

Os Fundamentos Metafísicos da Física Cartesiana: A Natureza da Substância Extensa

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1. Introduction:

The foundations and development of science, or natural philosophy, are a fundamental theme of Descartes' philosophical project. From his earlier and unfinished works to his mature and well developed thought, we can clearly see the concern with the nature and scope of human knowledge, with the connections of the different branches knowledge and specifically how can we ground science in an adequate way. Descartes already tells us in the *Rules for the Direction of the Mind*:

“The goal of studies ought to be the direction of one’s mind toward making solid and true judgments about everything which comes before it”¹

“We should concern ourselves only with those objects for which our minds seem capable of certain and indubitable cognition”.²

“...method is necessary for seeking after the truth of things...By method, moreover, I understand certain and easy rules which are such that whoever follows them exactly will never take that which is false to be true, and without consuming any mental effort uselessly, but always step by step increasing knowledge, will arrive at the true knowledge of everything of which he is capable.”³

Being his first and incomplete work, the *Rules* configure itself as a text of difficult interpretation. Interpreters point to convincing evidence that Descartes dedicated himself to it at different periods of his life and in different stages of his thought. Nevertheless, what comes clear from it is a definition of knowledge that is constructed around the notions of certainty, truth and indubitability. And, also, a guide to the achievement of this knowledge and truth. Through the establishment of rules that

¹ AT X, 359.

² AT X, 362.

³ AT X 371-72

compose a method, Descartes intends to present the tools that will make possible to the human intellect extend its comprehension of the world as far as it is possible to its nature.

The establishment of a method is also one of the main objectives of the *Discourse on Method*.⁴ In this text Descartes presents what it seems a short and condensed version of what he extensively explore at the *Rules*, but this fact does not seem to the interfere with his project of establishing the foundations of knowledge.⁵ At the beginning of part IV, Descartes says:

“And yet, to make it possible to judge whether the foundations I have chosen are firm enough, I am in a way obliged to speak of them...But since I now wished to devote myself solely to the search for truth, I thought it is necessary to do the very opposite and reject as if absolutely false everything in which I could imagine the least doubt, in order to see if I was left believing anything that was entirely indubitable”.⁶

And a similar text at the opening of the *Meditations on First Philosophy*:

“I realized that it was necessary, once in the course of my life, to demolish everything completely and start again right from the

⁴ The original title intended by Descartes to the *Discourse* presents how we should take the amplitude of his method and its clear relation to scientific development: “The Plan of a universal Science which is capable of raising our nature to its highest degree of perfection. In addition, the Optics, the Meteorology and the Geometry, in which the Author, in order to give proof of his universal Science, explains the most abstruse Topics he could choose, and does so in such a way that even persons who have never studied can understand them.” Cf. AT I, 339. The published full title is: *Discourse on Method: for conducting one’s reason well and for seeking truth in the sciences followed by the Dioptrics, the Meteors and the Geometry that are Essays of such Method*.

⁵ To understand the Cartesian enterprise for the establishment of knowledge and science the concepts of certainty and method are indispensable. The evolution that these notion underpass throughout Descartes’ writings the *Rules*, the *Discourse on Method*, *Meditations on First Philosophy*, *Principles of Philosophy*, and the vast debates over those themes on his correspondence provides us with an enormous quantity of elements to interpret his notion of knowledge. This, however, will not be a subject of this dissertation. For the present purposes of this study it suffices to establish the relation between the investigation concerning the nature of knowledge in general and the foundations of science for Descartes, and, what is more important is to establish the unity and systematicity that he intended in the connection of first philosophy, metaphysics and natural philosophy, what we might call today science.

⁶ AT VI, 31-32.

foundations if I wanted to establish anything at all in the sciences that was stable and likely to last”.⁷

Although these passages do not make an explicit reference to the establishment of science conceived as natural philosophy, and maybe only to the question of knowledge in general, there is a connection between those topics in his thought⁸. In a letter to Mersenne, Descartes is explicit about the relation of his metaphysics to his physics:

“I may tell you, between ourselves, that these six *Meditations* contain all the foundations of my physics. But please do not tell people, for that might make it harder for supporters of Aristotle to approve them. I hope that readers will gradually get used to my principles, and recognize their truth, before they notice that they destroy the principles of Aristotle”.⁹

And in the preface to the French of the *Principles of Philosophy*, we find a metaphor that clearly demonstrates the connections among the branches of knowledge:

“Thus the whole of philosophy is like a tree. The roots are metaphysics, the trunk is physics, and the branches emerging from the trunk are all the other sciences, which may be reduced to three principal ones, namely medicine, mechanics and morals”.¹⁰

For Descartes, as those passages indicates, metaphysics or first philosophy is the most fundamental of the sciences and the kind of knowledge involved in it is a necessary

⁷ AT VII, 17.

⁸ Those subject matters were a simultaneous concern for Descartes. As we can see in his correspondence, while he was working about the nature of knowledge, the soul and the role of God in the world he was also developing a theory of light and optics, mechanistic explanations of physical phenomena, motion, space and body, atmospheric events and even anatomy. See, for example, AT I 13, 23, 53f, 71, 106-7, 109, 119-20, 127, 179.

⁹AT III, 297-8; CSMK, 173. And also an earlier letter to Mersenne, from the period of the now lost metaphysics developed by Descartes of 1629-30, Descartes talks about the relations of the metaphysics with the other sciences. Cf. AT I, 144; CSMK, 22.

¹⁰ AT IX-B, 14.

condition for the development of further sciences. Bearing a direct relation to the physics, this discipline is the epistemic gate to all other specific types of disciplines that the human intelligence is capable of. The roots, in this way, would be naturally the first step in those interested in learning Descartes' philosophy. Not surprising the Cartesian metaphysics have gained much attention of commentators of Descartes' works since it first appeared in the seventeenth century. It is impossible, then, to understand Descartes' system without understanding his metaphysics and in which way it is supposed to ground the rest of the sciences. This dissertation will attempt to analyze a chapter of that history.

Focusing on the relations between metaphysics and physics, in an effort to comprehend the first progression from the most fundamental kind of knowledge to its immediate subsequent, we find the necessity to investigate the nature and existence of body or extended substance in Descartes' philosophy.¹¹ The concept of extended substance not only constitutes the subject matter of physics taken in general, it is the last topic investigated in the metaphysics and the first one in the physics.¹² Without an adequate understanding of the role that the concept of corporeity or extension plays in the system we will not have a good grasp of Descartes' thought.

When it comes to the investigation of extension in Descartes commentators usually refer to the *Meditations*, the *Principles* and also the less known text of *The World*.¹³ Another unpublished and unfinished text by Descartes, *The World*, of 1633, is composed of two major parts: *The Treatise on Light* and the *Treatise on Man*. The first is a presentation of Cartesian mechanist physics describing a world created by God composed solely by extended bodies and the laws of motion that they obey. The

¹¹Although interpreters of Descartes' philosophy have been paid much more attention to his metaphysics and epistemology, we can observe a growing interest of interpreters in addressing Cartesian science and its connections to his metaphysics in the last thirty years. There is presently a recognition that Descartes scientific thought have a very important role in the development of the mechanistic view of the physical world, a world of geometrical bodies.

¹² For instance the last proof of the *Meditations* is the existence of bodies and the implications of their existence and in the *Principles* we find the proof as the first demonstration of the physics at the opening of the part II. I do not think Descartes have changed his opinion about to which domain this proof belongs to; that in 1641 it is a metaphysical matter and that in 1644 it is a physical one. This only indicates the deep connection that the philosopher saw about these topics and the last step in metaphysics can already be considered the first one in the physics.

¹³ We can find a survey of Descartes' metaphysics In Part IV and in Part V we what seems to be an abridged version of what we encounter in *The World*. Cf. AT VI, 75-78.

notions of motion, space, body, optics and light play a fundamental role to the arguments here presented. *The Treatise on Man* focus on human physiology. Analyzing the human body as a complex machine that is also created by God, Descartes tries to show the irrelevancy of the scholastic doctrine of the soul in the explanation of the human activities and how much can be explained by the notions of size, shape and motion.¹⁴

In this text Descartes presents explanations about the phenomena in the world without introducing the concept of substantial form, attempting to demonstrate at least that the scholastic theory is not necessary for its correct description. Commentators¹⁵ that addressed directly Descartes' natural philosophy affirm that his main concern in developing a mechanistic theory about the nature of the physical world is to present an alternative to the aristotelian-scholastic model of science and the description of motion and corporeal entities and also react to the revival of atomism of sixteenth and seventeenth century.¹⁶ To the extent of the scholastic lasting influence on natural philosophy his main target is the doctrine of substantial forms defended by those thinkers.¹⁷ In their view, bodies were composed of prime matter and substantial form. Prime matter being their ultimate substratum, the characteristic that all bodies share and the substantial form that by which each body is determined and described. Form is usually described as what actualizes the body and matter is described as pure potentiality.¹⁸ In this way it is the forms that must explain why tree grows, stones fall, humans have reason, fire burns, air rises, and so on. Descartes described such forms as little minds that are attached to corporeal things. It this in the

¹⁴See AT I 270-2, 285-6; the latter is translated in CSMK 42-4. See AT I 314, 339; the latter is translated in CSMK 50-2. The former passage, from a letter to Morin from September or October 1634 is not altogether clear, but the implication is that Descartes may be back to work on his *Optics*.

¹⁵ Cf. Daniel Garber, *Descartes' Metaphysical Physics*; Edward Slowik, *Cartesian Spacetime: Descartes' Physics and the Relational Theory of Motion*; Gary Hatfield *First Philosophy and Natural Philosophy in Descartes*; Stephen Menn *The Greatest Stumbling Block*.

¹⁶ It is worth to mention that Descartes was not the only modern thinker to react to those models of natural philosophy. As indicate Garber, many alternatives were already developed by the time Descartes started his investigations. Cf. Descartes' physics, 287.

¹⁷ Cf Aristotle's *Physics* I, 7 and Saint Thomas *Principles of Nature* chapter 1.

¹⁸ Cf. Saint Thomas Aquinas, *On Being and Essence*, chapter 2. If we look deeply, although Aquinas view on the subject is quite influential and is often cited as the reference to the period, this is not an unanimous opinion. In reality to comprehend the diversity of opinions about Aristotles' central notions in metaphysics and physics and their development throughout the medieval period is a quite complex enterprise. To have a glimpse of such complexity. See, for example, Whipple, "Essence and Existence," in Kretzmann, et al. (eds.), pp. 385-410, esp. p. 410.

nature and their possible variations that we find the explanations of phenomena in the physical world. In the Sixth Replies, Descartes says:

“But what makes it especially clear that my idea of gravity was taken largely from the idea I had of the mind is the fact that I thought that gravity carried bodies towards the centre of the earth as if it had some knowledge of the centre within itself. For this surely could not happen without knowledge, and there can be no knowledge except in a mind.”¹⁹

The modern atomism, the other major influence in Descartes’ physics, was a revival of the thought of Democritus, Lucretius and Epicurus, and presented a theory that also refused the idea of substantial forms, sustaining that we must comprehend nature through the properties of size, shape and motion of corpuscles, atoms, that are the constituents of all things.²⁰ Descartes did not accept such atomism because he rejected the idea of indivisible bodies and the possibility of empty space that characterize such theory. Descartes’ rejection of such atomists precepts are justified by metaphysical reasons in his theory of bodies. We will look carefully in his arguments in chapter 3.

In the *Meditations* we see the full development of the existence of God and the existence and nature of body. God is necessary for the understanding and for the justification of the laws of motion. The discussion over the nature and existence of body that we find in *Meditations II, V* and *VI* are directly related with the subject matter of physics. If in the *Meditations* and its *Objections and Replies*, we see for the first time Descartes discussing his metaphysical position in the required profundity, in the *Principles*²¹ we will have a presentation of the system as whole. Beginning in the

¹⁹ AT VII 442: CSM II 298 See also AT III 667: CSMK 219; AT V 222-23: CSMK 357-8C, AT IV 401

²⁰ Francis Bacon and Galileo Galilei were famous defensors of this new version of atomism. For more information about this revival of atomism see Kargon, *Atomism in England from Harriot to Newton*; Marie Boas, "The establishment of the mechanical philosophy/7 *Osiris* 10 (1952), pp. 412-541; Jones, *Pierre Gassendi 1592-1655: An Intellectual Biography*; Joy, *Gassendi the Atomist: Advocate of History in an Age of Science*; and Meinel, "Early Seventeenth-Century Atomism: Theory, Epistemology, and the Insufficiency of Experiment."

²¹ It was Descartes’ intention to publish another two part of the *Principles*: Part V Of Living Things and Part VI Of Man. Although this project was never completed by Descartes in his lifetime. Gaukroger

first part with the metaphysics²², Descartes dedicates the other parts (II-IV) to his physics. Presenting a remodeled version, but largely influenced by the unpublished *The World*, Part II is dedicated to the notion of body, motion and its laws²³. Part III is dedicated to celestial motion and Descartes presents his vortex theory. And Part IV is dedicated to the examination of our planet: Earth.²⁴In this way, *The Principles* provides the standard presentation of the Cartesian physics and will be our primary source for investigating Descartes' theory of body.

Descartes is explicit in many works that he conceives that extension is the essence of body. The standard definition is found *Principles* II.4:

“we shall perceive that the nature of matter, or body considered in general, consists not in its being something which is hard or heavy or coloured, or which affects the senses in any way, but simply in its being something which is extended in length, breadth and depth”.²⁵

Nevertheless, as early as the writings of the *Rules* Descartes conceived the nature of corporeal entities in this way. Discussing the doctrine of simple natures, on *Rule XII* and *XIV*, where Descartes presents some metaphysical considerations about the nature of things in general, there is an identification between body and extension:

If, for example, we consider some body which has extension and shape, we shall indeed admit that, with respect to the thing itself, it is one single and simple entity...Those simple natures, on the other hand, which are recognized to be present only in bodies - such as shape, extension and motion, etc. - are purely material.²⁶

presents a possible reconstruction of what this parts would consist in in his commentary to the *Principles*.

²² If the metaphysics presented in the *Principles* is a revision of the metaphysics presented in the *Meditations* is a question that has been long debated by the interpreters, and it will be discussed in this dissertation when it comes to Descartes' doctrine of substance. Certainly, the structure and style of the text. This is discussed at length in the texts of Garber and Beyssade. *L'ordre dans les principia Descartes au fil de l'ordre*.

²³ That corresponds to chapters VI and VII of *The World*.

²⁴ Parts III and IV correspond to chapter 8-15 of *The World*.

²⁵ AT VIII-A, 42; CSM, 222.

²⁶ AT X, 419; CSM, 44-5

By 'extension' we mean whatever has length, breadth and depth... So we must point out to such people that by the term 'extension' we do not mean here something distinct and separate from the subject itself...²⁷

We see in the first five chapters of *The World (The Treatise of Light)* which play the role of an introduction to the main argument of the text. One of the goals of the introduction is to suggest that matter and motion are sufficient to explain all phenomena in the world, once this is done the following step is to show that the material world is constituted solely by extension. If we strip the world of the forms and qualities that are traditionally attributed to them, what we would be left with? Descartes would answer: its genuine properties. Body in this world can be considered as Descartes tells us in chapter VI:

“real, perfectly solid body which uniformly fills the entire length, breadth, and depth of the great space at the centre of which we have halted our thought”²⁸

At the *Meditations*, the argument that attempts to establish the nature of body is quite complex. It starts at the *Meditation II* and only is finalized in *Meditation V*. In the passage that Descartes is analyzing the nature of the wax, Descartes suggests in the thought experiment what he could affirm about the nature of extended things:

But does the wax remain? It must be admitted that it does; no one denies it, no one thinks otherwise. So what was it in the wax that I understood with such distinctness? Evidently none of the features which I arrived at by means of the senses; for whatever came under taste, smell, sight, touch or hearing has now altered – yet the wax remains.

²⁷ AX, 442; CSM, 59

²⁸ AT XI, 33

Perhaps the answer lies in the thought which now comes to my mind; namely, that the wax was not after all the sweetness of honey, or the fragrance of the flowers, or the whiteness, or the shape, or the sound, but was rather a body which presented itself to me in these various forms a little while ago, but which now exhibits different ones. But what exactly is it that I am now imagining...merely something extended, flexible and changeable.²⁹

At *Meditation V* Descartes addresses the nature of corporeal things:

“...and see whether any certainty can be achieved regarding material objects. But before I inquire whether any such things exist outside me, I must consider the ideas of these things, in so far as they exist in my thought, and see which of them are distinct, and which confused. Quantity, for example, or “continuous” quantity as the philosophers commonly call it, is something I distinctly imagine. That is, I distinctly imagine the extension of the quantity (or rather of the thing which is quantified) in length, breadth and depth. I also enumerate various parts of the thing, and to these parts I assign various sizes, shapes, positions and local motions; and to the motions I assign various durations.”³⁰

“...concerning God himself and other things whose nature is intellectual, and also concerning the whole of that corporeal nature which is the subject-matter of pure mathematics”.³¹

In those passages we observe a list of properties that constitute the essence of corporeal things.³²The concept of extension is identified with ‘continuous quantity’ and Descartes invites us to conceive extended things as three dimensional objects composed of matter and that have or can have a variety of characteristics; sizes,

²⁹ AT VII, 30-31; CSM II, 20

³⁰ AT VII, 63; CSM II, 45

³¹ AT VII, 71; CSM II, 49

³² ‘Number’ and ‘Duration’ are also properties of the thinking substance.

shapes, positions and local motions. It can be divided into parts and its existence, as well as the existence of its parts, is related to duration. In achieving and discussing the essence of material things before demonstrating their existence, Descartes departs from the Aristotelian-scholastic epistemology.³³ The metaphysical structure of body in this tradition is also refused. As we shall see later in detail, Descartes assumes that there is only a distinction of reason between material substance and extension. Nothing besides extension and its modifications compose the characteristics of material substances. In the Aristotelian tradition, however, every corporeal substance is composed of matter and some form that determines its nature. This complex of matter and form turns possible qualitative changes in the substances and also a principle of operation of the substances. In this context, extension is a characteristic of all bodies, since all bodies occupy some space in the world, but is not the only or most fundamental property that they possess.

If in the early works, *Rules* and *The World*, Descartes only identifies body with extension without developing what kind of entity bodies specifically are in his description of reality,³⁴ in the mature works his description of them is much more sophisticated and complex. By time of the *Meditations* and the *Principles*, Descartes had already developed his theory of substance. So, in his later texts, Descartes defines body as a substance. More precisely, an extended substance, whose nature or essence is identical to extension. But is far from clear what kind of entity is referred to when Descartes use the concept of extended substance. For instance, there is a question that have being puzzling the commentators: Does Descartes concept of extended substance commits him to a theory where particular bodies count as substances or only the whole of extension can be considered a substance? In this sense, as we have noted earlier, we observe the importance of the concept of extended substance in the understanding of Descartes' scientific project, which is the main purpose of this dissertation. Divided in two major parts: the first one in which will be presented in detail the problem of the adequate conception of extended substance in Descartes.

³³ Cf. Jorge Secada *Cartesian Metaphysics: The Scholastic Origins of Modern Philosophy*. P. 47.

³⁴ A case can be made for the *Rules*. As we have seen in discussing the simple natures in *Rule XII* and *XIV*, Descartes already identifies some kind of logical priority to the notions of thought and extension. Though this can be seen as a starting point to the development of his later ontology, it is far from been a theory of being.

Through the presentation and comparisons of key passages where Descartes addresses the issue it will be clear that such a question is not only a superficial or apparent matter but it is connected with the very conception of material reality and substantiality in Descartes' philosophy. To give an appropriate answer to this problem we turn, then, to the genesis of Descartes' concept of substance in general. After dealing with the definition of substance in Descartes, which is by itself, an intricate matter; I hope we will be better equipped to deal with the difficulty concerning the nature of bodies. The old and still puzzling debate over the nature of substance in Descartes' philosophy has two major trends. Descartes presents substance as a subject of properties and also as an independent thing. Interpreters usually defend or that the two definitions of substance are inconsistent with each other and Descartes ontology rest upon shaking grounds or that, in reality, only one of the definitions represents the true Cartesian theory and attempt to reconstruct the other theory in the terms of the branch that was chosen. The strategy that will be taken here is first to analyze how the two versions can be constructed. In that process it will be noted that the notion of independence has a logical priority in Descartes' theory but it comes in a variety of aspects. The independence of the substance can be posited in terms of inherence, causal, conceptual or ontological. After the examination of these alternatives and taking in consideration Descartes' theory of distinctions as well the theory of the principal attribute we come to the conclusion that Descartes cannot sustain a theory of substance as substrate that can exist apart its properties and that the substantiality is derived by the kind of property an entity possess. God, mind and body are the only candidates that fulfil the requirements. This, however, does not mean that Descartes cannot conceive substance as a subject of predication only that it cannot take substance to be a subject of properties in the full extent of the concept.

With that result in mind we turn once again to the main question of extension and its substantiality. Particular bodies cannot be considered substance in Descartes main sense of the term and we must assume a monist interpretation as solution to the question. This means that we need to reconstruct the passages where particular bodies are mentioned as substances as not utilizing the technical term but only as synonym of 'res' or material stuff with a determined nature, a modal determined nature.

Once that is properly done, we dedicate our focus to the relation of metaphysics and natural philosophy; the investigation of the nature and existence of extended things in Descartes. And showing how Descartes argues the transition of metaphysics to physics.

