

## The Simplest Body in the Spinoza's Physics

**HYUN Young Jong**

Seoul National University

### **Abstract**

In Spinoza's physics, there is a controversial concept, that is, the simplest body. In order to explicate this concept this paper makes a comparison between Spinoza's physics with Descartes', focusing on similarities rather than differences. The main assertions are as follows. First, the simplest body is the perfectly solid body which is Descartes' concept in *Principles of Philosophy* (PP). Second, the constitution of Spinoza's *The Short Treatise on Physics* corresponds with the constitution of PP. The latter is arranged from kinetics of solid bodies to a kinetic of fluid bodies, and the former is arranged from the simplest body to the composite body. Third, this order can be understood as concretization. The simplest body or the perfectly solid body is the highest degree of abstraction. Forth, this abstraction is categorized into two kinds of abstraction, abstraction of the exterior and abstraction of the interior. The simplest body is a result of these two kinds of abstraction.

### **1 Introduction**

"The short Treatise on Physics" (TPH) is known as the most unique part of *Ethics* which is the chief work of Spinoza. According to him, the ethics must be based not only on metaphysics, and also on the physics. However, he left just few short articles about the physics. The second part of "The Principles of Descartes' Philosophy" (PPD) is the longest and well-organized work on the physics, but it is the explanation about Descartes' physics rather than the developing of his own theory. Although Spinoza criticized other scholars' physics in letters, it is just a critique, not systematic theory. The only text we can find his proper theory on the physics is TPH.<sup>1</sup>

In the middle of the second part of *Ethics*, "On the Nature and Origin of the Mind" Spinoza inserted the article dealing with physics. He felt the necessity to bring in physics for this part because he thought that the superiority of the human mind should be explained by the superiority of the human body. What he meant by this superiority is not ontological one, but the degree of

---

<sup>1</sup> Many commentators tend to focus on the singularity of Spinoza's physics, so sometimes they conclude that Spinoza establish physics totally different from Descartes. However, I will suggest that Spinoza's physics is the radicalization of Descartes'.

complexity. The more a body is capable of doing many things at once, or being acted on in many ways than other bodies, the more superior it is.<sup>2</sup> TPH was inserted into the *Ethics* in order to support this idea of complexity.

TPH is divided into three parts, (1) from axiom I to axiom II (the simplest body), (2) from definition to lemma VII (the composed body), (3) from postulate I to postulate VI (the human body). The second part can be subdivided into two parts. The first one is about the composed body which is composed by the simplest bodies, and the second is about the composed body which is composed by other composed bodies. For the convenience we call the former the first type of individual, and we call the latter the second type of individual.

The simplest body has been a controversial concept, although it is the start point of TPH. This expression, 'simplest', reminds us of the ancient concept, atom. However, Spinoza denied the existence of atoms explicitly as Descartes did. It makes the problem complicated because the simplest body seems that it has no part in it. To avoid the absurdity, the new meaning of 'simplest' needs to be suggested. Moreover, the reality of the simplest body is also under dispute because Spinoza said that all things which exist are composites. If the simplest body is a fiction, we can doubt whether the first type of individual exists or not, too. However, there are few clues in TPH to resolve these difficulties.

In this paper I suggest that the enigmatic concept of the simplest body could be explained through Descartes' physics, and this interpretation on the simplest body would be helpful to understand the constitution of TPH more clearly.

## 2 Descartes' heritage in Physics

First of all, Spinoza's standpoint on Descartes' physics should be mentioned. Spinoza gave his assent to Descartes' physics. While he kept a distance from Descartes' epistemology in the first part of PPD (1663), he described Descartes' physics almost without any criticism in the second part. In the Letter 32 (1665), Spinoza said, "I did not assert that any of the [Descartes'] rules were wrong except for the sixth."<sup>3</sup> However, he seemed to refuse Descartes' physics in letter 81 (1676).

"From Extension as conceived by Descartes, to wit, an inert mass, it is not only difficult, as you say, but quite impossible to demonstrate the existence of bodies. For matter at rest, as far as in it lies, will continue to be at rest, and will not be set in motion except by more powerful external cause. For this Reason I have not hesitated on a previous occasion to affirm that Descartes' principles of natural things are of no service, not to say quite wrong."<sup>4</sup>

In spite of this letter, we can not say that Spinoza got to dismiss Descartes' physics. Spinoza's

<sup>2</sup> *Ethics*, II P13 Scol

<sup>3</sup> Spinoza, *the Letters*, trans. Samuel Shirley (Hackett, 1996)

<sup>4</sup> Trans. Shirley

critique in this letter aims at metaphysics rather than physics. It is about the relation between God and Extension. Spinoza followed Descartes' opinions about the laws of motion. However, they were in disagreement when it came to the metaphysical cause of motion. Both of them considered God as this cause, but Descartes set God outside of Extension. What Spinoza intended in this letter is that if we set the external relation between God and Extension, it would be impossible to demonstrate the existence or diversity of the natural things only by Extension. Among the two kinds of cause categorized by Descartes, the general cause and the particular cause, the former is the only one that Spinoza had a different opinion about. They agreed with the latter, which is the impact.

