley*, Ed. A. A. Luce and T. E. Jessop. London: Nelson,

1948-57. Cited by volume and page.

LP *Leibniz: Logical Papers —A Selection*. Trans. and ed. By G.H.R. Parkinson. Oxford University Press, 1966.

LDS *Leibniz, Descartes et Spinoza*. 1862. L.A. Foucher de Careil. Librairie Philosophique de Lagrange, 1862.

Metaphysics Aristotle. *Metaphysics*. Cited by Bekker number.

NE *Nouveaux Essais sur l'Entendement*. Cited by book, chapter, and section.

Physics Aristotle. *Physics*. Cited by Bekker number.

RA *The Labyrinth of the Continuum: Writings on the Continuum Problem, 1672-1686*, Translated, Edited, and with an Introduction by Richard T.W.Arthur, Yale University Press, 2001.

T *Theodicée* Cited by section.

VE *Vorausedition zur Reihe VI in der Ausgabe der Akademie der Wissenschaften der DDR*. Fascicles 1-9. Münster: Leibniz-Forschungsstelle der Universität Münster. 1982-1990.

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