2. The problem

Does particular bodies count as extended substances for Descartes or only extension as a whole is to be considered as such? For in many passages, Descartes refers to particular bodies as substances. In *Meditation III*, for example, he affirms that a stone is a substance:

“With regard to the clear and distinct elements in my ideas of corporeal things, it appears that I could have borrowed some of these from my idea of myself, namely substance, duration, number and anything else of this kind. For example, I think that a stone is a substance, or is a thing capable of existing independently, and I also think that I am a substance”³⁵

The same attribution is made in the first part of the *Principles*:

“The second kind of modal distinction is recognized from the fact that we are able to arrive at knowledge of one mode apart from another, and vice versa, whereas we cannot know either mode apart from the substance in which they both inhere. For example, if a stone is in motion and is square-shaped, I can understand the square shape without the motion and, conversely, the motion without the square shape; but I can understand neither the motion nor the shape apart from the substance of the stone”.³⁶

In the *Fourth Replies*, Descartes assumes that not only particular physical objects are substances but also parts of physical objects are substances. In his debate with Arnauld, we observe that a hand and an arm of a man can be considered substances for Descartes:

³⁵ AT VII, 44; CSM II, 30

³⁶ *Principles*, I, 61. AT VIII-A, 30; CSM I, 214.

“Thus a hand is an incomplete substance when it is referred to the whole body of which it is a part; but it is a complete substance when it is considered on its own. And in just the same way the mind and the body are incomplete substances when they are referred to a human being which together they make up. But if they are considered on their own, they are complete”.³⁷

“Now someone who says that a man’s arm is a substance that is really distinct from the rest of his body does not thereby deny that the arm belongs to the nature of the whole man. And saying that the arm belongs to the nature of the whole man does not give rise to the suspicion that it cannot subsist in its own right.”³⁸

In the *Sixth Replies*, the bones and flesh of an animal are described as substances. Discussing the nature of real distinction, a distinction that is only applied to different substances³⁹, Descartes gives as an example of this type of distinction the relation of bones and flesh of an animal:

“That is to say, do we find between thought and extension the same kind of affinity or connection that we find between shape and motion, or understanding and volition? Alternatively, when they are said to be ‘one and the same’ is this not rather in respect of unity of composition, in so far as they are found in the same man, just as bones and flesh are found in the same animal? The latter view is the one I maintain, since I observe a distinction or difference in every respect between the nature of an extended thing and that of a thinking thing, which is no less than that to be found between bones and flesh.”⁴⁰

³⁷ AT VII, 222; CSM II, 157.

³⁸ AT VII, 228; CSM II, 161.

³⁹ Descartes’ theory of distinction will be discussed in detail later. The definition of real distinction can be found in AT VII, 162; AT VIII-A, 28-29.

⁴⁰ AT VII, 424; CSM II, 286.

And lastly in his text against Regius' *Comments on a Certain Broadsheet*,⁴¹ Descartes describes articles of clothing as material substances:

“Thus a man who is dressed can be regarded as a compound of a man and clothes. But with respect to the man, his being dressed is merely a mode, although clothes are substances.”⁴²

In order to sustain the thesis that particular bodies or parts of extension are substances on their own right a passage in the *Sixth Replies* is central:

“So to avoid this ambiguity, I stated that I was talking of the surface which is merely a mode and hence cannot be a part of a body. For a body is a substance of which the mode cannot be a part.”⁴³

Descartes's argument here draws on the particular view of space he offers in the *Principles*. According to this view space or “internal place” is something that can be referred either to space or to a particular body. When it is referred to space we attribute to the extension only in a generic way, so that when a different body occupies that space, the extension of the space is reckoned not to change, but rather to remain one and the same, so long as it retains the same size and shape and keeps the same position relative to certain external bodies that we use to determine that space. Descartes further distinguishes the generic internal place from “external place.” Whereas the former is the generic size and shape of a place, the latter is the surface surrounding what is in a particular place. This surface is a mode that is common to the body in that place and the bodies surrounding it, and is something that can be considered to remain the same even when the surrounded or surrounding bodies change.

⁴¹ This short text was published in 1648, is mainly to be a reply of a work published by Henricus Regius. Regius' text “An Account of the Human Mind, or Rational Soul, which Explains What Is and What it Can Be” consisted in twenty one articles that discuss important aspects of Descartes' philosophy such as the nature of ideas and the relations of mind and soul. Although the author seemingly intended to defend the Cartesian theory, Descartes' does not consider that he has done a good job.

⁴² AT VIII-B, 351; CSM I, 299.

⁴³ AT VII, 433-434; CSM II, 292.

According to the passage parts seem to be different of modes, at least when it comes to the nature of bodies. Since parts of extension cannot be modes of extension, Descartes leaves open the possibility for interpreting the parts of extension as substantial determinations, agreeing with the many passages as we have just seen where parts of extension, conceived as a whole, are described as substances. This particular bodies, would be considered, then, substances. Parts possess modes, and the modes would be as further determinations or variants of these parts in situation, shape and motion. Extension in general would also be considered a substance: the whole that constitutes these parts must also be considered a substance. Another passage that corroborates this interpretation is the definition VII in the appendix to second set of Objections and Replies:

“VII. The substance which is the immediate subject of local extension and of the accidents which presuppose extension, such as shape, position, local motion and so on, is called body. Whether what we call mind and body are one and the same substance, or two different substances, is a question which will have to be dealt with later on.”⁴⁴

In this text the extended substance taken as a subject of properties would not be the whole extension but only a part of it, a body in particular. Descartes' treatment of the difference between modes and parts of *Sixth Replies*, when understood through the notion of substance as a subject of properties, does not permit that extension as a whole to be their *immediate* subject. Rather, its delimited parts must be the immediate subject of the material modes. If so, by this definition the parts, as well as the whole of matter that comprises all such parts, count as substances. The parts being the immediate subject of the modes and the extension as a whole as the immediate subject of the parts.

Modes cannot be subject of properties for Descartes? In answering to Hobbes, in a letter, it seems that Descartes allow such a possibility. He holds that motion can be the subject of further modes such as speed and directional determination. Then, it

⁴⁴ AT VII, 161-162; CSM II, 114.

seems that we have a case of a mode that is a subject of further modes. Hobbes disagreed with this possibility: motion being itself a determination cannot be further determined, and then cannot be taken as a subject. To what Descartes answers:

“Thirdly, he employs a delicate subtlety in asking if the determination is in the motion 'as in a subject' — as if the question here were to establish whether motion is a substance or an accident. For there is no awkwardness or absurdity in saying that an accident is the subject of another accident, just as we say that quantity is the subject of other accidents”⁴⁵

However, Descartes is quick to clarify, motion being determined does not behave as the same as body to its properties. That is, motion is not a substrate where properties inhere; it seems only that Descartes is leaving open that when we ascribe a determination to a thing it is still possible to further determine this thing and that we can have a better grasp of its nature:

“When I said that motion is to its determination as a flat body is to its top or surface, I certainly did not mean to compare the motion and the body as if they were two substances; I was comparing them merely as one would compare two concrete things, to show that they were different from things which could be treated merely as abstractions.”⁴⁶

There is, therefore, a difference between these two concrete entities. The flat body is the ultimate three-dimensional subject of its surface, whereas motion is a determination that requires a subject. Thus it seems possible to develop an interpretation of Descartes' particular bodies as substances.

⁴⁵ AT III, 355; CSM III, 178.

⁴⁶ AT III, 355-356; CSM III, 178.

But the situation seems completely different in a passage from the *Synopsis* of the *Meditations*. In the course of an explanation of the reasons of the absence of an argument for the immortality of the soul, we have an affirmation about the nature of extension:

“First, we need to know that absolutely all substances, or things which must be created by God in order to exist, are by their nature incorruptible and cannot ever cease to exist unless they are reduced to nothingness by God’s denying his concurrence to them. Secondly, we need to recognize that body, taken in the general sense⁴⁷, is a substance, so that it too never perishes. But the human body, in so far as it differs from other bodies, is simply made up of a certain configuration of limbs and other accidents of this sort; whereas the human mind is not made up of any accidents in this way, but is a pure substance...And it follows from this that while the body can very easily perish, the mind is immortal by its very nature”.⁴⁸

The immortality of the soul is grounded by the fact that it is a substance. In the passage, Descartes introduces the thesis that every substance is incorruptible by its very nature. And only can be corrupted by God’s power. In this way, mind or soul, by the fact of its substantiality is immortal. However, minds are not the only substances in Descartes’ universe. As we have seen body is also a substance and there are multiples examples that Descartes apparently consider particular bodies, or particular physical objects, substances. If we assume, thus, that particular bodies such as the human body, a stone, some clothes, are substances we have to sustain, according to the text of the *Synopsis*, that they are all incorruptible towards natural causes and immune to change. That, although, is absurd. Bodies clearly change configuration in Descartes’ physics. Descartes, to escape this conclusion, makes a distinction between body taken in general and particular bodies. Body taken in general is a substance; particular bodies

⁴⁷ ‘corpus in genere sumptum’

⁴⁸ AT VII, 13; CSM II, 9

such as the human body are not. This distinction is not clear, and it puts more questions than it clarifies the matter. What means 'body taken in general'? What is its relation to particular bodies? What is meant by the attribution of 'pure' to the substantiality of the mind?

But the passage of the synopsis is really contrary to the pluralist interpretation, that is, the position where particular bodies are substances for Descartes? It is not clear that the passage of the synopsis is referring to extension taken in its totality or as a whole. And only in that case that it could be considered a substance. In other passages that Descartes uses a similar terminology, the reference is not the totality of the physical universe but rather a delimited portion of extension. In the *Principles*, Descartes says that 'extension in general' consists not of the whole of extension, but rather of particular parts conceived generically:

“For we are now considering extension as something general⁴⁹, which is thought of as being the same, whether it is the extension of a stone or of wood, or of water or of air or of any other body - or even of a vacuum, if there is such a thing - provided only that it has the same size and shape, and keeps the same position relative to the external bodies that determine the space in”⁵⁰

In the passage Descartes offers as an example of extension considered in general. When we analyze different bodies alternating position we conceive, says Descartes, one extension that can be successively occupied by a stone, wood, water, and air and also the extension or quantity of matter that constitutes the nature of such bodies. At first, this passage is consistent with the possibility of a vacuum, the idea that there is a space without a body, which Descartes will refute in the sequence of the *Principles*. Descartes here is not committed with the nature of extension in itself but only our conception of extension. In that case, the fact that we can conceive extension without a body, that is, an empty space and also the delimited extension of physical objects

⁴⁹ 'extensio consideratur in genere'

⁵⁰ AT VIII-A, 47.

extension considered in general in the passage of the article 12 of the *Principles* is not designating a substance but only an abstraction: the fact that we can abstract a determined physical object from its surroundings. It is important to note that such an abstraction should be qualified as a modal or rational distinction in Descartes' terms.⁵¹

In a letter to Mesland we find another use of a similar expression of the synopsis. A body in general⁵²says Descartes is not the whole of extension, rather is a determined part of extension:

“First of all, I consider what exactly is the body of a man, and I find that this word 'body' is very ambiguous. When we speak of a body in general, we mean a determinate part of matter, a part of the quantity of which the universe is composed. In this sense, if the smallest amount of that quantity were removed, we would judge without more ado that the body was smaller and no longer complete; and if any particle of the matter were changed, we would at once think that the body was no longer quite the same, no longer numerically the same”⁵³

We can see from this passages that for Descartes, there are some important differences in the ways in which extension or body can be considered in general. We have seen that the *Principles* he distinguishes extension in general as an operation of the understanding, an abstraction, from extended bodies in themselves. In contrast, the Mesland letter indicates that a body in general is precisely the extension of a physical object or the quantity of matter that it has in the material world. In those cases Descartes makes a direct reference to particular bodies when he is explaining the meaning of the generality of extension that can be attributed to physical objects. The extension as a whole does not seem the only possible candidate to fill the reference of the expression 'body considered in general'. But in those cases particular bodies can be also considered substances? In the passage of the synopsis there is a direct reference

⁵¹ Descartes employs the expression 'extension taken in general' once again meaning an abstraction on the article 18 of part II of the *Principles*. Cf. AT VIII-A, 50.

⁵² Un corps en general.

⁵³ AT IV, 166, CSM III, 262-263.

to the substantiality of the 'body taken in general' which is not explicit neither in passage of the *Principles* nor in the letter to Mesland.

The synopsis passage introduces incorruptibility as a necessary condition to consider something a substance. And this characteristic is fulfilled by the body taken in general but is not by the human body, which could be used as an example of a particular body. Indeed, the definition of particular bodies that Descartes gives in the *Principles* brings corruptibility as an element of particular bodies:

“By 'one body' or 'one piece of matter' I mean whatever is transferred at a given time, even though this may in fact consist of many parts which have different motions relative to each other. And I say 'the transfer' as opposed to the force or action which brings about the transfer, to show that motion is always in the moving body as opposed to the body which brings about the movement.”⁵⁴

A particular body, for Descartes, is a thing that has motion as one of its modes. Motion involves an alteration or a change of properties. Particular bodies, hence, are by their nature subject to change; and that which is subject to change is corruptible. The bodies in general of the *Principles* passage and the letter to Mesland are particular bodies subject to change. Therefore, they cannot fulfill the requirements of the synopsis passage.

The pluralist interpretation cannot appeal for the diversity of the use of the expression 'body taken in general' to develop a coherent theory of corporeal substance in Descartes. They must challenge the argument about the fact that particular bodies are necessarily corruptible when it comes to their substantiality. And also must present a criteria of individuation of the parts that is consistent with Descartes theory of substance. In the *Principles* passage we can come to a conception of a particular body by an operation of the intellect. This criteria is also stated in a letter to Gibieuf:

⁵⁴ AT VIII-A, 54; CSM I, 234

“In the same way we can say that the existence of atoms, or parts of matter which have extension and yet are indivisible, involves a contradiction, because it is impossible to have the idea of an extended thing without also having the idea of half of it, or a third of it, and so conceiving it as being divisible by two or three. From the simple fact that I consider the two halves of a part of matter, however small it may be, as two complete substances, whose ideas are not made inadequate by an abstraction of my intellect I conclude with certainty that they are really divisible.”⁵⁵

Not only the letter to Gibieuf presents the operation of the intellect as the condition for the individuation of the parts of matter it also says that such operation is able to provide a conception of the parts as two complete substances whose ideas are not inadequate. It is not clear what Descartes means by substance here or even if the reference to adequacy can read as a synonym to clearness and distinction. Anyway, these passage seems to corroborate the pluralist interpretation. The letter to Mesland, brings to our attention yet another criteria for the individuation of the parts of matter. The text is quite clear that the delimitation of extension occurs by some alteration or change. One part of matter is defined as whatever is transferred at a given time.

If we pay attention to the examples that Descartes presents when he describing parts of matter as substances we can observe that stones, human body, pieces of clothing or even a hand are three-dimensional physical objects. We can conceive such objects with some independence of their surroundings. Such objects are clearly different from a surface or even a portion of a table. And also that such particular bodies function as subjects for the alterations and motions that Descartes intend to describe in his physics. They clearly have an important role in the comprehension of Descartes’ laws of motion and for that sake they must be considered as determined subjects of properties. In any case, it is still a question if this important epistemic function of the concept of particular body have an ontological counterpart. That is, if

⁵⁵ AT III, 477, CSM III, 202-203.

the adequate Cartesian description of reality in itself can possess particular bodies as substances.

Considering the different uses of the expression ‘body in general’⁵⁶ we may say that in the synopsis Descartes consider that body or extension do not depend for its identity as an entity of an actual motion is an specific and existent extension that also do not depend of an operation of the mind to constitute its identity as an object. The extension in general of the *Principles* is individuated by an operation of thought and does not refer to an extension that can exist apart from thought. It only presents a generic and abstracted extension that does not have a correspondent in reality. Finally, the body in general of the Mesland letter represents an entity that exists apart from thought as determinate part of matter that can be individuated by its motions. When it comes to incorruptibility, the passage of the synopsis is explicit. The Mesland letter by the fact of introducing motion as a criteria for individuation implies that those real portions of matter are corruptible. And although the passage of the *Principles* do not mention explicitly that motion or alteration of any kind is necessary to conceive extension considered in general it also does not follow that it is referring to something incorruptible.⁵⁷

So, if the pluralist position is able to present an interpretation that grant substantiality to the many cases in Descartes’ works that particular objects are referred as such it does not seem to fit the physics developed later in the *Principles* and also the parts at first does not qualify the independence criteria for substantiality neither the criteria of incorruptibility. The monist interpretation, on the other hand, is based on a single passage in which we have the nothing obvious phrase ‘extension considered in general’ as central. An interpreter of such position have to reconstruct those passages where Descartes describes particular objects as substances in such way that the term ‘substance’ does not refer to the technical term but only as a synonym of ‘res’ or ‘thing’. Although strange at first the idea that the material world is constituted of only one substance is coherent with Descartes’ physics. In arguing against the

⁵⁶ This list of characteristics is based on the reconstruction proposed by Tad Schmaltz in his article Descartes on the Extensions of Space and Time.

⁵⁷ This suggestion is made by Tad Schmaltz.

existence of a vacuum in the material world, as we shall later see, Descartes identifies the extension of space with the extension of corporeal substance.

He also takes the extension of this substance to be divisible into indefinitely many parts. In the pluralist interpretation, we take these parts as distinct substantial parts. Nevertheless, Descartes also suggests at times that substantiality requires the possibility of separate existence. So, the pluralist must assume that those parts can exist independently of the whole that they pertain, being like a whole thing in itself. In such case the extension as whole would be the sum of the different parts of extension. Extension as a whole would be the result of an operation of the mind on the substantial parts. This interpretation does not seem consistent with Descartes says on the synopsis when the substantiality of the whole is the genuine one and those of the parts, if they are possible, would be only in a derivative way. If we analyze these passages, then, it seems that Descartes can only defend the pluralistic position if there is a major revision of the role that real distinction and independence play in the definition of substantiality in his metaphysics. Although apparently misguided, this reading of the function of the parts points to a problem in the monist interpretation. To recognize that extension is indefinitely divided is to recognize that there is complexity in the nature of extension and that is composed of parts.⁵⁸

In the monist reading these parts are modifications of the extension as a whole. These modes would be subject of change and alteration and they would be corruptible. But the incorruptibility of the whole would be compromised by the corruptibility of its parts. If the parts are a constituent of the whole, to say that a part can perish is also to say that the whole can perish. From the perspective of the parts, it does not seem a problem to claim that a part can continue to exist if another apart perishes. However, it seems that the whole that contain the perished part cannot survive the disappearance of the part. We need to investigate in order to solve this problem Descartes' theory of distinctions. There is a real distinction between the extension as whole and its parts or just a modal one? In any case, the whole can be independent of its parts or not. The indefinite division of parts of extension is also a

⁵⁸ At *Meditation VI* Descartes establishes the difference between thinking substance and extended substance in terms of simplicity and complexity; the mind does not have parts and the body is indefinitely divisible.

mental operation; does that mean that there is no real part of matter and they are only and abstraction? If the particular bodies are only a mode of thinking the problem of the parts of extension has to be reviewed. Also important to the understanding of the modifications of extension is the refusal of the vacuum and the conservation of motion. Both thesis of Descartes' physics attempt to establish a stability in the physical universe. Even if there can happen a change of configuration of extension the quantity of matter and motion must remain the same.

There is an intense debate among the scholars⁵⁹ of Cartesian philosophy about the correct interpretation of these passages and how they fit in the Cartesian ontology. Should we assume that Descartes is committed to the affirmation that there is only one extended substance in the world, that is, should we adhere to the monist interpretation of extension? Or should we really conceive the particular bodies as genuine substances? The interpreters who take the side of the Synopsis passage tend to understand particular bodies as modes of the extension as a whole. They must face the challenge of interpret the passage of the *Sixth Replies* that brings to the surface the strange relation between parts and modes. The commentators that, on the other hand, deny that Descartes is committed to the idea that only one material substance exists in the world usually rely on the ambiguity between the French and Latin versions of the text of the synopsis and try to reconstruct the idea of 'body taken in general' not to imply an ontological distinction between extension as a whole and particular bodies but only an epistemic difference between modes and the principal attribute of extension. The latin term 'substantia' they argue can be understood as 'a substance' or 'the substance' or just the noun 'substance'. So, when Descartes' is talking about

⁵⁹ On the side of monism we have: Octave Hamelin, *Le Système de Descartes*. p. 305; Henri Gouhier, *La Pensée Métaphysique de Descartes*, p. 305; Martial Gueroult, *Descartes Selon L'Ordre des Raisons* vol. II p. 76 and *Spinoza. Dieu (Éthique I) Appendice n. 10* . 529-556. Jean-Marie Beyssade, *Étude sur Descartes*, p. 242. Michelle Beyssade, *Le Dualisme Cartésien et L'unité de L'Homme*; p.2 in *L'Esprit Cartésien* Jacques Havet (org.); Pierre Guenancia, *Lire Descartes*; p. 306-9 John Cottingham, *Descartes*, p. 119; S. V. Keeling, *Descartes*; p. 129-30; Bernard Williams, *Descartes: The Project of Pure Inquiry*, p. 126-9; Georges Dicker, *Descartes*; p. 212-7, Daniel Garber, *Descartes Metaphysical Physics*, p. 63-93; R. S. Woolhouse, *Descartes, Spinoza, Leibniz*, p. 22; Alcie Sowaal, *Cartesian Bodies*, p. 223. On the side of pluralism we have Peter Markie, *Descartes' Concepts of Substance*, p. 71. Tad Schmaltz, *Descartes and Malebranche on Mind-Body Union* , p. 282 and *Descartes on the Extensions of Time and Space*, p. 119; Justin Skirry, *Descartes and the Metaphysics of Human Nature*, p. 1-3. Paul Hoffman, *Essays on Descartes*, 171-4; Jean Laporte, *Le Rationalisme de Descartes*, p. 183; Vere Chappell, *Descartes on Substance*, p. 260 Dan Kaufman, *Descartes on Composites, Incomplete Substances and Kinds of Unity*, 39-42; Matthew Stuart, *Descartes' Extended Substances*, p. 83 and Edward Slowik, *Descartes and Individual Corporeal Substance*, p. 2; and *Cartesian Spacetime*, p. 90-101.

extended substances it might be the case that he is talking about extended things or just extended stuff.⁶⁰

It is not seemingly possible to admit both thesis at the same time. For one is clearly the negation of the other. To admit that only the whole material world is a substance is to admit that particular bodies are at most modes or parts of such a substance. On the other hand to admit that particular bodies are substances with modifications of shape, size and motion is to deny that the unity that they form when put together is a substance in the same sense as they are. We have seen that the idea that particular bodies is directly linked with a conception of substance as subject of properties. And, as we will see, it is not all clear if that is the final position of Descartes about the concept of substance and in which exact way we must conceive it as a subject of inherence. The idea that only extension as a whole can be considered a substance navigates around the relation between substantiality and incorruptibility. This is certain, at least, a different aspect of what is to be a substance for Descartes. We must, therefore, progress to the constitution of the Cartesian ontology in the *Discourse, Meditations, Principles of Philosophy*, among other texts to achieve a clear understanding of what substance is for Descartes.