Descartes had the mechanistic understanding of nature—all natural things can be explained by motion. The motion is the most fundamental principle in his physics. He believed that all properties we perceive in materials consisted of their motions, and the individuality by which we can distinguish materials also consists in their motions because “The diversity of material or the difference between the forms of material completely depends on motion.” (PP II 23) Following Descartes, Spinoza distinguished ‘the pure conception’ from the human’s perception about it. (G 28) Nature in itself is motion, rest, and their laws while perceptions such as visible, invisible, hot, cold, solid, fluid etc., results from the fundamental principles.<sup>5</sup>

### 3 The Simplest Body

What is the simplest body? Just three clues are found in TPH. First, the part from Axiom I to Axiom II is about the simplest bodies.<sup>6</sup> Second, the simplest bodies are distinguished from one other only by motion and rest. Third, while the first type of individual is composed by the simplest bodies which are distinguished only by motion and rest, the second type of individual is composed by individuals of a **different nature**.

Because of the first clue, the first part of TPH could be regarded as the description of the simplest bodies. However, we can not infer the clear definition of the simplest body from this part. The reason is the fact that axioms and lemmas in this part can be applicable to composite bodies, too. Actually, Spinoza referred to this part when he dealt with composite bodies.<sup>7</sup> Therefore, the only thing we can infer is that the second part of TPH can not be applicable to the simplest bodies. In the second part of TPH, Spinoza focused on how bodies can maintain themselves in spite of several changes, so it is probable to say that the simplest bodies can not maintain themselves when

<sup>5</sup> In letter 6, Spinoza criticized Boyle’s physics. Boyle tried to establish the alternative theory for Epikouros’ physics. According to Epikouros’ theory, a fluidity is caused by atoms having round shape. (De rerum natura II, pp. 451–456). By contrast with Epikouros, Boyle suggested three reasons: the size of particles, the void between particles, and motions of particles. (Curely, 181p) By reduction these cause to one cause—motion, Spinoza had more mechanistic view.

<sup>6</sup> This will be sufficient concerning the simplest bodies, which are distinguished from one other only by motion and rest, speed and slowness. Now let us move up to composite bodies. (trans. Curely) (Atque haec de corporibus simpliciffimis, quae scilicet solo motu, & quiete, celeritate, & tarditate ab invicem distinguuntur: jam ad composite ascendamus.)

<sup>7</sup> Lemma II–EIIIP37, EIIP38Cor, EVP4. Axiom I (after Lemma 3)–EIIP16, EIIP24, EIIP17Sc, EIIP51Dem. Axiom II–EIIP17Cor

they happen to be changed.

The second clue reveals that the simplest bodies are distinguished from one other only by the difference of their speeds. Considering it with the third clue together, we can find that this difference does not make any difference of nature between them. There are two possibilities related with the nature of the simplest bodies: they have the same nature, or they can not have nature itself.

However, it is not sufficient to explicate the simplest body just by clues given in TPH. I will carry on this discussion to PP and PPD.

The second part of PP and PPD dealt with the principles of natural things. Descartes and Spinoza precede the argument from a solid body to a fluid body. Their distinction between kinetics of solid bodies and kinetics of fluid bodies does not depend on the difference of laws which they follow. They thought that both of them follow the same laws. This distinction was made by the difference of the objects to analyze. However, it must be noted that these objects do not really exist.

Just before an argument of fluid bodies (PP II P53), Descartes exposed that the two hypothetical conditions were set in the argument about solid bodies. First, the bodies which he dealt with until then had been the perfectly solid bodies. 'Perfectly solid (*plane dura*)' means that there is no motions inside of that body, namely, 'parts' of that body are at the relative rest. Second, there was no consideration about the surrounding bodies. Moreover, Descartes said that these conditions could not be realized. There are no perfectly solid bodies, and no bodies can be isolated from the other bodies.

Even though 'the perfectly solid body isolated from the other bodies' is not real, it is not the arbitrary imagination. We can call it the intellectual abstraction. In *The Emendation of the Intellect*, Spinoza gave us a similar example: a candle burning in some imaginary space or where there are no bodies such as air. (G II/22) Spinoza said, "nothing is done except to abstract the thoughts from the surrounding bodies so that mind directs itself towards the sole contemplation of the candle, considered in itself alone. (...) there is no fiction, but true and sheer assertions."