⁶⁰ Cf. Woolhouse, R. S. *Descartes, Spinoza, Leibniz: The Concept of Substance in the Seventeenth Century* p.22-24 and also Bennett, J. *Kant's Dialectic* p.42.44

3. Descartes' Concept of Substance.

3.1. Preliminary: A short survey in the history of substance

There is a long tradition in the history of metaphysics, a tradition that has its origins in Aristotle, which takes the concept of substance as a fundamental device to the correct understanding of the most basic features of reality. Usually, we find the concept of substance lying at the core of the metaphysical theories in so far it designates what is ultimately real. This tradition, through the scholastic manuals and authors of the sixteenth and seventeenth century, was known by Descartes. And, not surprisingly, the concept of substance played a central role in his metaphysics. However, the similarity between Descartes' theory of substance and this "classical" conception of substance could stop in this point. In this part of the dissertation, my intention is to analyze some passages of Descartes' works in which we can find definitions of substance or, at least, we can reconstruct a definition of substance. This procedure will show that there are two major strands in Descartes' conception of substance: substance understood as the ultimate subject of predication; and substance as an independent and self-sufficient entity. After reconstructing these two major strands of substance in Descartes it will be investigated the relation among them and if they can be taken together to form a coherent theory of substance in Descartes' thought.

Before turning to Descartes' position, let us examine what is this "classical" view of substance as the central object of metaphysics. In the beginning of book IV of the *Metaphysics* Aristotle says:

“⁶¹There is a science which studies being qua being, as well as the properties pertaining to it in its own right. This is in no way

⁶¹ 1003a-20-6

the same as any of the sciences discussing some part of being, since none of them studies being generally, qua being. Rather, each of those sciences cuts off some part of being and studies its attributes, as, for instance, the mathematical sciences do.”

The science of being qua being has great importance to the comprehension of Aristotle’s position about the nature of the things and entities that structure the world. By studying the science of being qua being we come to know the relations between matter, form, essence, accident, potency and act. A little after the announcement of a science of being qua being, Aristotle indicates that this science must investigate the nature of substances:

“So, too, there are many senses in which a thing is said to be, but all refer to one starting-point; some things are said to be because they are substances, others because they are affections of substance, others because they are a process towards substance, or destructions or privations or qualities of substance, or productive or generative of substance, or of things which are relative to substance, or negations of some of these things or of substance itself.”⁶²

And also at beginning of book VII:

“the question which, both now and in the past, is continually posed and continually puzzled over is this: what is being? that is to say, what is substance? ”⁶³

⁶² 1003b11

⁶³ 1028b2-4

By identifying substance with the study of being qua being, Aristotle makes the assumption that a theory of substance must consider the properties of being in general and not what turns being into a specific kind of being. For instance, he's not interested in investigate, here, what makes this stone a stone or this man a man. Moreover, he's affirming that this reflection of being as such will bring knowledge about the nature of things and that such investigation is necessary for an adequate description of reality.

Aristotle discusses the nature of substances and their role in his metaphysical theory in many works. Only in the *Metaphysics* we find many definitions of what is substance and it's not clear that they form a coherent unity.⁶⁴ In the *Categories* Aristotle says:

“Among the things that exist, some are said-of a subject but not in any subject. For example, man is said-of a subject, the individual man, but is not in any subject. Some are in a subject but are not said-of any subject. (By ‘in a subject’ I mean what is in something, which, not belonging to it as a part does, cannot exist separately from what it is in.) For example, an individual bit of grammatical knowledge is in a subject, the soul, but is not said-of any subject; and the individual white is in a subject, the body – for all colour is in a body – but is not said-of any subject. Some are both said-of and in. For example, knowledge is in a subject, the soul, and is also said-of a subject, namely a bit of grammatical knowledge. Some are neither in nor said-of a subject, for example, the individual man or individual horse; nothing of this sort is either in a subject nor said of a subject.”⁶⁵

⁶⁴ For instance in the books VII (Zeta) and VIII (Eta) we find an intense discussion among the interpreters about the exact doctrine Aristotle is presenting in the *Metaphysics*. Cf. Jonathan Barnes, Raphael Zillig, Suzanne Mansion, David Charles, Frede, Michael. "Substance in Aristotle's *Metaphysics*." *Aristotle on nature and living things* (1985): 17-26. Bostock, David, ed. *Metaphysics: books Z and H*. Oxford University Press, 1994. Bolton, Robert. "Science and the Science of Substance in Aristotle's *Metaphysics* Z." (1995).

⁶⁵ 1a20–21b6

The pair of notions 'said of' and 'being in' are central to the understanding of Aristotle's theory of substance in the *Categories*.⁶⁶ From the differences of these two types of characterizations and their possible combinations with subjects, Aristotle intends to extract the notions of primary substance, second substance, property and accident. First of all, 'being said of' is an indicative of predication; and 'being in' is an indicative of inherence. According to Aristotle, there are entities that are neither predicable of anything nor exist in anything as an ontological constituent. By having this characteristic they do not depend on any other entity in order to be what they are since their conception does not suppose another element of which they are necessarily related. There are, however, some entities that are 'said of' others but do not 'in' any other entity. Such entities do not inhere or constitute any other but can be predicable of something. Since they share with the first kind of things described some independency when it comes to inherence, but do not are independent in the same level of the first one. To clarify the difference, in saying that Lubi is a dog, we are predicating 'dog' to Lubi. 'Dog' is something that is said of Lubi. But, as Aristotle says, 'dog' is not something that is in Lubi; 'dog' is not an entity that is distinct of Lubi and somehow constitutes the existence of Lubi.

The distinction between predication and inherence that we just saw may be understood as Aristotle's first attempt to distinguish what is essential from what is accidental to the nature of an individual thing. What is predicated of a subject is essential to its being what it is and what is present in a subject is incidental to this. Aristotle does not exactly say that he is trying to distinguish what is essential from what is accidental to the nature of an individual thing, but his examples and statements strongly suggest that the attempt is being made. The difference between an affirmative statement of predication and an affirmative statement of inherence, is basically that in the first a particular is mentioned and the nature or part of the nature of that particular is specified, while in the second a particular is mentioned and the nature or part of the nature of another particular which is present in it is specified. In 'Socrates is a man' the nature of Socrates is specified, but in 'Socrates is white' the

⁶⁶ Besides the quoted text, we can also find this distinction on: 2a11-14, 2a27-b6, 2b15-17, 3a7-32, 9b22-24, 11b38, 12a17, 14a16-18, 127 b1-4.

nature of a particular present in Socrates is specified, namely, what we call his whiteness.

A few paragraphs after these distinctions, Aristotle introduces the notions that represent each kind of the entities described:

*“A substance—that which is called a substance most strictly, primarily, and most of all—is that which is neither said of a subject nor in a subject, e.g. the individual man or the individual horse. The species in which the things primarily called substances are, are called secondary substances, as also are the genera of these species. For example, the individual man belongs in a species, man, and animal is a genus of the species; so these—both man and animal—are called secondary substances.”*⁶⁷

For Aristotle, then, there is clear hierarchy among the things that exist. And this hierarchy is established through the notion of dependence among the kinds of object we found in the world. Individual substances are the most fundamental kind of entity. By being neither ‘said of’ or ‘being in’ something, they do not depend on any other thing in order to exist. Entities, that in Aristotle’s metaphysics will be called essences or substantial forms, describe the nature of the individual object but do not inhere in them, because in some sense they are not distinct of the individual object. In this context, they are substances in a derivative sense; hence the species are called secondary substances.

The other kinds of entities, the properties or the accidents, differently than the types of substances are things that are both ‘said of’ and ‘being in’ other things. Their nature is to be constituents of substances. They not only are predicable of substances but also inhere in substances. But inherence is fundamental here. This is the characteristic that differentiates the accidents from the other types of things. Secondary substances are also predicable of primary substances, but only accidents inhere in them. And since they constitute the existence of the primary substance

⁶⁷ 2a13-2a18

without defining their nature, as secondary substances do, we must say that the accidents are distinct from the nature of the substance, that is, they are not contained in the conception of the nature of such substance. Hence, it seems, that for Aristotle, at least in the *Categories* to inhere is necessary to be distinct.⁶⁸

From this simple sketch of Aristotle's doctrine of substance we cannot achieve a secure ground for a definitive interpretation of his position. Neither this is our intention here. Nevertheless, it is possible to say that when Aristotle puts to himself the task of answering the question what characteristics pertain to being qua being, we will be certainly turn to the question what is substance. And the nature of substance, at least in the *Categories* and in parts of the *Metaphysics* is to be a subject of properties.⁶⁹ For to S be a substance is necessary that S is not included or is not said of anything else is to say that S is something by itself. Other things, different than S, do not exist by themselves and depend on something to exist. Everything which is not a primary substance is either *said-of* or is in something in a primary substance. Without primary substances, it would be impossible to understand the idea of predication or inherence. Since this two characteristics are not put the question by Aristotle we must assume that without primary substances it would be impossible to anything else to exist.⁷⁰

This interpretation seems to be confirmed by an affirmation of the book V of the *Metaphysics*:

“It follows, then, that substance has two senses, (a) the ultimate subject, which is no longer predicated of anything else, and (b) that which is a ‘this’ and separable—and of this nature is the shape or form of each thing”.⁷¹

⁶⁸ To a full description of the relations of predication and inherence in Aristotle see Quote Frank Lewis, Allan Back, E J Lowe Categorical Predication, Christopher Shields Aristotle. Owen Inherence, Routledge guidebooks orgPredication and Inherence in Aristotle's "Categories" Author(s): James Duerlinger Aristotle on Predication Author(s): J. M. E. Moravcsik

⁶⁹ Cf. 2a11–14, 1028b36–37, 1038b15–16, 1042a26.

⁷⁰ 2b5–6

⁷¹ 1017b23-1017b25

Substances, in its primary sense, then, are things that support other entities, properties or accidents. That thing that is not itself predicated of other things and that thing which all other things are predicated. But although there is a logical and ontological primacy of substances in relation to the other things they have a mutual dependence. Substances are not independent of accidents in general, that is, the fact that Socrates is white or Lubi is gray are not necessary to Socrates or Lubi, since 'white' or 'gray' are not necessary to the nature of those substances. But, it is necessary for a substance to have accidents. Hence, there is a correlation among substances and accidents: if something is predicated of something else, then there is an ultimate subject of predication of which it is ultimately predicated; and if there is an ultimate subject of predication, then there are things that are predicated of it.⁷² Aristotle, then, attempts to offer a very general description of the structure of existent things. It is necessary to establish and understand a hierarchy of things. We must assume that are entities that exist per se and other entities that compose or constitute those subsisting ones.

This notion of substance developed around the idea of a subject of properties is quite influential in the medieval author that also dedicated themselves to the metaphysics. First, scholastic authors commonly endorse a conception of substance as the ultimate subject of properties, or accidents. On this conception, which has two components, a substance is that to which accidents belong or inhere, without belonging to anything in turn. This conception, that, as we have seen, originates in Aristotle's definition of substance, as "that which is neither said of a subject nor is in a subject" clearly appears in Aquinas:

⁷² Since this correlation between substances and accidents prevents the idea of a substance existing by itself without accidents. Some commentators try to argue that the ultimate subject of properties for Aristotle must be the notion of matter. As he says in a passage of book IX of the *Metaphysics*: "Wherever this is so, then, the ultimate subject is a substance; but when this is not so but the predicate is a form or a 'this', the ultimate subject is matter and material substance." 1049a19-1049b3. Cf. Allan Back page 88. Also, in books VII and VIII of the *Metaphysics* interpreters tend to defend that Aristotle is assuming the theory that the ultimate subject of predication is not the primary substance of *Categories* but the essence (ousia). Suzanne Mansion, Frede, Michael. "Substance in Aristotle's *Metaphysics*." *Aristotle on nature and living things* (1985): 17-26. Bostock, David, ed. *Metaphysics: books Z and H*. Oxford University Press, 1994.

“For in the case of substances, from the substantial form and matter conjoined in one nature, there results something that is one *per se*, which properly falls into the category of substance”⁷³

“accidents do not have existence on their own apart from a subject”⁷⁴

In those passages, we can see both ideas, the independence of substance, or that it exists *per se*, and the dependence of accident, or that it does not exist *per se* and how they are connected to the notion of inherence. This is also present in the works later scholastics that were closer in time to Descartes and he probably had a firsthand access to⁷⁵. Francisco Suárez in *Metaphysical Disputations* say:

“There are two notions or properties indicated by the verb ‘standing under’ and the name ‘substance’: one is absolute, namely, to exist in itself and by itself; the other is relative, it has to do with supporting the accidents.”⁷⁶

Others scholastic authors endorse this conception as well, characterizing substance as the subject in which accidents inhere without itself inhering in any subject. For example, Eustachius of St. Paul writes:

“It is proper to substance both to stretch out or exist beneath accidents, which is to substand, and to exist *per se* or not in another, which is to subsist”⁷⁷

⁷³ On Being and Essence, ch 7, §3

⁷⁴ On Being and Essence, ch. 6, §1

⁷⁵ Quote Ariew and Secada

⁷⁶ *Metaphysical Disputations* 33.1.1; quoted in Gracia 1982, 267

⁷⁷ *Summa I*:51; quoted in Pasnau 2011, 103

“Substance is defined as a being in and of itself; an accident though is a being in another...Moreover the subject of an accident is a substance”⁷⁸

“To subsist, or to exist by itself, is nothing but not to exist in another thing as in a subject of inherence. Substance differs in this respect from accident, which cannot exist by itself, but only in another thing, in which it inheres”.⁷⁹

We can clearly see that the notions of independence and dependence are intimately related to those of subject and inherence in those scholastic authors. Inherence is a type of dependence; an accident depends on a substance, and cannot naturally exist without it, insofar as it inheres in a substance. Yet a substance, which exists *per se*, or by itself, does not—indeed, *could* not—inhere in anything, including its accidents, and in this respect at least a substance is an independent entity. And it is important to notice that independence in this context is nothing more than non-inherence. A substance is independent because, or at least insofar as, it does not inhere in anything.

Not surprisingly, those authors also consider as the standard examples of substance ordinary physical objects. As Aristotle in the *Categories* that chooses man and horse as paradigmatic instances of substance; we observe animals, human beings, plants and inanimate bodies indicated by the scholastics.⁸⁰The idea of classifying ordinary physical objects as substances is also related to the subject view of substance. For what seems to underlie the classification of human beings, horses, and stones as substances is that they are subjects in which accidents inhere, but they do not themselves inhere in anything else. It follows that if one denies the subject conception

⁷⁸ *Summa*, IV: 52; quoted in Garber 1992, 68

⁷⁹ *Summa* I: 96; quoted in Broackes 2006, 138

⁸⁰ Pasnau gives us the examples: Socrates: The Coimbrans (in *Physicorum* I.9.5.2; Pasnau 2011, 691); An Ethiopian: Aquinas (*De Ente et essentia*, ch. 6, lines 54-7; Pasnau 2011, 561); horses, stones, and human beings: John Buridan (*In De anima* III.11; Pasnau 2011, 663); ice and water: Peter Auriol (*Sententiarum* II.12.1.6; Pasnau 2011, 110), Robert Sanderson (*Logica artis compendium*; Broackes 1996, 136), and Ockham (*Quodlibetal* III.6, Pasnau 2011, 561); silver: Albert the Great (*De mineralibus* III.1.7; Pasnau 2011, 561).

of substance, it is not straightforward to maintain the ordinary physical objects are substances as well, given that one has thereby removed the grounds that seem to underlie the classification of ordinary objects as substances.

Now, Descartes share this view about the study of substance with the classical tradition? Or he have a peculiar doctrine of substance? And if that is that case why and which aspects his metaphysics departs from the Aristotelian model? To try to answer those questions it is necessary to analyze the texts and passages of where Descartes makes use of the concept of substance. To this purpose it will be dedicate the next section of this dissertation.

3.2. The definition of substance in Descartes

Does Descartes have a coherent theory of substance? The debate over the precise and adequate definition of substance in the cartesian philosophy is not a new one. Even his contemporaries had problems to understand it, as we can see in the exchanges present in his correspondence and specifically in his Objections and Replies over the Meditations. Recently, the interest on Descartes' conception of substance is due to the attention that some interpreters are giving to the importance of the 'principal attribute' rule in the demonstration of the real distinction between the mind and the body and also, in a rather different approach, to the possibility of conceiving the human being as a substance in Descartes' philosophy. Nevertheless, the question does not seem settled: how should we understand Descartes' dualism and its implications to his conception of human nature? To approach this problem is necessary, however, to comprehend Descartes conception of substance.

Examining the commentaries on Descartes' metaphysics, we can clearly notice that there is an almost unquestioned tendency to say that Descartes characterize substance in two ways: first, as an ultimate subject of properties⁸¹; second, as an independent entity. Also, that this two definitions of substance are inconsistent, Descartes cannot hold a theory of substance in which both descriptions are truly expressing the nature of substances. There is, it seems, a tension at the core of Descartes' metaphysics, afflicting one of its fundamental notions.

Interpreters of Descartes usually react to this tension by prioritizing one of these definitions of substance. They attempt to reconstruct Descartes' theory setting one of the characterizations as paradigmatic and try to present arguments to dismiss the other one. This strategy can be that of diminishing the other characterization as not expressing Descartes' proper conception or view on the subject. Or, also they tend to treat these passages, where Descartes is apparently stating a different characterization of substance through the perspective of the chosen one in an attempt to unify the theory. Other interpreters simply suggest that Descartes' theory of substance is confused or inconsistent. Apparently we can only try to avoid the issue by

⁸¹As a subject in which properties inhere without itself inhering in anything

denying the other definition or to refuse the whole theory as inconsistent. Maybe we can attempt to reconcile the two characterizations. The first step is to delineate Descartes definitions of substance and the difficulties to achieve a unified theory of substance in his works.

3.3. Substance as a subject of properties.

It seems that Descartes conceived substance as a substratum or a subject of properties. In the definition V of the geometric exposition, Descartes says:

“V. Substance. This term applies to every thing in which whatever we perceive immediately resides, as in a subject, or to every thing by means of which whatever we perceive exists. By ‘whatever we perceive’ is meant any property, quality or attribute of which we have a real idea. The only idea we have of a substance itself, in the strict sense, is that it is the thing in which whatever we perceive (or whatever has objective being in one of our ideas) exists, either formally or eminently. For we know by the natural light that a real attribute cannot belong to nothing”.⁸²

In the above passage the phrase ‘by means of’ makes us pay attention to a dependence of the things we perceive, the properties, in relation to a subject. It is not at first clear that this subject or a bearer of properties, that is necessary, is in itself indetermined or it has a constitutive relation to its properties. To understand Descartes idea of a subject it is required to analyze his description of modes and attributes, which are not included in the passage. In other texts Descartes refers to the properties of the substances in different manners. He generally uses the terms properties, qualities, attributes and modes as interchangeable. But in the *Principles*,

⁸² AT VII, 161; CSM II, 114

Descartes attempt to define those in a more precise way.⁸³ To Descartes, modes are the changeable characteristic of substances. When body changes his shape or figure; or when we think of the sun or desire to know mathematics these are different modifications of the extended substance and of the thinking substance. Attribute, is reserved to the essence or nature of the substance. When Descartes is mentioning the principal attribute of a substance he is addressing the theory that substance has one and only one principal attribute and that notion determines all the properties of which a substance may have. It is not clear, though, if the idea of a principal attribute is compatible with the idea of substance as a subject of properties, since to be a subject apparently suppose a real distinction between the substance or the subject and the properties that inhere in them. Such a distinction certainly is not Descartes intention when developing the concept of principal attribute, as we shall later see.

But one thing seems clear from the passage. When Descartes say that our only idea of substance is of a thing in which the properties that we perceive exists, he is referring to inherence. This idea of inherence is reiterated in the following definitions where Descartes presents how he conceives, specifically, the notions 'thinking substance' and 'extended substance':

“VI. The substance in which thought immediately resides is called mind. I use the term 'mind' rather than 'soul' since the word 'soul' is ambiguous and is often applied to something corporeal”.

“VII. The substance which is the immediate subject of local extension and of the accidents which presuppose extension, such as shape, position, local motion and so on, is called body. Whether what we call mind and body are one and the same substance, or two different substances, is a question which will have to be dealt with later on.”⁸⁴

⁸³AT, VIII-A, 32.

⁸⁴ AT VII, 161-162; CSM II, 114.

In those passages we can observe the immediate relation of the properties with the substance which indicates that there is nothing between the substance and its properties. In *Meditation VI*, right after the real distinction argument, Descartes presents the relation of the substances with their properties in the inherence pattern:

“Besides this, I find in myself faculties for certain special modes of thinking, namely imagination and sensory perception. Now I can clearly and distinctly understand myself as a whole without these faculties; but I cannot, conversely, understand these faculties without me, that is, without and intellectual substance to inhere in. This is because there is an intellectual act included in their essential definition; and hence I perceive that the distinction between them and myself corresponds to the distinction between the modes of a thing and the thing itself. Of course I also recognize that there are other faculties (like those of changing position, of taking on various shapes, and so on) which, like sensory perception and imagination, cannot be understood apart from some substance for them to inhere in, and hence cannot exist without it. But it is clear that these other faculties, if they exist, must be in a corporeal or extended substance and not an intellectual one; for the clear and distinct conception of them includes extension, but does not include any intellectual act whatsoever.”⁸⁵

Descartes argues that there are two kinds of substances, thinking substances and extended substances which support two kinds of faculties, “faculties for certain special ways of thinking” and faculties that involve changing position, taking on various shapes, and so on. These faculties require something in which they inhere, namely one of the two kinds of substances that he recognizes. Furthermore, these faculties inhere in substance as “the modes of a thing.” But Descartes doesn’t give us an account of the

⁸⁵ AT VII, 78-9. CSM II, 54-5.

two basic kinds of substances, thinking and extended besides the assumed fact that they are the entities required to support a certain group of properties. There is no essential difference, when it comes to their substantiality, between mind and body.

In *Meditation III*, when Descartes is describing the two kinds of substance that he observes in nature he appeals to the idea that there is a common notion between them:

“Admittedly I conceive of myself as a thing that thinks and is not extended, whereas I conceive of the stone as a thing that is extended and does not think, so that the two conceptions differ enormously; but they seem to agree by falling under the common concept of ‘substance’.”⁸⁶

Despite the important differences between mind and body, Descartes recognizes that there is an underlying concept that is common to both entities, they are called substances in univocal way. It is not decided in the course of the text of *Meditation III*, what is the content of such concept. It may well be that both mind and body can be considered substances by the fact that both are the subject of properties; mental properties in the case of mind and corporeal properties in the case of body. This idea that when Descartes talks about substance he is acknowledging the existence of a substrate is corroborated by a passage of the *Conversation with Burman* where Descartes is addressing the definition of substance given at the appendix of *Second Replies*:

“Besides the attribute which specifies a species, there must in addition be conceived substance itself which lies under that attribute, as, since

⁸⁶ AT VII, 44; CSM II, 30.

mind is a thinking thing there is besides thought the substance which thinks”⁸⁷

In this context, Descartes is explicitly pointing to the difference between the property that defines a substance, its essence, and the substance itself as the subject where such properties exist. Substance considered in itself is the ultimate subject of properties. This position raises the question if, for Descartes, this subject is something that has some determination in itself apart those properties that we perceive, or it is just a bearer or support of properties. Although in texts such as the *Meditation III* and the *Principles of Philosophy*, Descartes affirms that substances have the properties of duration, number and existence on their own, which would indicate, that substances have some determinations that are peculiar to them; in the passage of the appendix he says that we cannot know substances by themselves apart the properties we perceive.⁸⁸The explanation for that it could be that such properties belong to the substance but also can only be perceived through the perception of their properties or modes.

The unknowability of the substance apart of its properties is coherent with the idea that substance for Descartes is a substrate of properties. The theory of degrees of reality that appears in *Meditation III* as well in the *Second Replies* points to the ontological difference between a substance and modes in such way that we cannot affirm that a substance is the mere collection of its properties. There must be a different entity or entities that correspond to a substance and its properties or modes. Our inferential knowledge of substances is, then a characteristic that favors the ultimate subject reading of Descartes’ theory of substance.

⁸⁷ CB, 25

⁸⁸ The thesis according to which the Cartesian substance can be considered as a simple support of qualities that in itself is nothing, it is supported by Loeb in LOEB, Louis. *From Descartes to Hume: Continental Metaphysics and the Development of Modern Philosophy*. Ithaca: Cornell University Press, 1981. See p. 78-82. To criticize Descartes, Loeb is based on objections raised by Locke in the *Essay*. However, other interpreters take the opposite thesis, according to which the substance is to Descartes one determined thing: PEREYRA, Gonzalo Rodriguez-. *Descartes's Substance Dualism and His Conception Independence of Substance*. *Journal of the History of Philosophy*, Baltimore, v. 46, no. 1, p. 69-89, p. 2008. Ver. 75, no. 12. SKIRRY, 2005, p. 21. Markie, 1994, p. 78-79. Gouhier, 1999, p. 396-397

This notion of subject of properties is sufficient to distinguish substances from modes? Modes cannot also be subject of properties for Descartes? In answering to Hobbes, in a letter, it seems that Descartes allow such a possibility. He holds that motion can be the subject of further modes such as speed and directional determination. Then, it seems that we have a case of a mode that is a subject of further modes. Hobbes disagreed with this possibility: motion being itself a determination cannot be further determined, and then cannot be taken as a subject. To what Descartes answers:

“Thirdly, he employs a delicate subtlety in asking if the determination is in the motion 'as in a subject' — as if the question here were to establish whether motion is a substance or an accident. For there is no awkwardness or absurdity in saying that an accident is the subject of another accident, just as we say that quantity is the subject of other accidents”⁸⁹

However, Descartes is quick to clarify, motion being determined does not behave as the same as body to its properties. That is, motion is not a substrate where properties inhere it seems only that Descartes is leaving open that when we ascribe a determination to a thing it is still possible to further determine this thing and that we can have a better grasp of its nature:

“When I said that motion is to its determination as a flat body is to its top or surface, I certainly did not mean to compare the motion and the body as if they were two substances; I was comparing them merely as one would compare two concrete things, to show that they were different from things which could be treated merely as abstractions.”⁹⁰

⁸⁹ AT III, 355; CSM III, 178.

⁹⁰ AT III, 355-356; CSM III, 178.

There is, therefore, a difference between these two concrete entities. The flat body is the ultimate three-dimensional subject of its surface, whereas motion is a determination that requires a subject. This difference between substances and modes is that though it is possible to consider modes subjects in some sense they never can be conceived as ultimate subjects, that is, a subject that does not suppose or depend on anything else. The existence of modes in this model, since they necessarily inhere in a subject, is of a dependent entity; which is not the case for substance.⁹¹

The conception of substance as a subject of properties turns possible the interpretation that man, the human being, is also a substance for Descartes. Officially, Descartes never affirms that there is in his system a substance that is not God, mind, or body.⁹²In *Meditation VI*, when Descartes elaborates his vision on union of mind and body, that form man's nature, he concludes that sensations and emotions are confused modes of thought. They are only possible from the interaction of bodies and minds. In this sense, it seems that there is a kind of mode for Descartes that is not dependent only of the mind or only of the body. Sensations and emotions must be considered modes of the union. This seems to qualify the substantial union of mind and body as subject of properties in the ways of the definition of the appendix.⁹³Also in article 48 of the first part of the *Principles* Descartes says:

“But I recognize only two ultimate classes of things: first, intellectual or thinking things, i.e. those which pertain to mind or thinking substance; and secondly, material things, i.e. those which pertain to extended substance or body. Perception, volition and all the modes both of perceiving and of willing are referred to thinking substance; while to extended substance belong size (that is, extension in length, breadth and depth), shape, motion, position, divisibility of component parts and the like. But we also experience within ourselves certain other things

⁹¹ Strictly speaking, neither extension nor thought possess this kind of absolute independence. Only God is absolutely independent. Created substances depend causally and ontologically of God. However, it does not seem the case that created substances are modes of God. A fortiori, since, created substances depend of God modes also depend of him. Nevertheless it does not seem appropriate to affirm that they are God's properties. It is necessary to have a better understanding of Descartes theory of distinctions.

⁹² If the extended substance is the totality of the material world or if it is also the particular bodies is still an issue.

⁹³ Cf. AT VII, 81.

which must not be referred either to the mind alone or to the body alone. These arise, as will be made clear later on, in the appropriate place, from the close and intimate union of our mind with the body. This list includes, first, appetites like hunger and thirst; secondly, the emotions or passions of the mind which do not consist of thought alone, such as the emotions of anger, joy, sadness and love; and finally, all the sensations, such as those of pain, pleasure, light, colours, sounds, smells, tastes, heat, hardness and the other tactile qualities”.⁹⁴

After presenting the properties that pertain to the soul and those that pertain to body, suggesting that they are not reducible among themselves, Descartes sustains that sensations and emotions cannot be referred only to one of his ultimate and basic notions; they need to be referred to the conflation of them. In the famous letter to Elisabeth of May of 1643, Descartes introduces the thesis of primitive notions. Among them, similarly with the text of the *Principles*, is the union of mind and body. Strange is the fact that being primitive it should not suppose any other notion or conception to be understood, therefore, it seems that Descartes is affirming a stronger version of the thesis of the article 48. There the union was a dependent source of modifications, it clearly depended causally of the interaction of mind and body. In the letter it seems that Descartes is establishing some kind of ontological autonomy to the union that is consistent with the idea that is a substance in the grounds of being a subject of properties:

“First I consider that there are in us certain primitive notions which are as it were the patterns on the basis of which we form all our other conceptions. There are very few such notions. First, there are the most general— those of being, number, duration, etc.—which apply to everything we can conceive. Then, as regards body in particular, we have only the notion of extension, which entails the notions of shape and motion; and as regards the soul on its own, we have only the notion of thought, which includes the perceptions of the intellect and the

⁹⁴ AT VIII-A, 23; CSM I, 208-209.

inclinations of the will. Lastly, as regards the soul and the body together, we have only the notion of their union, on which depends our notion of the soul's power to move the body, and the body's power to act on the soul and cause its sensations and passions".⁹⁵

It remains a question then if Descartes must conclude that there is a third kind of created substance as some commentators have been argued. Even though such an interpretation can be consistent with the idea of substance as a subject of properties, Descartes never addresses the union in this way. Besides that, this possibility is at odds with the idea of a principal attribute. Which is the principal attribute of man? The union? Descartes never explicitly mentioned such a possibility.

In this section, we have analyzed the passages in which we can find support for the interpretation that defends that Descartes assumes a subject of properties theory of substance. Substance is presented as the support, bearer or substrate to which we attribute "any property, quality, attribute or mode" and in which they exist. Thought or thinking substance is an entity in which thought immediately inheres and body or extended substance is an entity in which extension immediately inheres. This interpretation puts Descartes in the tradition of the concept of substance that was briefly exposed in the earlier section. It is consistent with the ideas that substances are logical and ontological prior to its properties. Such a priority is comprehended in terms of inherence, which supposes a metaphysical distinction between a substance and its properties. It is implicit by such an interpretation that also the notions of modes, attributes or qualities that Descartes employs interchangeably must be seen in terms of accidents in the metaphysical tradition as well. And if modes must be seen in terms of accidents it would be natural to read the principal attribute notion of the *Principles* in terms of essence. This must be assumed because where Descartes explicitly introduces the notion of substance as a subject (the *Second Replies*) he does not employ the notion of principal attribute (that appears explicitly only in the *Principles*).

Although such interpretation seems to be a coherent reading of the appendix to the *Second Replies*, it does not consider the development of substance in terms of

⁹⁵ AT III, 665; CSM III, 218.

existential independence and the more developed doctrines of attributes and modes that we find in the *Principles*. Not only in the *Principles* but also in passages of *Meditation III* and *Meditation VI*, where we found some support to treat substance as a subject and its relation to the properties as one of inherence, Descartes also employs and has in mind the idea that nature of substance involves an appeal to the notion of independence to characterize substantiality. This is what makes the question about the nature and adequate conception of substances intricate. It is hard to assume one strand in detriment of the other.

The interpreters⁹⁶ that intend to assume that substance for Descartes is to be considered in terms of a subject developed an interpretation of the *Principles* that tries to establish that Descartes' treatment of substantiality there is coherent with their view. That is, they interpret the *Principles's* text in terms of the subject model of substance. To evaluate their position Let us first quote the relevant passage. In the article 51 of the first part of the *Principles* Descartes says:

“By substance we can understand nothing other than a thing which exists in such a way as to depend on no other thing for its existence. And there is only one substance which can be understood to depend on no other thing whatsoever, namely God. In the case of all other substances, we perceive that they can exist only with the help of God's concurrence. Hence the term 'substance' does not apply univocally, as they say in the Schools, to God and to other things; that is, there is no distinctly intelligible meaning of the term which is common to God and his creatures. In the case of created things, some are of such a nature that they cannot exist without other things, while some need only the ordinary concurrence of God in order to exist. We make this distinction by calling the latter 'substances' and the former 'qualities' or 'attributes' of those substances.”⁹⁷

⁹⁶ Marleen Rozemond in her book *Descartes' Dualism* as well in the article (1998, 7-8 and 2011, 244). Cf. as well Dennis Des Chene, *Machine and Organism in Descartes*.

⁹⁷ AT VIII-A, 25; CSM I, 210.

The suggestion is that we read the notion of substance in the *Principles* as an entity that exists per se or by itself. The main point of this interpretation is to focus on the exact meaning of the expression 'exists in a such way' employed by Descartes in the opening of article 51. To exist by itself, on this interpretation, means existing without inhering in anything. The contrast that they intended to express is between the substance and its properties; the modes. First, we should notice that this interpretation is quite similar to the subject of properties model of substance that we mainly find in the Second Replies. The inherence relation is determinant for the establishment of substantiality: Something exists independently or by itself if and only if does not inhere in anything. And something depends on something else if and only inheres in this thing. To be a substance is to be the subject of inherence and to be a mode or an entity that is not substantial is not inhere in a substance.

The relation of a substrate and a property that inheres on him, involves a kind of independence. The substrate can exist without the property, but the property cannot exist without the substrate. To inhere in something, is to determine or qualify the nature and existence of a subjacent entity. Without such an entity the property cannot actualize its nature, that is, cannot qualify or determine. The substrate, on the other hand, does not depend on a specific property to exist.⁹⁸ Descartes suggests that there is an assymetry in the relation of a substance and its modes or accidents. If we think in a relation of inherence, for example, between some property and some substrate we can say that the substrate is independent of the property but the property depends on the substrate to inhere. The existence of the properties is such that it should be necessary that they attach to something and for a substrate is not necessary to attach to anything. This could work to the conceptions of the mind and the body in relation to their properties and maybe to the relation between them, but would not work for the attribution of substance to God. God is not independent

⁹⁸ It remains a question if we can conceive a subject that has no properties and functions as the logical and ontological condition to every predication and determination or if we have to assert some kind of basic qualification to the subject.

because it is prior to its modes or accidents. Strictly speaking, God does not have modes or accidents.

The reading offered by this interpretation is one that does not consider the possible causal aspect of the definition of the *Principles* and tries to show the proximity between the texts where Descartes explicitly address substance as a subject with the notion developed in the *Principles*. One thing is to read the first sentence in an inherence pattern. But how such interpretation consider the rest of the passage where Descartes explicitly introduces the relation among God and creatures through the concept of 'concurrency'? It seems that is through the difference between the causal power of God and that of creatures that Descartes introduces the distinction between the notion of substance in the strict sense (God) and the notion of substance in a wider scope (created substances). If, in the inherence interpretation we are not considering the causal aspect such a reading is not possible. The answer is that the notion of independence that is utilized in the relation of God and created substances and created substances and their attributes is not the same. When Descartes says that term does not apply univocally to God and to creatures the term in question is not 'substance' but 'dependence' or 'independence'. The relevant independence of God in relation to creatures is in fact a causal one. And of the created substances in relation to the attributes or modes is the one of inherence. That is created substances do not inhere in anything. So in the analysis of substantiality, God and creatures are the same. They are substances because they are entities that exist by themselves, that is, without inhering in anything else.⁹⁹

This is a strange reading of the passage because it makes obsolete or irrelevant for the definition of substance the idea of causation. Descartes would be introducing the definition of substance in terms of inherence and also making the remark that God and creatures possess different (not univocal) relations of independence. So, Descartes would introduce independence understood as non-inherence as necessary and sufficient condition for substantiality. After this he would make a remark that there is also causal dependence of creatures from God, which has nothing to do with being a substance and affirm that there is a non univocity in the use of term 'depends' in his

⁹⁹ Cf. Marleen Rozemond p. 262.

work, to then go back to his initial definition. It does not seem that Descartes makes this statement in this article of the *Principles*.

Despite the fact that this interpretation presents a possible way of seeing a unified version of the concept of substance in Descartes it raises some questions: Why there is a preference for the definition of substance in terms of inherence and not in terms of causality also explicitly present in the passage of *Principles*? And if causation has nothing to do with substantiality why it is mentioned in the very definition of the concept in the *Principles*? We may say that both of them present a relation of dependence of existence, but nevertheless causation is still irrelevant for substantiality. It seems that the exclusion of the causal aspect in the definition of substance is an arbitrary one with the noble objective of unifying a theory that is quite difficult to unify.

In favor of the notion of substance as a subject of properties is that when asked to present a precise definition of the concept, in the *Second Replies*, Descartes clearly introduces the idea of substance as a subject or substrate. And looking back to other passages of the *Meditations* such definition is not incoherent. Things will be less promising in the next section when we face the other possible interpretations of substance in Descartes.

3.2. Substance as an Independent entity

The classic text that supports this interpretation is found on the first part of the *Principles*. Starting in article 51, Descartes gives the most explicit and developed treatment of the basic concepts of his ontology. However, it is not clear if the manner that he addresses the notions here is consistent with his earlier developments, especially in the case of the definitions presented in the appendix to the *Second Replies*:

“By substance we can understand nothing other than a thing which exists in such a way as to depend on no other thing for its existence. And

there is only one substance which can be understood to depend on no other thing whatsoever, namely God. In the case of all other substances, we perceive that they can exist only with the help of God's concurrence. Hence the term 'substance' does not apply univocally, as they say in the Schools, to God and to other things; that is, there is no distinctly intelligible meaning of the term which is common to God and his creatures. In the case of created things, some are of such a nature that they cannot exist without other things, while some need only the ordinary concurrence of God in order to exist. We make this distinction by calling the latter 'substances' and the former 'qualities' or 'attributes' of those substances."¹⁰⁰

Substance according to the passage is something that do not depend on any other thing in order to exist. It is an entity that can exist on their own, that is, by itself; without the aid of any other kind of entity. But what actually means to have an independent existence? The passage also tells us that the only entity that in the strict sense fulfills such requirements is God. So it seems, that is necessary to understand the nature and existence of God to be able to understand what is to be a substance for Descartes. Even if God is the only substance in the strict sense, Descartes also informs us that other entities can be considered substance in a less strict sense. Mind and body can be considered substances since in the realm of all created things they are the solely ones that that only require the concurrence of God in order to exist. In other words, God has absolute independence from the other things or entities in the universe and body and mind, have a relative independence from the other things. They depend on God, but only on Him, then they are independent from every other thing. But what kind of thing exists besides God, and the two created substances are there? Descartes also tells us the other things that exist are the properties or modes that pertain to the created substances. So far so good. The passage from the *Principles* introduces a hierarchy of entities that intends to organize the order of reality in terms of independence. But the sense of independence is the same one in the relation of

¹⁰⁰ AT VIII-A, 25; CSM I, 210.

God and the created substances and in the relation of the substances and their properties?

In the case of God, the independence seems to amount to a causal independence.¹⁰¹ God is the cause of everything that exists and is not caused by any other entity. Every creature depends causally on God to exist. Created substances suppose the existence of God as its cause. However, the relation between mind, body and their properties is a relation of cause and effect? Can we say that the properties or modes are caused by the created substances? Properties are determinations of things and we usually describe them as pertaining to some entity in a variety of ways. If we pay attention to Descartes examples of the properties that bodies have such as shape or size it is far from obvious that the relation between them is a causal one. If we recall the analysis of the definition of substance as a subject of properties in earlier section we can observe a model that can fit such a relation of independence. Other possibility that we can consider is that God being a creator can have causal independence in relation to everything else. But if the independency of the mind and the body is based on the fact they do not need to inhere in something to exist and the independency of God is based on the fact that it is cause of everything being not caused by anything external, it is hard to understand the common notion that embraces these three kinds of entities. This asymmetry between those kinds of entities is expressed by the idea of unknowability of the substance in itself that Descartes explores in the *Second Replies* and also in the *Principles*. We only have cognition of properties, but since properties are real and in their conception suppose something else that grounds them we have to assume that something underlying them exists. If we do not, we have to say that real properties pertains to nothing, what is absurd. When Descartes defines substance in terms of independence there is in these passages no explicit reference to an imperceptible subject or substratum in which qualities inhere. If we had only these definitions, there might be some temptation to suppose that Descartes does not

¹⁰¹ Cf. Letter to Hyperaspistes (AT III, 429; CSM III, 193) and *Principles* II, 36 (AT VIII-I, 61; CSM I, 240). Also, the book of Tad Schmaltz *Descartes on Causation*, chapter 3. There are many versions of the causal interpretation in the literature, some examples are Loeb (1981, 328), Markie (1994), Stuart (1999), Bennett (2001, 134-5) and Secada (2000, 200). in Broackes (2006, 137), Kaufman (2008, 69), and Chappell (2008, 263). In this section we will not discuss in detail each reconstruction that these interpreters have proposed. Instead, it will be presented the general idea that is behind this line of reasoning.

embrace substance as a subject of predicates. But when he puts into geometric form his arguments for the existence of God and the distinction of mind and body, as we have seen in the previous section, he does define substance as the subject in which qualities inhere. In these passages is clear that for Descartes' substance is something distinct from the qualities that inhere on it, though it is imperceptible by itself, its existence must be inferred from the existence of the things that we perceive, its properties, because they cannot exist by themselves (that is, inhere in nothing).