The degree of this abstraction is found in the kinetics of solid bodies. This kinetics consisted in three subjects: the law of the inertia, the law of the impact, and the seven rules based on these laws. In Descartes' description of the law of inertia as the starting point, the highest abstraction is found. Descartes said,

"The first laws is that each particular thing **as far as it is simple and undivided** continues to be in the same state as much as possible and that it never changes particular thing, save by an encounter with other things" (AT VIII 62)

Descartes used the expression of 'simple and undivided'. It is well known that Descartes denied the hypothesis of atoms, and he considered divisibility as one of the most important characteristics of Extension. Therefore, it looks absurd, but we have to understand this expression as an abstraction. Next citation is Spinoza's explanation on Descartes' inertia.

"Each thing, insofar as it is **simple, undivided, and considered in itself alone**, always

preserves in the same state as far as it can” (PPD II P14)<sup>8</sup>

The first step is to analyze a body which is regarded as simple, undivided, and considered in itself alone (abstraction 1). After this step, Descartes and Spinoza described the law and rules of the impact between two bodies, which are assumed to be isolated from the other bodies (abstraction 2). The fluid kinetics is an analysis of the bodies considered with the surrounding bodies. This procedure is to increase the number of bodies to analyze together. This framework is the gradual concretization of the exterior.

However, the meaning of ‘simple’ or ‘undivided’ is not yet explicated clearly. I suggest that ‘simple’ means another kind of abstraction. It is the abstraction of the body’s interior. ‘Perfectly solid’ is the material expression of this abstraction. Although a body is abstracted from the exterior relation, it still has the complex relations inside. Descartes tried to unify these relations when he said that each part which has a different motion shares one common motion, or one proper motion. Each part’s relative motion must be abstracted in order to avoid the complicated problems such as cohesion, inelastic collision etc.

Now the second clue and third clue given in TPH are resolved. The simplest body is a mass whose parts are at rest to each other. The motion and rest by which the simplest bodies are distinguished can not explain the simplest body’s nature. This nature completely depends on its parts’ motions, but they are at rest to each other. Therefore, all of the simplest bodies have the same nature.

The simplest body does not have its part, but it is divisible. It is the motion that distinguished the parts. Therefore, if there are no relative motions, there are no parts. However, it does not make the division of the simplest body impossible.

The sequence of TPH (from the simplest body to the composite body) corresponds with the sequence of PP or PPD (from the solid body to the fluid body). First, in the turning point (the definition of individual) from the simplest body to the composite in TPH, Spinoza defined an individual by the other bodies (*reliquis*). It means that he started to consider the surrounding bodies like PP or PPD. Second, just after this definition Spinoza explained how we perceive a body to be solid, soft, and fluid. Bodies were endowed with the properties which he abstracted before this definition.

#### 4 Conclusion

Comparing TPH with PP or PPD, we found that these articles have a similar constitution. They all carried on from abstract bodies to concrete bodies. This abstraction is categorized into two kinds, the abstraction of the exterior and the abstraction of the interior. The enigmatic concept of the simplest body in TPH is the highest degree of abstraction. In Descartes’ physics it is the perfectly solid body considered in it-self alone. In the first part of TPH Spinoza increased the number of the simplest bodies to describe the law of impact with keeping on the abstraction of their

<sup>8</sup> In demonstration of this proposition, Spinoza used another expression to indicate this highlighted words, “we attend to no external, i.e., particular causes, but consider the thing by itself.

interior. This law of impact is based on the mechanical causality, that is, the transitive causality. By this causality the universe becomes quantitative, and homogeneous. The simplest body is the foundation stone of Spinoza's mechanism.

### References

- Daniel Garber (1992), *Descartes' Metaphysical Physics*, Chicago: The University of Chicago Press.
- Eun-Ju, Kim (2008), "La genèse de l'intériorité dans la causalité mécanique chez Spinoza"
- François Barbaras (1998), "Corps et individuation chez Spinoza, *Corps et Individuation*, Annales doctorales n. 1.
- (2002), "Référentiel de mouvement et norme de vie, *Spinoza et la norme*, Presses Universitaires Franco-Comtoises.
- Ki-Soon Park (2006), *L'historicité de l'être et la politique du signe*, These de Doctrat, Université de Paris IV
- Lee Rice (1990), "Individual and Community in Spinoza's Social Psychology", *Spinoza Issues and Directions, The Proceedings of the Chicago Spinoza Conference*, Leiden.