That substantiality can be understood in terms of independence seems to be a constant in Descartes' works. It seems natural then to look to other textual sources of this notion where we can gain a better understanding of Descartes' concept of independence and its relation to substance. In the Part IV of the *Discourse*, Descartes use the term 'substance' to describe the nature of the thinking thing:

From this I knew I was a substance whose whole essence or nature is simply to think, and which does not require any place, or depend on any material thing, in order to exist. Accordingly this 'I' – that is, the soul by which I am what I am – is entirely distinct from the body, and indeed is easier to know than the body, and would not fail to be whatever it is, even if the body did not exist.¹⁰²

The notion of substance, in this passage, is introduced to establish the distinction between the soul and the body. The achievement of this conception – of the thinking thing as a substance – is derived from the demonstration of the *cogito* in the preceding paragraph and the analysis of the nature of this thing that certainly exists in so far it is thinking. In the *Discourse*, Descartes argues that from the fact that thinking is an essential property of the soul it follows that the whole essence of the soul is to be a thinking thing and since the conception of material things is not involved in the conception of the thinking things he can establish that they are distinct from each

¹⁰² AT VI, 33

other. This version of the real distinction argument between mind and body is different from the version found in the *Meditations*. There, Descartes is more careful to establish that the whole essence or nature of the mind is to think. To say that thinking is the only property that can be established with certainty about the nature of a thing it is not the same to say that thinking consists or is equivalent to the nature of such thing. We can't, Descartes tells us in the *Synopsis* of the *Meditations*, jump from the *Meditation II* to the *Meditation VI*. We need to demonstrate the existence of God, the validity and objectivity of our conceptions and we need to grasp the nature of the material things before establish the distinction between mind and body.

Although Descartes does not offer in this passage a proper definition of substance, we can establish some characteristics about what is to be a substance for Descartes. Certainly the concept of substance involves an independence in relation to other things that may exist. Here independence is used in two senses. First it is independence of existence. To be a substance is not to depend on other things to exist. It can exist by itself. In the specific case of the passage of the *Discourse*, we can say that the thinking substance is independent from the material things.¹⁰³ We do not know yet if there are other substances and if the material things are among them. Second, the conception of substance involves a certain epistemic prerogative in relation to the conception of other things. By saying that the soul is easier to know than the body, a topic that will reappear in *Meditation II*, Descartes seems to defend that we can conceive the soul as a substance without involving any notion of material things. So, following the passage of the *Discourse*, substance is an entity that have existential and conceptual independence from other things. However, it is not clear what is the exact meaning of this. Existential independence could mean that a substance is not caused by any other thing, then its existence is not dependent on the existence of a cause. But also could mean that substance is something that exist without referring to any kind of subjacent property, being the substance itself a subject of properties. Could also mean that a substance is something simple and not composed by parts, and in this way is not dependent on its parts to exist. Conceptual

¹⁰³ I'm abstracting from the fact that Descartes may have not good grounds to make the statement that the mind is independent from the body. I'm only analyzing the notions that he uses in the description of a substance.

independence can be also problematic. Can we say that in the conception of a substance the only thing that we conceive is the nature of this substance? This nature is simple or composed? If it is composed, its parts are notions that can be understood only by the conception of the substance or we need to refer to another thing? What about the properties of this substance? Can they be understood only through the conception of the substance?

Further elements that may help to a better comprehension of these questions can be obtained if we look at other passages where Descartes makes use of the concept of substance. In *Meditation III*, Descartes introduces the notion of substance in his discussion of the nature of ideas and their function as representations of things. According to Descartes, the nature of ideas is twofold: they are entities or acts of the mind and they represent something to the mind. In so far they are entities or acts there is no dissimilarity between them. No idea, in so far they are modes of thought (to use Descartes' expression), is more or less an idea. But, when it comes to analyze their content, that is, the object they represent to the mind, there can be great dissimilarity between them. The representation of a man is quite different from the representation of the sun, for instance. Is in this context that emerges the use of the term substance:

“Undoubtedly, the ideas which represent substances to me amount to something more and, so to speak, contain within themselves more objective reality than the ideas which merely represent modes or accidents. Again, the idea that gives me my understanding of a supreme God, eternal, infinite, immutable, omniscient, omnipotent and the creator of all things that exist apart from him, certainly has in it more objective reality than the ideas that represent finite substances”.¹⁰⁴

Descartes makes two distinctions here. First there's a distinction between the idea or the conception of a substance and the conception of modes or accidents. The

¹⁰⁴ AT VII, 40

notion of objective reality plays a crucial role to the adequate understanding of the passage and Descartes dedicates some paragraphs to explain this notion, but its investigation would deviate us from the main purpose of this text. Let us assume that Descartes is saying that in the conception of a substance we have the representation of something that is more real or more perfect compared to the representation of the modes or accidents. But what it means to establish degrees of reality between things. The notion of independence that already appeared on the *Discourse* seems useful to understand this point. Substances have some kind of independence. We know that in Aristotelian and scholastic metaphysics, and Descartes here is using the same terms, exists a relation of inherence of the accidents in the substances. This inherence of the properties is what determines and characterizes the substances, conceived then as a subject of properties. So, to say that the conception of a substance involves more reality than the conception of properties can be understood as the conception of a subject of properties involves more reality because it is not dependent of any specific property and the conception of property necessarily involves a thing to inhere.

The other distinction that we can see in the passage is the difference between the idea of a finite substance and the idea of God. After establishing that in the idea of substances we represent things that are more perfect than modes or accidents, Descartes affirms that we have another level of perfection in our representations; this is the case when we examine the idea of God. Descartes does not explicitly say, here, that the idea of God is an idea of a substance. But, as we shall see later, he does believe that is the case. Though, by saying that God is the creator of all things and these things exist apart from him, we can see the independence clause is already being attributed to the idea of God as well.

In another passage of *Meditation III*, when Descartes is analyzing the ideas of material things he mentions substance once again:

“The list comprises size, or extension in length, breadth and depth; shape, which is a function of the boundaries of this extension; position, which is a relation between various items

possessing shape; and motion, or change in position; to these may be added substance, duration and number.”¹⁰⁵

Here we can notice that Descartes believes that we can come to a conception of independence in the material things as well. The passage of the *Discourse* that we examined earlier pointed to an unilateral independence of the soul in relation to the body. Now, if the body is conceived as substance and the only thing we know so far about substances is that they are entities that have some kind of independence (existential, causal or epistemic) in relation to other things we can say that bodies are independent entities as well. But, independent from what and which circumstances is yet to be discovered.

Descartes continues to investigate his conception of material things. After realizing that they can be conceived as substances, he compares with the idea he has of himself, that is, that thing that certainly exists in so far it is thinking. Both ideas are ideas of substances. It seems that the knowledge of the substantiality of the body is derived from the knowledge of the substantiality of the self or the mind. So Descartes must achieve the conception of mind as a possible substance in the argument of *Meditation II*. In comparing this idea of the mind with the reflections that he is making on the representations of material things, Descartes is able to identify that they have some characteristics in common:

“With regard to the clear and distinct elements in my ideas of corporeal things, it appears that I could have borrowed some of these from my idea of myself, namely substance, duration, number and anything else of this kind. For example, I think that a stone is a substance, or is a thing capable of existing independently, and I also think that I am a substance.”¹⁰⁶

¹⁰⁵ AT VII, 43

¹⁰⁶ AT VII, 44

They can exist independently, now Descartes explicitly presents this definition of substance, and they also have number, duration and any other property of this kind. Descartes is admitting that mind and body have properties that are not specific to any of them, but that both of them have. So there is a conception of substance or thing that possess the characteristics of existing independently, having a duration and being of a certain quantity. Descartes also alludes to the possibility of more properties of this sort, but does not indicate them. In the next paragraphs of *Meditation III*, Descartes still analyzes the relation between those two conceptions. Although the conceptions of the two substances differs enormously, one being a thinking and non-extended and the other being extended and non-thinking, Descartes still believes that there is a common concept of substance that embraces both of them.¹⁰⁷

The next step is to compare these conceptions with the idea of God. And, Descartes notes that the representation of God is a representation of an infinite substance. Then by using the same term to describe minds, bodies and God, they must share some characteristics, assuming, at first, that there is not a complete equivocity. We just saw that number, duration and independent existence were attributed to mind and body in so far they are only substances, leaving aside the properties that make them very different things. In this sense, it seems natural to describe God, in so far it is a substance, as existing independently, having a duration and a number. But by being an eternal and infinite substance, the notion of duration does not apply to God. Also the notion of number is at odds with the concept of God. Only the notion of independent existence could be applied also to God.

At this point, we seem to face the same dead end that we have observed in the analysis of the *Principles* passage. When it comes to the attribution of substantiality to God and the creatures, it is hard to develop an univocal¹⁰⁸ interpretation of Descartes theory of substance. It does not seem the case that we are capable of achieving an unified theory of substance. The characterization of substance as what “exists in such a

¹⁰⁷ AT VII, 45. As we shall see later, the common conception of substance that we can have of thought, extension and even God may open the way for an interpretation of substance as being qua being or substance qua substance in Descartes’ metaphysics.

¹⁰⁸ For recent discussion, see Beyssade (1996) and Schmaltz (2000), who understand Descartes’ notion of non-univocity as (Thomist) analogy; Secada (2006) and Marion (1991) prefer equivocity.

way as to depend on no other thing for its existence” raises more question than presents solutions. Descartes uses the term existence to qualify the independence. And as we have been discussing in the last sections, the kind of existence it is referring can be diverse. What type of independence is at stake here? Is it simply that a substance must not depend on any other thing as subject of inherence or of properties, as in the Second Replies and other texts? We have presented some reasons against such interpretation may conflict with the dualism between mind and body. Nevertheless, is undeniable that Descartes intends to designate some function of being a subject in some sense in his metaphysics. Is not yet clear what function it would be. Or is Descartes invoking a different notion of independence? One that is related with the principal attribute thesis that will follow this definition of substance in the *Principles*. This interpretation, even though, goes in the same direction as the real distinction argument may face problems with the argument for the existence of God, by not leaving room for a clear and distinct conception of substance as substance. Perhaps, even the notion of causal independence is the relevant one as it is clearly the case between God and the creatures also in the *Principles* passage. We cannot forget the definition of substance in terms of incorruptibility that we saw in the synopsis and is fundamental to our discussion about the nature of particular bodies in Descartes’ system.

The alternative seems to be that we must choose one of characterizations of substance that Descartes provides and attempt to reconstruct the theory around it. In the literature we find many alternatives in that way. In the following sections they will be presented to see if they can help with our quest in the understanding what Descartes precisely means when it comes to say tha substance is something capable of existing independently.

3.2.1. Causal Interpretation:

Commentators that support the causal interpretation generally agree that causal independence is intended to supplement rather than replace the requirement that substance being independent in the sense of being a subject of properties that is on not inhering in anything. They tend to read the explanation about the relation of

the passage of the *Principles* as pointing to a commonality in type between the dependence of created substances on God's concurrence and the dependence of qualities on the substances in which they inhere.¹⁰⁹

The causal interpretation thus understands Descartes' characterization of independence and substance in the *Principles* passage as composed of the following three requirements: Something is a substance if and only if it is not caused by anything whatsoever and does not inhere in anything whatsoever; something is dependent on something else if and only if it is either caused or inheres in something else; from these two we can define that a created substance is something that is only caused by God and does not inhere in anything else. These requirements indicate the causal interpretation's answers to some of our earlier questions: the independence at stake in the *Principles* passage includes causal independence, and although God and created substances are both called 'substances', they are not univocally so, insofar as God satisfies a different characterization of substance. Both, God and created substances, agree in the part that there is absolute independence when it comes to inherence. But only God is absolutely independent when we are talking about causality.

Such an interpretation, however, is not absent of difficulties. If the causal interpretation is correct, what Descartes says in the *Principles* is in direct conflict with what he affirms in the Second Replies. The subject conception of substance defends the idea that non-inherence in anything is both a necessary and a sufficient condition for the establishment of something as a substance. By defending that not only the inherence clause is necessary but also the causal clause is a necessary requirement for substantiality such an interpretation is incompatible with the subject model of substance in Descartes. A possible¹¹⁰ answer to this objection is that the relations of inherence and causation are co-extensive and interdefined. That is, everything that is not caused by anything else also does not inhere in anything else. If we defend that, the distinction between God and created substances collapses. It might preserve the idea of substance as a subject of properties, but now mind and body are not subjects of properties they have to be considered as entities that inhere in God that they also

¹⁰⁹ Peter Markie and Matthew Stuart 1994, 69; cf. Stuart 1999, 89

¹¹⁰ See Stuart (1999, 101) and Secada (2000, 204)

have further properties that inhere on them. It seems hard to find textual support for such interpretation of Descartes. Given the close relation that exists between the subject model and the thesis that particular bodies are substances in Descartes such causal interpretation is in conflict with that idea as well. The examples we have of particular bodies in Descartes' texts such as a stone, clothes, tables, the body of an animal and other things of the sort are clearly altered, not only by God, but by other creatures as well. Clothes tear apart. Stones are slowly modified by time and animals are born and eventually die. In many cases the immediate description of such alterations attributes as a cause to other body. Part IV of the *Principles*, which concerns the formation of the earth and various inanimate bodies, provides many examples of changes in bodies by means of other bodies. See, e.g., the case of mountains, plains, and seas (*Principles* IV.44); water and ice (*Principles* IV.48); various metals (*Principles* IV.63); springs (*Principles* IV.64); and fire (*Principles* IV.80).

Following the requirements presented by the causal interpretation of independence, particular bodies cannot be considered substances. They do not fill the requirement of causality as well they depend on God and other creatures. How they commentators of such interpretation deal with many passages where Descartes talks of particular bodies in terms of substance? One option is, as we have mentioned, to analyze the context of such attributions of substantiality and to defend that Descartes is not using there the technical term.¹¹¹ Another possibility is to point for the occasionalist interpretation of causality in Descartes' physical world, which means, that there is not body to body interaction for Descartes. Bodies only present an occasion for the causal power of God.¹¹² Another problem in the causal interpretation is that it does mention the function of the principal attribute in Descartes' theory of substance and neither the peculiar relation that modes with it. Such features of substantiality are developed in the immediate sequence of the *Principles*, but for apparent reason are not considered. The causal interpretation relies only on the rather vague definition of the article 51 and how it could be related with definition found in the Second Replies and other texts.

¹¹¹ (1999, 100; recall fn. 2); cf. Markie (1994, 67).

¹¹² Garber 1992; Schmaltz 2008

3.2.2. Modal interpretation:

We can also find in literature a modal interpretation of Descartes' concept of substance.¹¹³ The condition for substantiality expressed on the phrase 'a thing that which exists in such a way as to depend on no other thing for its existence' is read as meaning that substance is what can exist without other things. In this sense we can understand the definitions of independence and substance in the following terms: something is a substance if and only if is capable of existing without any other entity; something is a created substance if and only if God is the only other entity without which it is not capable of exist; independence means the capacity of existence by its own means without the reference to any other entity and dependence is understood as the incapacity of existence without the reference to other entities different from itself. As the causal interpretation and different from the inherence interpretation independence is understood as an univocal concept and the difference between God and created substances is one degrees. What differentiates the degrees of independence is the capacity of existence rather the causal relation between entities. If we pay attention to the passage in the *Principles* we may see that the modal interpretation is coherent with spirit of the passage. Along its course, Descartes makes of use of other modal expressions to characterize the nature of substance. Created substances are characterized as to need only on the existence of God and modes cannot exist without created substances. If we compare this characterization of substance with the real distinction argument of *Meditation VI* and also other texts where Descartes treats the relations between mind and body¹¹⁴ in the terms of the capacities of existing apart or being separable.

The modal interpretation has the merit of being a generic definition of independence as well of substance in which is compatible with causal and inherence readings and aspects of substantiality. It is not specified in the notion of a capacity of

¹¹³ Hoffman and Rozenkrantz (1994, 53-57), Correia (2008, 1025), and Lowe (2010). Rodriguez-Pereyra (2008, 80).

¹¹⁴ Definition of real distinction of the *Principles* and also the Second Replies. See the 1641 letter to Hyperaspistes (AT III 429/CSMK 193); the 1645 or 1646 letter to unknown recipient (AT IV 349/CSMK 280); less clear, but perhaps also relevant, is the Fourth Replies (AT VII 226/CSM II 159); and the Second Replies (AT VII 161/CSM II 114).

independent existence what characteristic (causal, inherence or even some other) is employed for the classification of substance. So any of them is able to fulfill the requirements. Viewed in such way it is easier to reconstruct an unified theory of substance in Descartes' works. Nevertheless its generality is also its fault. Being compatible with both and maybe other possible readings the modal interpretation is not much informative. We have seen in other passages as well in the same passage of article 51 of the *Principles* other elements that may characterized what a substance is and is not clear how we can related them with each other. If something is capable of existing by itself in terms of not inhering in anything else must be considered a substance? Apparently yes. And also is valid for a causal independence. But should we face this as a variety of signs and evidences to consider something a substance for Descartes? Should we say that the sum of them is required as it is suggested by the causal reading? We have also seen that there are reasons to believe that the causal and inherence readings are not compatible with each other and an interpretation that suggests that we are capable of conceiving the causal requirements and also inherence one as compatibles without addressing the differences that they have does not seem a very fruitful reading.

This does not mean that the modal reading is a wrong reading of the passage of the *Principles* is just means that is not a sufficient interpretation to address the challenges that the quest for the adequate definition of substance in Descartes imposes.

Further, without the qualification of the distinction between the kinds of properties that we find in Cartesian substances such as qualities, modes and attributes the modal interpretation is susceptible to the objection that a substance may in fact need the existence of its properties. This view of substantiality is suggested by other philosophers of the seventeenth century such as Spinoza and Leibniz, in *Ethics* IP15 scholium and *Critical Thoughts on the General Part of the Principles of Descartes* respectively.¹¹⁵

¹¹⁵ Notice Spinoza remarks against the existence of a vacuum on the *Ethics* IP15SC: "Surely, in the case of things which are in reality distinct from one another, one can exist without the other and remain in its original state. Since therefore there is no vacuum in Nature (of which [more] elsewhere) and all its parts must so harmonize that there is no vacuum, it also follows that the parts cannot be distinct in reality; that is, corporeal substance, insofar as it is substance, cannot be divided" and Leibniz in the *Critical*

3.2.3. Conceptual Interpretation:

The notion of conceptual independence¹¹⁶ plays, also, a crucial role in the argument for the real distinction between mind and body in the *Sixth Meditation*. It is quite straightforward to think that in an argument in which the goal is demonstrate that mind and body are two really distinct substances Descartes provides some elements that indicate his conception of what a substance is. And, so far we see that the notion of independence is essential to his development of the notion. The argument for the dualism has the function of establish that thought and extension are notions of a special kind. They are primitive notions on which every other conception should be formed. Hence, they need to be comprehended in very clear way so that everything that is derived from them is either implicated by thought, extension or the eventual relation of these two notions. With a clear and distinct conception of mind and a clear distinct conception of body, Descartes claims that we can conceive mind as substance apart or independent from the body and also that the body is also a substance apart or independent from the mind. But how can a clear and distinct conception of the mind or the body can guarantee this?

Caterus, in the first set of objections¹¹⁷, points to a difficulty to accept the logical movement that Descartes makes from the fact that two things could be conceived independently of each other to the claim that they can exist separately. Caterus' strategy is to refer to a doctrine of Duns Scotus in which the mere conception

Thoughts "not only do we need other substances; we need our own accidents even much more. Therefore, since substance and accident depend upon each other, other marks are necessary for distinguishing a substance from an accident." Loemker (ed.) *Philosophical Papers and Letters*, p. 389. Clearly this reading goes against the idea of substance as bare subject of properties, but as we have seen it is quite controversial that Descartes adopted such a view. Other commentators also presented a similar critique to the modal interpretation: Markie (1994, 66); Hoffman and Rosenkrantz (1995, 54-5); Stuart (1999, 88); Bennett (2001, 134).

¹¹⁶ Margaret Wilson, *The Epistemological Argument for Mind-Body Distinctness*.

¹¹⁷ AT VII, 100

of two things independently does not imply an existential independence between those things. He gives the example that mercy and justice of God are conceived independently, but from that does not follow that they can exist apart from each other. Both of them exist in God. In this sense, Descartes is not allowed to say that from a separate conception follows a possible separate existence. In his response, Descartes says that the distinction in the example of Caterus is a modal one. Such distinction occurs only between incomplete beings that depend on other being to exist. Through a process of abstraction we are able to conceive only the property that we want, but, affirms Descartes, such operation would never be able to produce a clear and distinct conception of a complete thing, that is, something that does not depend on other things to exist. The relevant conception to the real distinction argument is a clear and distinct conception of the body and the mind as complete things. And these conceptions must be independent from each other.

However, the passage of the *Sixth Meditation* in which Descartes express the criterion to make a distinction between two things does not presents this notion of completeness. It seems sufficient two conceive clear and distinctly something apart from another to make possible the judgement that they are different things and can exist independently:

“Hence the fact that I can clearly and distinctly understand one thing apart from another is enough to make me certain that the two things are distinct, since they are capable of being separated, at least by God”.¹¹⁸

But as we have just seen in the Caterus’ objection the requisites for a real distinction demand a conception of a thing as a complete thing to avoid that an erroneous attribution of real distinction between a substance and its modes, for example. But how can we obtain such a conception?

¹¹⁸ AT VII, 78

In the fourth objections¹¹⁹, Arnauld take the observations made by Descartes to Caterus about the necessity of a conception of a complete thing as meaning a necessity a complete conception of a thing. We only could, says Arnauld, acquire a complete conception of something if we know all its properties. The human intellect is finite, therefore, limited. In this way, we can't guarantee our knowledge all properties of an object, since for that it is necessary not only a knowledge of all its properties but also that these properties are all the properties that pertains to it. And that involves the negation or exclusion of any property that is not involved in its conception, which is impossible to a finite understanding. Arnauld does not see how Descartes can get to the conclusion the he aspires to.

In his answer, Descartes mentions that the phrase 'complete knowledge' in the discussion with Caterus did not meant some kind of exhaustive knowledge. Rather, the necessary knowledge is a sufficient knowledge that will make us able to recognize a thing as a complete thing without the acquirement of a complete knowledge. In the case of the real distinction should be enough that we can exclude from the soul properties that are attributed to the body and deny from the body properties that are attributed to the mind without, in this mental operation, without compromise a conception that habilitates them to exist separately. But the main point of Arnauld seems to be that with the information that Descartes disposes it is perfectly possible that another attribute or property, besides the mind, pertain to the thinking thing and the same is applicable to the extended thing. And the only way of avoiding this fact seems to be guarantee the complete knowledge of a thing. Descartes insists, nevertheless, is an idea that a sufficient knowledge of the nature of an entity is able to establish that a thing can exist by itself and does not depend on another thing to exist. Other properties could be attributed to this thing but would no alterate the fact that we have a conception of this thing as a complete thing without the involvement of such property. To defend that thought, by one side, and extension, by other, form conceptions of whole and complete things already is, for Descartes, to refuse the possibily of another necessary property in its clear and distinct conception. The point

¹¹⁹ AT VII, 201

that is still puzzling is how can we know that we have a sufficiently complete conception of the mind and the body.

Looking to this scenario, things are not so clear anymore. The classical passage that is utilized to construct the interpretation of substance as an independent entity is clearly ambiguous.¹²⁰What is the consequence of such an ambiguity to Descartes' doctrine of substance? Facing this problem maybe we can be discouraged to pursue such an interpretation and it could be natural make allegiance to the subject of properties interpretation and somehow try to reconstruct the passage of the *Principles* in subject of properties and inherence terms.

In the last two sections we saw two possible ways in which we can interpret Descartes' concept of substance. Both have textual support in Descartes' writings, but nevertheless they do not seem able to make a whole and unified theory. The first possibility presents a theory of substance that follows the Aristotelian and scholastic tradition of the concept that we briefly presented in the introduction of this chapter. Descartes assumes the idea of a substrate or subject and the ontological priority of substance in relation to its properties. It was even possible in that interpretation to speculate the possibility of a composed substance in the case man. Descartes would almost open the possibility of a hylemorphical compound in his ontology. But that was not the whole story. The independency conception is almost omnipresent in Descartes texts about substance. And even if the subject conception can be reconstructed in terms of independence that are two other aspects of independence that are not obviously related to the idea of an ultimate subject of properties. The causal and conceptual aspect play a fundamental role in different areas of Descartes' system and they cannot be neglected in favor of the inherence structure.

3.2.4. Self-subsistent nature interpretation:

¹²⁰ Descartes recognizes explicitly in the article 51 such ambiguity.

In the *Principles*, some years after his discussions with Arnauld and Caterus, Descartes readdresses the question of substance.¹²¹ Descartes presents a definition, as we have seen, of substance in terms of existential independence and claims that the term does not apply to the finite things and to God in an univocal fashion. We have already seen that these problem could be noted in the passages of the *Third Meditation*. It still a question if the term ‘substance’ is applied equivocally or analogically to them. In article 52 we can still perceive an assymetry between substances and properties. We need to have a cognition of the properties to acquire a knowledge of the substance, but they are something that pertains and are dependent of the substance.

The notion of independence by which Descartes construct the notion of substance does not permit that creatures and God are substances in the same sense. From the fact that there is no univocity around the notion does not follow immediately that Descartes has one concept of substance for God and a different one for the creatures; mind and extension. For Descartes says in article 52 that:

“But as for corporeal substance and mind (or created thinking substance), these can be understood to fall under this common concept: things that need only the concurrence of God in order to exist. However, we cannot initially become aware of a substance merely through its being an existing thing, since this alone does not of itself have any effect on us. We can, however, easily come to know a substance by one of its attributes, in virtue of the common notion that nothingness possesses no attributes, that is to say, no properties or qualities. Thus, if we perceive the presence of some attribute, we can infer that there must also be present an existing thing or substance to which it may be attributed.”¹²²

¹²¹ Other passages where we can find definitions of substance as independent being: AT IX, 10 (synopsis); Third Meditation AT IX, 35; Fourth Replies AT IX 175.

¹²² AT VIII-A, 25; CSM I, 210.

As the argument for the existence of God of *Meditation V* has shown, the existence of God depends on nothing but God's essence. Since, given his essence, God could not fail to exist, and since the existence of the other substances depends not on their own essences but on the existence of God, which depends on his essence, it may seem we could conclude that everything depends on God's essence. We seem to have a common sense of substance here, namely, a substance is anything that depends only on God's essence. When it comes to existence, then, it seems that the best case we can make for Descartes' ontology is that there is an analogy between the kind of existence that pertains to creatures and God's existence. The way in which the existence of God depends on his essence is clearly not the same that the thinking substance and the extended substance depend on the essence of their creator. Also, in the lines of the ontological argument from *Meditation V*, we see that from the analysis of the nature of God we must conclude that his existence is necessary. Descartes clearly will not defend that the existence of creatures is necessary in the same grounds of God's existence. We are able to say that God is absolutely independent and that the mind and extension are relatively independent. There are grades of independence.

This analogy between God and creatures determines the establishment of the metaphysical conceptions from articles 53 to 65. The grades of independence that Descartes establish between his basic entities determine the relation that substance has with its properties. First we have the distinction between attributes, qualities, and modes; second, the distinction between those attributes and modes that are in the thing and those that are merely a way of thinking about the thing (universals); third, the three kinds of distinctions between things, namely real, modal, and rational.

It is in article 53 that we see something that was not, at least, explicitly present in the texts before the *Principles* and can be addressed to the question of how we acquire a sufficient knowledge of thing that guarantees its substantiality. Descartes affirms that the substances have only one principal attribute and this attribute is what constitutes the whole nature and essence of the substance. All other properties of the substance suppose this attribute and they are only particular manifestations or ways of being of this attribute. In this sense the principal attribute determine what kind of property a substance may have and what properties it may not have. If something is different or contrary to the principal attribute it could not be a property or a mode of

such substance. Modes, in this view, are not properties that inhere in a subject but a particular manifestation of the nature of this substance. They are not something that we say about the substance but only the substance existing in a certain way. It is not possible to distinct the substance of the principal attribute and have a clear and distinct conception of a substance as Descartes says in article 62 of the *Principles*. The only common feature between mind and body is the abstraction of something that depends only on God to exist.

It should be noted that there is no real distinction between substance and attribute, but only a distinction of reason; No real distinction exists between substance and attribute, because a real distinction, in Descartes' use of the term, can obtain only between two entities each of which is capable of existing apart from the other, that is between two substances, (AT VIII 28-30). Where one or both of the entities is incapable of independent existence, the distinction between them must be either a distinction of reason or a modal distinction. The distinction between substance and its principal attribute, then, is only a distinction of reason because the attribute cannot be conceived as existing by itself. But is no less a real distinction in the sense of that term in which real rules out illusory. We can say that substance is simply the principal attribute substantialized, there's nothing occult in substances, since the principal attribute, which is transparent to the understanding, constitutes their nature or essence. There would be nothing occult in substances, except the substances themselves if you accept the definition of substance as a subject of predicates, that is, if we accept that some non-determined substrate is necessary to support the properties of the substances.

It is crucial to recognize that for Descartes the relation of modes and its substance is a peculiar one. Modes pertain to a determinate substance not as extrinsic denomination or even an accidental inherence. We even might call the relation of modes and a substance, one of inherence, as Descartes does in several passages. Nevertheless we have to keep in mind that the relation is not of the same nature of that of accidents and a substance in the Aristotelian terms. It belongs to the nature of a mode, for instance the oval shape of a stone or the representation that $2 + 2 = 4$, to pertain to certain type of substance. The shape of an object is determined by its nature

to be the mode a material substance, as the representation of an arithmetical relation must be a modification of a mind. This is clear if we pay attention in the way Descartes introduces the notion of mode in the *Principles*:

“By mode, as used above, we understand exactly the same as what is elsewhere meant by an attribute or quality. But we employ the term mode when we are thinking of a substance as being affected or modified; when the modification enables the substance to be designated as a substance of such and such a kind, we use the term quality; and finally, when we are simply thinking in a more general way of what is in a substance, we use the term attribute. Hence we do not, strictly speaking, say that there are modes or qualities in God, but simply attributes, since in the case of God, any variation is unintelligible. And even in the case of created things, that which always remains unmodified - for example existence or duration in a thing which exists and endures - should be called not a quality or a mode but an attribute”.¹²³

And in a similar passage of the *Comments on Certain Broadsheet*:

“The author maintains that there is no contradiction involved in saying that one and the same thing possesses one or the other of two totally different natures, i.e. that it is a substance or a mode. If he had merely said that he could see no reason for regarding the human mind as incorporeal substance, rather than a mode of a corporeal substance, we could have excused his ignorance...But when he says that the nature of things leaves open the possibility that the same thing is either a

¹²³ AT VIII-I, 26; CSM I, 211-2.

substance or a mode, what he says is quite self-contradictory, and shows how irrational his mind is”¹²⁴

If the mind is a mode or a substance it is so by its nature and we cannot define that by the eventual relation that an entities and properties might be, it is determined by the nature of a property and of an attribute the metaphysical relations its being will manifest. There is no possibility of it being otherwise. The terms ‘mode’ and ‘attribute’ have a rather special meaning in Descartes’ thought. Both modes and attributes are properties of substance and cannot be conceived as existing apart from their subject. An attribute, however, is a very general, hence invariant, hence essential property of a substance, for example, thought, or extension. A mode, on the other hand, is a more or less specific property, hence liable to variation, hence nonessential, for example my thinking that I exist, or roundness. Since any variableness is impossible in God, we predicate of him only attributes, not modes (AT VIII, 26). The passage of the *Principles* corroborates this reading:

“This is possible provided they are regarded as modes of things. By regarding them as being in the substances of which they are modes, we distinguish them from the substances in question and *see them for what they really are*. If on the other hand we would be regarding them apart from the substances in which they inhere, we would be regarding them as things that subsist in their own right, and we would thus be confusing the ideas of a mode and a substance”.¹²⁵

If this is a description of what are modes themselves, then what makes modes different from substances is a difference that holds by their nature — that is, of being a modification of a substance. Descartes is defining here that the nature of a mode is such that it cannot exist or even be clearly and distinctly understood at all unless the

¹²⁴ AT VIII-II, 352; CSM I, 300.

¹²⁵ AT VIII-A 31; CSM I 215-216.

nature or the conception of the thing of which it is a mode is implied in its own nature or concept. So, a mode, differently than an accident in traditional view, is the opposite of something really distinct of the substance its nature is determined by the nature of the substance to which it belongs. And more, it is dependent of a substance not only as it necessitates a subject to determine in the case of the whiteness of Socrates, the dependence it is ontological and conceptual that we even could not understand what a mode is if we do not understand the nature of the substance to which it belongs.¹²⁶

On the other hand, Descartes does not seem to think that a certain mode is related to a substance by its substance's nature. For instance, a mind is a substance which the principal attribute is thought. To be a thinking thing does not imply, by its nature, the relation to any specific entity, unless the relation of being dependent causally from God. The nature of thought does not imply that we have to think A or B, it only determines that it must think something. Analogically, in the case of body this is one of the lessons that the analysis of the wax establishes:

“Perhaps the answer lies in the thought which now comes to my mind; namely, the wax was not after all the sweetness of the honey, or the fragrance of the flowers, or the whiteness, or the shape, or the sound, but was rather a body which presented itself to me in these various forms a little while ago, but which now exhibits different ones. But what exactly is it that I am now imagining? Let us concentrate, take away everything which does not belong to the wax, and see what is left: merely something extended, flexible and changeable...”¹²⁷

A similar point is made in the article 11 of the second part of the *Principles*:

“Suppose we attend to the idea we have of some body, for example a stone, and leave out everything we know to be non-essential to the nature of body: we will first of all exclude hardness, since if the stone is melted or pulverized it will lose its hardness without thereby ceasing to

¹²⁶ AT VIII-B 355; CSM I, 301.

¹²⁷ AT VII, 30-1; CSM II, 20.

be a body; next we will exclude colour, since we have often seen stones so transparent as to lack colour; next we will exclude heaviness, since although fire is extremely light it is still thought of as being corporeal; and finally we will exclude cold and heat and all other such qualities, either because they are not thought of as being in the stone, or because if they change, the stone is not on that account reckoned to have lost its bodily nature. After all this, we will see that nothing remains in the idea of the stone except that it is something extended in length, breadth and depth".¹²⁸

According to this reading the notions of substance and independence must be comprehended as following: Something is a substance if and only if its nature does not imply the nature of any other entity. That is, by the inspection of the elements that compose the nature of any given entity, if it has a nature that does not depend on any other thing in order to exist, can be considered a substance. Independence, in this sense is understood in terms of relations of the natures or essences of the entities in question. This amounts to an ontological independence because it is concerned directly of what a thing is. A created substance must be regarded independent from its modes because when we clearly and distinctly conceive its nature there is implied relation with them. It has, however, an implied relation with God as its creator. It is corroborated by text of the article 51 of the *Principles*. When Descartes introduces the created substance-modes relation he does so in terms of the nature of modes; they are things that cannot exist without the aid of others. And they have this characteristic because of their nature: "of such a nature that they cannot exist without other things". It is part of the nature of a mode to belong to this or that substance. And in this sense, this interpretation is quite different from the inherence interpretation of the substance-mode relation. And if we analyzed the substances its substantiality is not derived from the fact that it does not inhere in anything, but because its nature is of a determinate characteristic that guarantees that is capable of subsist without the aid of anything else.

¹²⁸ AT VIII-I, 46; CSM I, 226.

This conception can correctly be applied to God and created substances? Let us see. Since in God's nature there is nothing else besides its own divine nature there is no relation to any other entity besides Himself. So this conception can be applied to God and it applies only to God since no other entity is absolutely independent by its own nature. It also can be applied to created substances, since it fits perfectly Descartes' restriction found in the *Principles*. Mind and body have a nature that includes or is related to no other entity or property besides the fact they suppose the existence of God in order to exist. Although mind and bodies need modes in order to exist they do not need of any particular mode to exist. It is also correct in not been applicable to modes, for their nature require or suppose the nature of the substance that they modify. It could be said, however, that particular modes can fulfil the requirements of substantiality. For instance, let us take the particular shape of a table. If this shape could also be the shape of other table, then in the nature of this shape would be observed that it could exist independently of a particular table. So there could be modifications of extension that are by their nature independent from extension. In the nature of this particular shape it would be included a reference to any particular substance besides God; in that case it might be possible to consider modes as substances in the nature interpretation. Similarly, it might be observed in particular modes of thought. The particular representation that $2 + 2 = 4$ can be independent of a particular mind. And a different minds might have the particular thought $2 + 2 = 4$. It might argued as well that the only substance required in the nature of this thought is God and that it might fulfil the requirement for substantiality.

But Descartes expressly refused the idea that a mode can be a mode of different substances. He says in a letter:

“Thus shape and motion are modes, in the strict sense, of corporeal substance; because the same body can exist at one time with one shape and at another with another, now in motion and now at rest; whereas, conversely, neither this shape nor this motion can exist without this

body. Thus love, hatred, affirmation, doubt, and so on are true modes in the mind".¹²⁹

There is an asymmetry between substances and modes: a substance needs modes to exist, but it does not need any particular modes, as we have seen. And from this letter we come to know that a mode needs a particular substance to exist. This objection is regarding the nature of modes as equivalent with accidents, for accidents in the Aristotelian tradition might be seen as really distinct from the substance that it inheres. However, this is not the way in which Descartes understands modes. In this case, the nature interpretation also provides a fruitful reading of Descartes notion of substance and independence. But what about attributes? By the fact that they constitute the very nature of substances, the substances cannot exist without their attributes and it is by their nature that they have this relation with them. This could imply that no created substance exist, since they by their nature not only from God but also from their attribute.

If we understand Descartes' definition of attribute and the meaning of a distinction of reason this objection does not have a solid ground. No attribute is really, or even modally distinct from the substance. And from this we can see that a substance cannot have a plurality of attributes. For if it is the case that a substance has more than one attribute there must be a distinction between the attributes, they are not the same entity. And if a substance is identical with its principal attribute and it has more than one attribute it must be different from at least one its attributes. And in this case this attribute is not an attribute of this substance. So the thesis that there is only a distinction of reason between substance and a principal attribute has the consequence that a substance has only one principal attribute. The puzzle that still remains is how Descartes can justify the thesis that a substance is identical with its principal attribute.¹³⁰

How are attributes and modes related? Modes refer to attributes in the sense that they are ways of instantiating an attribute. Thinking that the sun is bigger than the

¹²⁹ AT IV, 349; CSM III, 280

¹³⁰ Cf. Lia Levy, *O Conceito Cartesiano de Atributo Principal*; Sílvia Altmann, *Unicidade do Atributo Principal em Descartes*.

earth is a way of thinking and so a mode of the attribute thought; being a four-sided figure is a way of being extended, and so a mode of the attribute extension. But not only is every mode a mode of a certain attribute, every mode of any single substance is a mode of one and the same attribute. Everything else that can be attributed to an extended substance is a mode of extension, and everything else that can be attributed to a thinking substance is a mode of thought. We saw that Descartes distinguishes between substances and properties, and among these between attributes and modes, it looks as if Descartes has an ontology composed of three kinds of entities: substances, attributes, and modes. But that is not the case. Descartes attempts to establish an ontology that has only three fundamental notions.¹³¹ At the ontological level there are not three different kinds of entities, one corresponding to each notion, but only two kinds of entities, given the relation between substances and attributes.

If this is correct, we cannot say that Descartes have a theory of being as such, or of substance qua substance. We only have a clear and distinct conception of substance insofar it is a divine entity a thinking entity or a extended entity. If we can establish that also we have to rethink the relations between properties and substances. If a property is not something that inheres in a substance then we cannot affirm that when we say that 'snow is white' we are joining the concept of a predicate with the concept of a subject. Rather it seems that we are only asserting that this 'whiteness' is something that could pertain to a thing such as 'snow'. The function of the judgement is not of the composition of concepts, but of the affirming that some manifestation in a certain entity is real or not.

It was stated that if we took the principal attribute thesis to its last consequences we cannot defend the theory that Descartes' ontology is authorized to establish the existence of a bare substratum or the concrete idea of a substance qua substance which is one of the explicit strands of the tradition of the concept of substance. Put in these words, not only Descartes' approaches to substance are diverse they contain an apparent inconsistency. If there is no real distinction between a substance and its nature or attribute there cannot be a real distinction between a subject or substratum and its properties. Even if we assume that substance has by

¹³¹ Leaving aside, of course the notions of existence, duration and number.

itself the properties of duration, existence and number, which Descartes states in a couple of passages, we seem to solve the difficulty. The relevant feature that cannot be really distinguished from the substance is its essence or principal attribute which is a determined and simple concept. On the other hand, if we assume the independency conception in terms of the principal attribute we have to face the passages of the *Second Replies*. Not to mention the case of causal independence and possibly of modal independence.

It is not only necessary to show that the nature interpretation can be used adequately to describe God, created substances, attributes and modes, we still have to deal with the causal aspect of substantiality that Descartes mentions in the *Principles*. To come and to remain in existence we come to know since *Meditation III* is required that things are created and preserved by God's causal power:

“For a lifespan can be divided into countless parts, each completely independent of the others, so that it does not follow from the fact that I existed a little while ago that I must exist now, unless there is some causa which as it were creates me afresh at this moment – that is, which preserves me. For it is quite clear to anyone who attentively considers the nature of time that the same power and action are needed to preserve anything at each individual moment of its duration as would be required to create that thing anew if it were not yet in existence...since I am a thinking thing and have within me some idea of God, it must be admitted that what caused is itself a thinking thing and possesses the idea of all the perfections which I attribute to God”.¹³²

Creation and preservation are causal operations. And everything that is dependent from God in this aspect is causally dependent on Him. And in the *Principles* the fact that makes good a more perfect substance it is His absolute causal independence. So we must have to consider causation an important aspect of substantiality. The nature interpretation of substance can cover this feature as well. In

¹³² AT VII, 49; CSM II, 33-4.

God's nature as something that is infinite and has all the perfections is included the characteristic of being an uncaused entity. In the case of the created substances it is included the fact that they are something finite and that they have duration, in that case they must be dependent on God causally as it is expressly clear at *Meditation III* and is repeated in the *Principles*. If the idea of independence existence it is being defended since, at least, the *Discourse*. The relation of this independence with causality is as well as old as the text of the *Meditations*. We do not need to see Descartes oscillating in the *Principles* between one independence and the other. The degree of substantiality and independence is determined by the nature of the entity in question.

What about the causal dependence of modes? Modes are caused by created substances? As real entity modes are as well caused (created and conserved by God). If we admit that created entities have causal power for Descartes,¹³³ the difference between the nature of the modes and of created substances might suggest a causal asymmetry among them as well. Descartes, does not explore that possibility explicitly, but we might speculate. The thought of a dog eating his food is a mode of the thinking substance. And if we recall *Meditation III*, once again Descartes' argument for the existence of God starts with the investigation of the possible causes of the meditator's thoughts. So, it is necessary to admit that they are capable of being subject of causation. A fundamental distinction in the nature of thought is advanced in order to introduce this: formal reality and objective reality of ideas. A distinction between the operation of thought and the content that is perceived or conceived by the thinking thing. Without getting away of the focus and diving in Descartes ontology of thought, we might say these two realities are different aspects of the same act or mode. Although the content might depend on an external cause to be thought the act of thinking it is derived and dependent on the thinking substance that makes possible the act of perception. It might be argued that the understanding is a passive faculty, nevertheless, it is a fundamental component in the generation of the particular operation of thought. It is only possible to represent that the dog is eating because it is

¹³³ It is question in debate among the Cartesian scholars if there is real causal power in Descartes' metaphysics besides God, or he is in fact admits an occasionalism. Cf. Tad Schmaltz, *Descartes on Causation*.

possible to think, and that possibility is dependent causally on the nature of thinking substance as well. Similarly, we can defend that the modes of extension are caused by the nature of extension.

Recalling the *Synopsis*, we may see that there as well Descartes introduces the notion of substance in terms of independence and causality. Substances are defined as things which must be created by God in order to exist and things that are by their nature incorruptible and cannot ever cease to exist unless they are reduced to nothingness by God's power:

“First, we need to know that absolutely all substances, or things which must be created by God in order to exist, are by their nature incorruptible and cannot ever cease to exist unless they are reduced to nothingness by God's denying his concurrence to them. Secondly, we need to recognize that body, taken in the general sense¹³⁴, is a substance, so that it too never perishes. But the human body, in so far as it differs from other bodies, is simply made up of a certain configuration of limbs and other accidents of this sort; whereas the human mind is not made up of any accidents in this way, but is a pure substance...And it follows from this that while the body can very easily perish, the mind is immortal by its very nature”.¹³⁵

Besides God, only body taken in general and the mind can be considered substances in the causal relation employed in the *Synopsis*. Particular bodies, following the example of the human body, in so far as they are only a configuration of modes of extension are not incorruptible by their nature and do not have the same causal independence as the body in general or the mind, that only can be destroyed by God's will. Particular bodies are dependent on other created things and cannot be considered substances in the same sense as the body in general. We can read the *Synopsis*' passage as follows: Substances, in this case, created substances, come to existence and cease to exist only by God's power and concurrence. Body taken in general is something that needs God's

¹³⁴ 'corpus in genere sumptum'

¹³⁵ AT VII, 13; CSM II, 9

power and concurrence to come to existence and to cease to exist. The human also needs God's power and concurrence. Particular bodies, such as the human body are not substances.

The nature interpretation of substance can also be read as establishing modal relations among the types of ontological entities in Descartes' metaphysics. Every element that is contained in an entity's nature is necessary to it. All the modal expressions employed in article 51 can be read as possibilities and necessities that logically follow from the nature of the entity in question. It is through the analysis of the natures of God, mind and extension that Descartes intends to grant their status of substances. It is in virtue of God containing all the perfections and being the creator of everything that He is the substance in the strictest sense. As well, it is because that, for Descartes, thinking and extension are properties that can stand apart of each other only relying on God's concurrence that they can exist by only depending on God's concurrence. Modes need or require a substance because their nature is incomplete without the nature of the substance.

3.3. Problems with the subject interpretation:

We also saw that the theory of the principal attribute emerges from the argument for dualism. It is a requirement for the argument that we have a complete and sufficient conception of mind and body to be able to establish the real distinction between them. With the analysis of the exchange of Descartes with Caterus and Arnauld that is only possible if we assume that a substance has one and only one essential feature; and also that this feature cannot be really distinguished from the substance.

If we look to the discussion between Hobbes and Descartes in the *Third Set of Objections and Replies* we will see how the dualism is not compatible with the subject theory of substance. Hobbes is not satisfied with Descartes' conclusion in *Meditation II* about the essence of the mind and criticize it with strange version of the *cogito* argument:

“... from the fact that I am thinking it follows that I exist, since that which thinks is not nothing. But when the author adds ‘that is, I am a mind, or intelligence, or intellect or reason’, a doubt arises. It does not seem to be a valid argument to say ‘I am thinking, therefore I am thought’ or ‘I am using my intellect, hence I am an intellect.’ I might just as well say ‘I am walking, therefore I am a walk.”¹³⁶

Hobbes affirms that Descartes is making the following inference in *Meditation II*: from “I am thinking” to the conclusion that “I am thought.” And this, according to Hobbes, is where Descartes makes a mistake. On his view, Descartes is failing to make a distinction between a faculty, operation or property and the underlying subject in which it exists:

“Yet all philosophers make a distinction between a subject and its faculties and *actus*, i.e. between a subject and its properties and its essences”¹³⁷

By making such a distinction between a subject and its properties the fact that we are able to observe the existence of a property, namely thinking, it does not allow us immediately the conclusion that this property completely determines the nature of the entity that possess it. Hobbes complains that from the fact that is through the

¹³⁶ AT VII 172

¹³⁷ AT VII 172-73

observation of acts thinking we are not allowed to assume that the substance that contains thought is only a thinking substance. It is entirely possible that thought inhere in a body or in an extended substance as their subject:

“Hence it may be that the thing that thinks is the subject to which mind, reason or intellect belong; and this subject may thus be something corporeal. The contrary is assumed, not proved. Yet this inference is the basis of the conclusion which M. Descartes seems to want to establish.”¹³⁸

If we assume that there is the distinction between properties and subjects, we have to determine the nature of the subject. And to only point to a property that this subject has as the answer for the question about the nature of the subject does not seem to be adequate. The recognition of thought as a property since we are saying that there is a distinction between properties and subject does not exhaust the description of the nature of the subject. At best, we can say that thought is necessary for such a subject and its part of its essence. Still, we do not seem to have enough elements to defend that a substance that solely thinks exists. For Hobbes, Descartes’ argument permits the conclusion that something that think exists and once we established its existence we must start asking what is the nature of this thing. At this moment everything is possible, even the case that such a subject is in fact a material one.

This is a fair objection to Descartes? Does he in fact pass from the consideration that thought is a property of something to the conclusion thought is the whole essence and nature of such thing? In *Meditation II*, a few paragraphs after the conclusion of the cogito ‘I am, I exist’, Descartes says:

“Thinking? At last I have discovered it – thought; this alone is inseparable from me. I am, I exist – that is certain. But for how long? For

¹³⁸ AT VII 173

as long as I am thinking. For it could be that were I totally to cease from thinking, I should totally cease to exist. At present I am not admitting anything except what is necessarily true. I am, then, in the strict sense only a thing that thinks;...What else am I? I will use my imagination. I am not that structure of limbs which is called a human body...And yet may it not perhaps be the case that these very things which I am supposing to be nothing, because they are unknown to me are in reality identical with the 'I' of which I am aware? I do not know, and for the moment I shall not argue the point, since I can make judgments only about things which are known to me."¹³⁹

Where Hobbes finds an ontological determination about the nature of a substance, it seems, that in reality Descartes is making an epistemic affirmation. In that passage, Descartes surely affirms that thought is the only property that can be ascribed to the thing that certainly exists. All other bodily properties are excluded from the conception of such entity. However, this exclusion is from the perspective of what the meditator can establish with certainty about the nature of this thing and not a definitive description about the nature of such substance in itself. At most we can argue, that Descartes affirms some necessity of thought in the nature of this substance. So from the fact that thought is the only thing that we can know with certainty or that we know that necessarily pertains to thing it is not the same as to affirm that thought is the only property that pertains to the nature of this substance. Descartes even recognize at the end of the passage that is possible that the properties that the meditator refuses at the moment of this affirmation to pertain to his nature can in fact be part of it even in a necessary fashion.

Descartes can avoid Hobbes critique over the nature of the mind in *Meditation II*. But, interestingly, in *Meditation VI*, in the course of the real distinction argument, Descartes says:

¹³⁹ AT VII, 27; CSM II, 18.

“Thus, simply by knowing that I exist and seeing at the same time that absolutely nothing else belongs to my nature or essence except that I am a thinking thing, I can infer correctly that my essence consists solely in the fact that I am a thinking.”¹⁴⁰

The epistemic restriction of *Meditation II* is gone. Here Descartes defends from an ontological perspective that there is a substance whose nature is only thought. How can the meditator be certain that nothing else can pertain to his essence besides thought? Of course, it is a long journey from the reflection from the cogito and the nature of the mind in *Meditation II* to the real distinction argument in *Meditation VI*. Since then we are able to demonstrate the existence of God and that his goodness. We became familiarized with Descartes' opinions on causality, ideas and judgement. We can conceive in a better form what can be the nature and the essence of bodies and how different they are from minds. Nevertheless, as we have seen, when Descartes is questioned about the structure of this argument by Caterus and Arnauld he deems necessary to introduce the notions of 'complete substance', 'sufficient knowledge' and indicates his theory of the principal attribute that will be defended in the *Principles*. Which means that the notion of substance Descartes is mentioning is not based on the idea of a subject that support properties. So Descartes considers that he is entitled to sustain the affirmation that nothing belongs to the essence besides thinking and hence it is solely a thinking substance when 'substance' means something that can exist independently and have only one principal attribute and not as something that is the immediate subject from the properties we perceive.

It should be noted that Hobbes critique it is based on the subject model of substance. In that scenario, we have direct access only to the accidents and faculties of mind. But the underlying subject is quite something else. With that model in mind is Descartes able to sustain his dualism? Or can he demonstrate that mind is solely a substance that thinks?

Let us look how Descartes answers to Hobbes:

¹⁴⁰ AT VII, 78; CSM II, 54.

“If I may briefly explain the point at issue: it is certain that a thought cannot exist without a thing that is thinking; and in general no *actus* or accident can exist without a substance for it to belong to. But we do not come to know a substance immediately, through being aware of the substance itself; we come to know it only through its being the subject of certain *actus*. Hence it is perfectly reasonable, and indeed sanctioned by usage, for us to use different names for substances which we recognize as being the subjects of quite different acts or accidents. And it is reasonable for us to leave until later the examination of whether these different names signify different things or one and the same thing.”¹⁴¹

Descartes is employing the same concept of substance that Hobbes refers. He recognizes that substances are something distinct than accidents or faculties and also that they function as the subjects that contain these accidents or faculties. Not only this, mind and bodies are the different names that we use to describe possibly different substances by means of the different accidents or faculties that they possess. In the sequence, Descartes further describes in which consists the difference between the types of substance:

“For *actus* of thought have nothing in common with corporeal *actus*, and thought, which is the common concept under which they fall, is different in kind from extension, which is the common concept of corporeal acts”.¹⁴²

¹⁴¹ AT VII 175-6

¹⁴² AT VII 176

To present the distinction between two different subjects by pointing to the kinds of accidents that inhere on them maybe is step for the conclusion that there are in fact two different subjects. But that does not say anything about the nature of the subject itself and what is the reason to affirm that a subject that possess thinking properties cannot be the same subject that possess extended properties. At the end of his answer to Hobbes about this subject, Descartes directs our attention to the argument on the *Meditation VI*:

“Once we have formed two distinct concepts of these two substances, it is easy, on the basis of what is said in the Sixth Meditation, to establish whether they are one and the same or different”.¹⁴³

But the argument on *Meditation VI*, as Descartes clarifies in his discussions with Arnauld and Caterus does not intend to demonstrate that mind and body are different substances in the subject model. They can be considered different substances on the grounds that they can exist apart of each other as complete entities and our clear and distinct conception of one is not involved in the clear and distinct conception of the other. If we assume the subject model of substance, where there is a distinction between substance and its properties and we even can consider the subject a bare substratum, I do not think that dualism would be established with this argument of *Meditation VI*.

Following the structure of the argument let us say that first we have a clear and distinct representation of mind apart from body and of body apart from mind. God has the power to create them separately. That is not sufficient to consider them two distinct substances if substances means a subject of properties. In the definition that Descartes presents in *Second Replies*:

¹⁴³ AT VII, 176.

“The only idea we have of a substance itself, in the strict sense, is that it is the thing in which whatever we perceive (or whatever has objective being in one of our ideas) exists, either formally or eminently.”¹⁴⁴

In face of this definition thought and extension in so far they are things that we can have a conception or perception must be seen as things that immediately rest upon an underlying subject. And their separate existence is consistent with the affirmation that they share a common underlying subject. They are nothing more than different aspects of such a subject. If such a subject were thoughtless that would not affect the existence of matter, and vice versa. We can differentiate sets or groups of other properties that share immaterial features from those that share material ones, and refer to them by different concepts. And even may say that they are somehow conditions and bearer of such other properties. However, nothing in that force us to conclude that mind and body are two ultimate different subjects of properties.-

As long as we defend the subject of properties model of substantiality in Descartes, the objection raised by Hobbes will stand. If there is a real distinction between the subject and its properties such as what is presented in the *Second Replies* we cannot know nothing further about it than the fact that is a subject, something that thinks can also be a body and a body can also be something that thinks. And the argument presented in *Meditation VI* does not seem to establish the intended conclusion.

When it was discussed the importance of the idea of conceptual independence in the case of the real distinction argument, the difficulty that is presented by Hobbes is addressed through another aspect. Caterus and Arnauld by pressing Descartes to clarify his argument for dualism turn possible Descartes introduce fundamental topics of his metaphysics that will be later and fully developed in the *Principles*. In establishing the importance of conceptual independence and attaching his theory of substance in one variety of the independence model strand, Descartes is perhaps moving away from the subject model. If what is relevant for the argument in question

¹⁴⁴ AT VII 161

is the notion that substance is something that we can clear and distinctly conceive as capable of existing on its own without the reference to any other thing, and that is only possible through the means of the admission of the principal attribute, then the subject model is not relevant for that argument. And as we have seen with the discussion with Hobbes, not only not relevant the subject model gives us reason to doubt the validity of the argument.

Let us take another look at what is discussed between Descartes and Arnauld and see the important differences and inconsistency that the notion of substance that Descartes employs in this context is with the one that supports the subject model. In the *Fourth Set of Objections and Replies*, Arnauld says:

“But someone may ... maintain that the conception you have of yourself when you conceive of yourself as a thinking, non-extended thing is an inadequate one; and the same may be true of your conception of yourself as an extended, non-thinking thing. ... It therefore remains to be proved that the mind can be completely and adequately understood apart from the body.”¹⁴⁵

With the example of the geometrical properties that a triangle has, Arnauld presents his point. It is possible to have the knowledge that a triangle is a right one without knowing that the sum of the squares on the sides equals the square on the hypotenuse. If that is possible, it is also possible to have knowledge that the mind is constituted by thought and to not know that is also a corporeal thing, even in reality it is. To answer to this objection, Descartes introduces explicitly a feature of the concept of substance that was not at least directly present in other passages about the topic in earlier texts:

¹⁴⁵ AT VII 200-201

“But now I must explain how the mere fact that I can clearly and distinctly understand one substance apart from another is enough to make me certain that one excludes the other. The answer is that the notion of a substance is just this - that it can exist by itself, that is without the aid of any other substance.”¹⁴⁶

The definition of substance seems to have changed if we compare with the one that we find in the *Second Replies*. It is not entirely new, it goes back to the notion of independence suggested in *Meditation III*. But there it was not yet clear what kind of independence Descartes was addressing. Of course, as well, that definition is quite similar to the one we can observe in article 51 of the first part of the *Principles* (it is important to note that text of the of *Principles* will come along after the exchange with Arnauld, in fact we have some evidence that Descartes was working on such project by the time of this debate).¹⁴⁷ Descartes goes on and to explain how we can obtain a clear and distinct conception of the mind that does involve the body or of the body that does not involve the mind:

“We do not have immediate knowledge of substances, as I have noted elsewhere. We know them only by perceiving certain forms or attributes which must inhere in something if they are to exist; and we call the thing in which they inhere a 'substance'. But if we subsequently wanted to strip the substance of the attributes through which we know it, we would be destroying our entire knowledge of it. We might be able to apply various words to it, but we could not have a clear and distinct perception of what we meant by these words.”¹⁴⁸

¹⁴⁶ AT VII 225-26

¹⁴⁷ Cf. Daniel Garber, *Descartes Against the Materialists*.

¹⁴⁸ AT VII 222;

If we compare these affirmations with the notion of substance as a subject of properties there is a major revision. Descartes still employs the vocabulary of inherence here but he asserts that we no longer can have a conception of substance deprived of its properties which is fundamental for the subject model of interpretation. He is extracting this conclusion from the fact that we do not have immediate knowledge of the substance only of its properties or attributes. That was also stated in the *Second Replies* and in the debate with Hobbes; however in those contexts, the conception of the substance as a subject would persist. In the answer to Arnauld, not even this idea of substances would be possible. There is no underlying subject that we can grasp inferentially through the immediate perception of properties; "...we might be able to apply various words to it, but we could not have a clear and distinct perception of what we meant by these words." Descartes is not saying anymore that there is a common notion of substance between thought and extension. That what differentiates the two kinds of substance it is their properties and not the substantiality that they possess. The substantiality of thought is not something distinct of the thinking attribute and the substantiality of body is not something distinct of extension. And even though we can speak or talk of an underlying subject in itself the object of our discourse is an abstraction and not something that exist apart of such mental operation. What exists is the thinking substance and the extended substance.

Turning to the *Principles* we can see that this reading of the discussion with Arnauld is consistent with Descartes' thought. "By *substance* we can understand nothing other than a thing which exists in such a way as to depend on no other thing for its existence." Descartes maintains the thesis that we cannot come to a knowledge of substance itself only of its properties:

"However, we cannot initially become aware of a substance merely through its being an existing thing, since this alone does not of itself have any effect on us. We can, however, easily come to know a substance by one of its attributes, in virtue of the common notion that nothingness possesses no attributes, that is

to say, no properties or qualities. Thus, if we perceive the presence of some attribute, we can infer that there must also be present an existing thing or substance to which it may be attributed.”¹⁴⁹

Now, however, the inferential relation that we had with substance is not with something that we cannot know in itself, such a thing does not exist. Descartes introduces the fundamental distinction between modes and the principal attribute¹⁵⁰. When we had the conception of thought as a basic property of the mind to which all of other properties it may possess presuppose thinking and the nature of such thing is nothing more than that: substantialized thought:

“A substance may indeed be known through any attribute at all; but each substance has one principal property which constitutes its nature and essence, and to which all its other properties are referred. Thus extension in length, breadth and depth constitutes the nature of corporeal substance; and thought constitutes the nature of thinking substance. Everything else which can be attributed to body presupposes extension, and is merely a mode of an extended thing; and similarly, whatever we find in the mind is simply one of the various modes of thinking.”¹⁵¹

Modes are transitory properties that a substance has. A thinking substance can have the idea of a circle or of an angel. And it can change representations without losing its

¹⁴⁹ AT VIII-A, 25; CSM I, 210.

¹⁵⁰ Cf., Marignac 1980; Secada 2006; Nolan 1997; Rozemond 1998, ch. 1; Dutton 2003; Rodriguez-Pereyra 2008; and Normore 2008.

¹⁵¹ AT VIII-A, 25; CSM I, 210.

identity. Nonetheless, it cannot change or lose its principal attribute. A mind can have different ideas and wills various things, but it must be a thinking thing. To explain the special relation that thought or extension have with the thinking substance and the extended substance Descartes utilizes the notion of rational distinction or distinction of reason:

“Finally, a *distinction of reason* is a distinction between a substance and some attribute of that substance without which the substance is unintelligible....Such a distinction is recognized by our inability to form a clear and distinct idea of the substance if we exclude from it the attribute in question...”¹⁵²

And the relation between the substances and their principal attributes is explained as following:

“Thought and extension can be regarded as constituting the natures of intelligent substance and corporeal substance; they must then be considered as nothing else but thinking substance itself and extended substance itself - that is, as mind and body. In this way we will have a very clear and distinct understanding of them. Indeed, it is much easier for us to have an understanding of extended substance or thinking substance than it is for us to understand substance on its own, leaving out the fact that it thinks or is extended. For we have some difficulty in abstracting the notion of substance from the notions of thought and extension, since the distinction between these notions and the notion of substance itself is merely a distinction of reason.”¹⁵³

¹⁵² AT VIII-A, 30; CSM I, 214.

¹⁵³ AT VIII-A, 30-1; CSM I, 215.

“Others may disagree, but I do not think they have any alternative perception of the matter. When they make a distinction between substance and extension or quantity, either they do not understand anything by the term 'substance', or else they simply have a confused idea of incorporeal substance, which they falsely attribute to corporeal substance and leave for extension (which they call an accident) the true idea of corporeal substance. And so with their words they express something different from what they grasp with their minds”.¹⁵⁴

Descartes' terms can be bit confusing on these passages. He still says that substances are subjects but not as a subject of properties in the terms of a substratum or bearer of properties that is deprived of any determination. Substances are subject of modes in a way that modes are determinations of the principal attribute that constitutes the whole nature of the substance. What is primary in his ontology of creatures is the notions of extension and thought, the notion of a substratum is an abstraction of the conceptions of thinking substance or of the extended substance. We must perceive, following Descartes on the last quotation, that when we use the conception of a bare substratum we are not dealing with a clear and distinct idea of substance but a confused idea of it. To say that extension is a property or accident that must inhere in a substance to then form the corporeal substance is a wrong conclusion derive from an ill formed representation. There is extended substance and not substance with extension. If that is the relation between a substance and its properties, a relation between a nature that is identical with the existence of the substance and the determinations of such a nature there is no distance or gap between a substratum and its accidents. The critique of Hobbes to Descartes does not longer fit. To grasp the substantial fundament of thought or extension is to grasp the natures that constitute such entities and nothing more.

A clear consequence of this interpretation of substance in Descartes is that theory is no such thing as substance in itself or substance as substance. At least no

¹⁵⁴ AT VIII-A, 45; CSM I, 226-7

clear and distinct idea of such substance can be formed. If that is a solution for the real distinction argument it may seem a problem for the argument to establish the existence of God in *Meditation III*. If that there is no idea of substance simpliciter or a common idea of substance between mind and extension how can the meditator achieve the idea of substance through the reflection upon himself and a stone? It will not suffice an abstraction. The argument necessitates a clear and distinct idea. How can Descartes achieve a clear and distinct idea of an infinite substance through the reflection upon a created and finite substance without the possibility of a common notion of substance? The definition of substance that Descartes explicitly introduces in *Meditation III* is one that refers to the capacity of existing independently¹⁵⁵ and not to the idea of a subject of properties.

Another manner to address Descartes refusal of the idea of substances as a subject of properties is through his arguments against the existence of real accidents in the *Sixth Replies*.¹⁵⁶The subject model of substance suppose a distinction between the substance and the accident in terms that accidents are not contained in the definition of substance and the real definition of the substance also does not include a reference to a particular accident. This clear and distinct conception of both the accident and the substance as things that can exist apart of each other fits Descartes' criteria for real distinctness. Accidents, as Descartes presents them, are entities in their own right, really distinct from a substance and, consequently, separable from it. They might inhere in a substance, but this is not by some feature of their nature:

“But surely the only reason why people have thought that accidents exist is that they have supposed that they are perceived by the senses. Secondly, it is completely contradictory that there should be real accidents, since whatever is real can exist separately from any other subject; yet anything that can exist separately in this way is a substance, not an accident. The claim that real accidents cannot be separated from their subjects “naturally”, but only by the power of God, is irrelevant.

¹⁵⁵ AT VII, 44.

¹⁵⁶ Cf. Stephen Menn, *The Greatest Stumbling Block*.

For to occur “naturally” is nothing other than to occur through the ordinary power of God, which in no way differs from his extraordinary power – the effect on the real world is exactly the same. Hence if everything which can naturally exist without a subject is a substance, anything that can exist without a substance even through the power of God, however extraordinary, should also be termed substance”.¹⁵⁷

Accidents are, by the nominal definition, entities that must inhere and be dependent on substances. However, if we conceived them as the subject model suggest they must be different from the substance that they supposedly inhere in such a way that are ontologically independent of them. This ontological independence implies that accidents must in fact be substances, in Descartes’ terms. So, accidents are things that have an incoherent definition they have to be, apparently, by the same aspect independent and dependent. Descartes’ conclusion is that such entities do not exist. And if real accidents do not exist, we cannot as well defend the subject model of substantiality. For this interpretation suppose the inherence relation of substance and its properties in terms that accidents must be different and distinct from its substance, since substance is bare substratum deprived of determination.

By this point we have strong textual and hermeneutical evidence that the subject model of substance cannot be accepted in Descartes. Instead, we must assume that the notion of substance express the idea of independence existence by means the nature which is described by the Cartesian thesis of the principal attribute. Nonetheless, Descartes also employs the term subject to describe substance in several passages. How should this passages be interpreted to reconcile with the interpretation developed here? The idea is that Descartes is not against the fact that substance has the function of subject, he is in fact against the idea the idea that a substance is subject distinct from its properties; a bare substratum. This does not prevent us, though, from interpreting substances in Descartes as subjects of predication. Predication, given the peculiar relations provided by substances, attributes and modes

¹⁵⁷ AT VII, 435; CSM II, 293.

must not be understood in the form 'S is P' because this slogan is clearly related with the classical distinction between subject of inherence and property that inheres. But if we take that a substance is identical with its principal attribute then we have to say that a substance is particular and determined nature. We have in Descartes' system three entities that can be called substances: God, mind and body. Leaving God side, since it does not seem the case that His nature can be further determined for He is the being that contain all the perfections, we can and usually do further determine the created substances. The notion of mode or modification has this precise function in Descartes. It takes a determined property, for instance, to think and specified what kind of think a certain substance has. So think of the sun, or to think of God or rather of a movie that I'm watching are different determinations or modifications of the thinking thing. Those determinations do not inhere in the subject they are only actualizations of the possible ways of thinking. We are not saying properly that a substance has a certain property; rather we are saying that a substance exists in certain way. Thinking gives us a determinate scope what kind of further determinations a substance might have. And the mode provides the specific and temporary determination a substance have. The better way representing Descartes' views on predication might be 'SP is', where the 'SP' compound represents a modified substance and 'is' represents the assertion of the existence of the modified substance.

If we observe the definition of substance in the *Second Replies*:

"V. Substance. This term applies to every thing in which whatever we perceive immediately resides, as in a subject, or to every thing by means of which whatever we perceive exists. By 'whatever we perceive' is meant any property, quality or attribute of which we have a real idea. The only idea we have of a substance itself, in the strict sense, is that it is the thing in which whatever we perceive (or whatever has objective being in one of our ideas) exists, either formally or eminently. For we

know by the natural light that a real attribute cannot belong to nothing".¹⁵⁸

It is consistent with the proposed reading of predication. We do not perceive thinking or extension in themselves only modes of thinking and extension. Their relations with the substances is immediate because they possess only modal distinction, that is, modes are the substances existing in a specific way, they are not identical to the nature of the substance, but suppose such a nature. When Descartes introduces the term 'subject' in the definition it is by saying before 'as in'. This can, perhaps, point to an analogy between the relation that modes have with substances and accidents have with their substances. Both accidents and modes determine the substance, but they do that in quite different manners. For the affirmation that there's an idea of substance itself as something distinct of its principal attribute, well there is, but such an idea is an abstraction. In the definition of the *Second Replies*, Descartes is not affirming that the idea of substance itself is a clear and distinct idea of substantiality. He is only saying that the only idea of substance by itself is this, but that is perfectly compatible with being an abstract idea.

4. Descartes concept of extension

In the *Principles*, Descartes explains that each substance has a principal attribute or property that constitutes its nature and essence, and to which all its other

¹⁵⁸ AT VII, 161; CSM II, 114

properties are referred.¹⁵⁹ Identifies extension as the principal attribute of material substance and describing size, shape, position, and local motion as modes or modifications of that principal attribute:

“A substance may indeed be known through any attribute at all; but each substance has one principal property which constitutes its nature and essence, and to which all its other properties are referred. Thus extension in length, breadth and depth constitutes the nature of corporeal substance; and thought constitutes the nature of thinking substance. Everything else which can be attributed to body presupposes extension, and is merely a mode of an extended thing; and similarly, whatever we find in the mind is simply one of the various modes of thinking. For example, shape is unintelligible except in an extended thing; and motion is unintelligible except as motion in an extended space; while imagination, sensation and will are intelligible only in a thinking thing. By contrast, it is possible to understand extension without shape or movement, and thought without imagination or sensation, and so on; and this is quite clear to anyone who gives the matter his attention”.¹⁶⁰

These modes must be understood through the principal attribute. That means that we must conceive the modes as determinations or limitations of that attribute. The attribute is already a determination, but this does not preclude the fact that it can be further determined. This further determination is a limitation or a circumscription of the characteristic that the attribute already has. This means that is possible to conceive an attribute without conceiving a peculiar mode, but we cannot conceive a mode without conceiving the attribute that it determines. Thus, while we might be

¹⁵⁹ Some mention must be made of the notions of substance, duration, order, and number, which are common to all existents and thus not understood through either thought or extension; see *Principles* Part I, art. 48. These notions appear in the *Rules* as the "common" simple natures (AT X 419: CSM 144-5), and in the celebrated letter to Elisabeth of 21 May 1643 as one of the groups of "primitive notions" in terms of which everything is comprehended (AT III 665: CMSK 218). Though they pertain to mental and material substances, these notions would not seem to be comprehended through the principal attribute, thought or extension.

¹⁶⁰ AT VIII-A, 25; CSM I, 210-211

able to think of extension without motion, we cannot think of motion without there being extension or space for it dislocates. Similarly, we can conceive size, shape, and position as modifications of extension that delimits the extension. As Descartes says in the *First Replies*:

“For example, the distinction between the motion and shape of a given body is a formal distinction. I can very well understand the motion apart from the shape, and vice versa, and I can understand either in abstraction from the body. But I cannot have a complete understanding of the motion apart from the thing in which motion occurs, or of the shape apart from the thing which has the shape; and I cannot imagine there to be motion in something which is incapable of possessing shape, or shape in something which is incapable of motion. In the same way, I cannot understand justice apart from the person who is just, or mercy apart from the person who is merciful; and I am not at liberty to imagine that the same person who is just is incapable of mercy. By contrast, I have a complete understanding of what a body is when I think that it is merely something having extension, shape and motion, and I deny that it has anything which belong to the nature of a mind.”¹⁶¹

When we speak of the relation between the attribute and its modes as a delimitation at the level of concepts we see a restriction and further precision on what is being conceived. But also this precision has an ontological aspect. When we are talking about delimitations of extension and, as we know, that is the same as body for Descartes, we are talking about physical (material) and spatial delimitations as well. A modification of extension creates boundaries and, by this fact, partitions of extension. To understand parts of extension is necessary to understand extension as a whole. This whole, however, does not need to be of a limited extension; since Descartes will argue for the essential divisibility¹⁶² of extension. This extension conceived despite its modes must

¹⁶¹ AT VII, 121; CSM II, 86.

¹⁶² Descartes will also apply some kind indefinite divisibility to the realm of minds when we consider its duration. Cf. Tad Schmaltz.

be a indefinitely large magnitude. It has no parts, boundaries, shape, it has no position. Rather all those things require this extension that in its turn does not require them.¹⁶³

The notion of extension is so closely bound to the notion of corporeal substance that, for Descartes, we cannot comprehend the notion of this substance apart from its principal attribute. The attempt to conceive body without extension will lead to a deep misconception of the nature of the object. In the *Principles* II.9, Descartes says:

“Others may disagree, but I do not think they have any alternative perception of the matter. When they make a distinction between substance and extension or quantity, either they do not understand anything by the term 'substance', or else they simply have a confused idea of incorporeal substance, which they falsely attach to corporeal substance; and they relegate the true idea of corporeal substance to the category of extension, which, however, they term an accident. There is thus no correspondence between their verbal expressions and what they grasp in their minds”.¹⁶⁴

Two consequences of this identification of body with extension are interesting to note. First, qualities such as colors, tastes, smells and similar things are not properties of bodies per se. They are the results of the interaction of bodies and minds and must be understood through the notion of the union. And also that it seems clear that the notion of material objects is quite different than the one embraced by the scholastic tradition.¹⁶⁵ If it seems, at first, that the utilization of terms such as substance, essence, and accidents to describe material object approximates Descartes to the tradition; the idea of the principal attribute does not let these comparisons to take higher flights. A horse, for example, is an entity whose nature is constituted by the form of equinity,

¹⁶³ Since position is defined through the notion extension it does not seem possible for Descartes to have a notion of space that is distinct as well from extension. He has an argument, that we shall later see, to refuse the possibility of vacuum, the idea of some entity in the material world that lacks materiality and serves as a container to material things.

¹⁶⁴AT VIII-A, 45; CSM I, 226-227

¹⁶⁵ Cf. *On Being and Essence*, ch. 2, § 2.

which involves animality among other concepts. It is necessarily a material thing, but extension does define its nature. It has those properties that in the Cartesian world belong to sensations as real properties not only as relational properties. It has also a variety of accidental, or non-essential features, that while depend existentially and even causally of the substance they do not seem to depend conceptually. In this sense the Aristotelian framework allows for there to be accidents which are, as it were, tacked onto substances which are otherwise conceived of as complete. For Descartes, if the interpretation that we are presenting is correct, all properties of a corporeal substance must be conceived through its essence, and the essence not only defines the necessary properties of the nature of body, it defines body completely.

Descartes identifies body or bodies with extension and we have seen so far what it means for him to define the nature of material things in such a way and some consequences that this position brings to the metaphysical context of bodies in the Cartesian system. But why we must assume that bodies are identical with extension? Descartes gives us any argument for that thesis? In the article 9 of part II of the *Principles*, we have seen that Descartes believes that is not possible to conceive bodies otherwise, that such conceptions are deeply misguided. Before Descartes' conception, however, we have seen that there is a long and influential philosophical conception of bodies as hylomorphic compounds. It seems then that the burden of proof is on Descartes' shoulders.

According to Daniel Garber in his book, *Descartes' Metaphysical Physics*,¹⁶⁶ Descartes presents three different arguments to the conclusion that bodies are identical with extension: the argument from elimination, the argument from objective reality, and the complete conception argument.¹⁶⁷

The argument from elimination appears most explicitly in the *Principles*. In *Principles* Part II, art. 4, Descartes claims to show "that the nature of matter, or of body regarded in general does not consist in the fact that it is a thing that is hard or heavy or

¹⁶⁶ Here I'll follow Garber's reconstruction of Descartes' arguments in the chapter 3 of his book.

¹⁶⁷It is quite common to interpret the wax example in *Meditation II* as a place where Descartes discusses the nature of body. It is important to note, however, that in responding to Hobbes, Descartes denies that the wax example is intended to establish anything about the nature of body. Cf. AT VII 175: CSM II124.

colored or affected with any other mode of sense, but only in the fact that it is a thing extended in length, breadth, and depth." The argument proceeds by considering the case of hardness. Descartes argues that even if we imagined bodies to recede from us when we try to touch them, so that "we never sensed hardness," things "would not on account of that lose the nature of body." He concludes: "By the same argument it can be shown that weight and color and all of the other qualities of that sort that we sense in a material body can be taken away from it, leaving it intact. From this it follows that its nature does not depend on one of those qualities" (*Principles* Part II, art. 4.). The French version of this article adds a positive statement about their nature: "and that its nature consists in this alone, that it is a substance which has extension." Note also the very similar argument in *Principles* Part II, art. 11, where Descartes is arguing that "the extension constituting the nature of a body is exactly the same as that constituting the nature of a space. The argument seems to be that extension must be the essence of body because all other accidents can be eliminated without thereby eliminating body, and so, without extension, there can be no body.

But, interesting as this argument is, it doesn't seem to do the job. Descartes needs to establish that our idea of body is the idea of a thing whose only genuine properties are geometrical, a thing that *excludes* all other properties. But what the strategy in this argument establishes is that our idea of body is the idea of a thing at least *some* of whose properties must be geometrical. From the fact that we can conceive of a body without hardness, or color, or warmth, it does not follow that body is really hard, or colored or warm, any more than it follows from the fact that we can conceive of a nonspherical body that no body is really spherical. At best the argument from elimination establishes that the essence of body is extension in the weaker Aristotelian sense, and not in the stronger Cartesian sense.

The argument from objective reality is suggested most clearly in the Fifth Meditation, whose title promises an investigation of "the essence of material things. . . ." When we examine our idea of body, Descartes claims, we find that what is distinct in our ideas of body is "the quantity that philosophers commonly call continuous, or the extension of its quantity, or, better, the extension of the thing quantized, extension in length, breadth, and depth . . ." (AT VII 63: CSM II 44). His reasoning seems to be something like this. What strikes Descartes as extremely significant about the

geometrical features of our ideas of body is that we can perform proofs about those features, and demonstrate geometrical facts that we did not know before, and that we seem not to have put into the ideas ourselves. But, Descartes notes, "it is obvious that whatever is true is something, and I have already amply demonstrated that everything of which I am clearly aware is true" (AT VII 65: CSM II 45). Descartes seems to assume that whatever is true must be true of *something*, and so he concludes these geometrical features we find in our ideas of body must, in some sense, exist. At this stage in the argument we cannot, of course, conclude that they exist outside the mind. And so, Descartes concludes, they exist as objects normally exist in the mind, as objects of ideas, as objective realities. And so, Descartes takes himself to have established, our ideas of bodies really have the geometrical properties we are inclined to attribute to them.

It certainly can be seen that this argument establish that our idea of body is the idea of something that has geometrical properties. But Descartes wants to establish a stronger claim, that bodies not only have geometrical properties, but that they have geometrical properties alone, that is, that they lack all other properties. So far, the argument suggested in the Fifth Meditation falls short of establishing the essence of body, as Descartes implies it does.

The complete concept argument is, in essence, found in the celebrated argument for the distinction between mind and body in the Sixth Meditation. But the premises of the argument are considerably clarified in the *Objections and Replies* and in correspondence of the period, as we have seen in our discussion of substance in the last part. Behind the argument is a certain view about the concepts we have about the nature of body. So in this argument, Descartes would relying in the nature interpretation of substances that was presented. When we examine our concepts, we note that some of them are incomplete, and require certain connections to others for full comprehensibility. In a letter Descartes says:

"In order to know if my idea has been rendered incomplete or inadequate by some abstraction of my mind, I examine only if I haven't drawn it ... from some other richer or more complete idea that I have in me through an abstraction of the intellect. . .

Thus, when I consider a shape without thinking of the substance or the extension whose shape it is, I make a mental abstraction."¹⁶⁸

Descartes noted in the Fourth Replies, in response to an objection of Arnauld's:

"For example, we can easily understand the genus 'figure' without thinking of a circle... But we cannot understand any specific differentia of the 'circle' without at the same time thinking about the genus 'figure'"¹⁶⁹

Following out this series of conceptual dependencies, from circle to shape, we are led ultimately to the idea of a thing that has the appropriately general property, since, Descartes holds, "no act or accident can exist without a substance for it to belong to" (AT VII175-6: CSM II124). When we examine our ideas, we find that all of the concepts we have sort themselves out into two classes, those that presuppose the notion of extension, and those that presuppose the notion of thought. In the *Third Replies*, Descartes says:

"Now, there are certain acts that we call 'corporeal, such as size, shape, motion and all others that cannot be thought of apart from local extension; and we use the term 'body' to refer to the substance in which they inhere. It cannot be imagined that one substance is the subject of shape, and another is the subject of local motion, etc., since all of those acts agree in the common concept of extension. Next there are other acts which we call 'acts of thought', such as understanding, willing, imagining, sensing, etc.: these all agree in the common concept of

¹⁶⁸ AT III 474-5: CSM III, 200

¹⁶⁹ AT VII 223: CSM II 157. See also *First Replies*: AT VII, 120-1; CSM II, 85-6.

thought or perception or consciousness, and we call the substance in which they inhere a 'thinking thing', or a 'mind'"¹⁷⁰

And so, Descartes observes, again to Hobbes, "acts of thought have no relation to corporeal acts, and thought, which is their common concept, is altogether distinct from extension, which is the common concept of the other" (AT VII 176: CSM II 124). Thus, Descartes concludes, the ideas we have of mind and body do not depend upon one another for their conception. But, as Descartes argues in the Fourth Meditation, whatever we can clearly and distinctly conceive, God can create. And so, things purely extended can exist without thinking substance. The thinking things are what Descartes calls souls, or minds, and the extended substance from which they are distinguished in this argument is what Descartes calls body, or corporeal substance. Souls, or minds, contain sensation, intellection, and will, but extended substance contains the broadly geometrical properties of size, shape, and motion, and those alone; insofar as sensory qualities like heat and color presuppose thought and not extension, and thus require a thinking substance in which to inhere, Descartes claims, they belong not in extended substance but in mind and mind alone. And insofar as it is body so conceived that, we are inclined to believe, is the source of our sensory ideas of body, it is body so conceived that exists in the world, Descartes concludes. The bodies of physics are, thus, the objects of geometry made real.

From the doctrine of body as extension, some extremely important consequences follow for Descartes about the physical world, doctrines that concern the impossibility of atoms and the void, as well as the falsity of substantial forms.

The discussion about the nature of space and its relation to bodies in the material world is already an old one when Descartes approach it in his physics. In this sense the possibility of a vacuum, or void, among physical objects has a long history. Aristotle presents an argument against the possibility of a vacuum and empty space in the *Physics* IV, 6-9, and as Edward Grant¹⁷¹ shows in his book that the idea of an empty space in the medieval ages through the scientific revolution. Descartes notion of

¹⁷⁰ AT VII, 176; CSM II, 124

¹⁷¹ *Much Ado about Nothing: Theories of Space and Vacuum from the Middle Ages to the Scientific Revolution*

physical objects is quite different from the Aristotelian one, but he came to the same conclusion: there cannot be a vacuum or empty space in material world. His argument against it, is based on his identification of body with extension. As early as Descartes identifies bodies with extension in the *Rules* we see a parallel reasoning to deny the idea of an empty space. He suggests that at least in imagination, there is no distinction between body and extended space. In *Rule XIV*, Descartes says:

“By 'extension' we mean whatever has length, breadth and depth, leaving aside the question whether it is a real body or merely a space”.¹⁷²

This suggestion reappears in the discussion of space in *The World*. In the chapter 4, Descartes consider the knowledge that we have of bodies and of the material world and affirms that we cannot infer that bodies do not occupy a place. In *The World*, Descartes says:

“But here you might bring forward a difficulty which is rather important - namely, that the component parts of fluid bodies cannot, it seems, move about incessantly as I have said they do, unless there is empty space between them, at least in the places which the parts vacate as they move about. I would have difficulty in replying if I had not learned, through various observations, that all the motions which take place in the world are in some way circular. That is, when a body leaves its place, it always enters into the place of some other body, and so on to the last body, which at the same instant occupies the place vacated by the first. Thus there is no more of a vacuum between

¹⁷² AT X, 442; CSM I, 59.

bodies when they are moving about than when they are at rest".¹⁷³

4.1. The Argument Against Vacuum:

In the *Principles*, however, Descartes seems to argue for the case against vacuum in a more direct and straightforward fashion. In the article 16 of part II of the *Principles*, Descartes says:

“The impossibility of a vacuum, in the philosophical sense of that in which there is no substance whatsoever, is clear from the fact that there is no difference between the extension of a space, or internal place, and the extension of a body. For a body's being extended in length, breadth and depth in itself warrants the conclusion that it is a substance, since it is a complete contradiction that a particular extension should belong to nothing; and the same conclusion must be drawn with respect to a space that is supposed to be a vacuum, namely that since there is extension in it, there must necessarily be substance in it as well.”¹⁷⁴

In the passage, Descartes appeals to the principle that every property requires a subject to argue that there can be no extension that is not the extension of a substance. Since extended substance in nothing beyond body, the world is full of body as well, there is nothing in the world that is not body; hence empty space is not possible.

¹⁷³ AT XI, 18-19; CSM I, 86.

¹⁷⁴ AT VIII-A, 49; CSM I, 229-230.

The conclusion of article 16 is reached after a series of conceptual relations that are traced among bodies, extension and space. In article 8, Descartes affirms that the extension of a particular body is the same as the extension of space:

“There is no real difference between quantity and the extended substance; the difference is merely a conceptual one, like that between number and the thing which is numbered. We can, for example, consider the entire nature of the corporeal substance which occupies a space of ten feet without attending to the specific measurement; for we understand this nature to be exactly the same in any part of the space as in the whole space.”¹⁷⁵

In article 9, there is the defense of the identity of body and extended substance, being the distinction present between them a distinction of reason:

“Others may disagree, but I do not think they have any alternative perception of the matter. When they make a distinction between substance and extension or quantity, either they do not understand anything by the term 'substance', or else they simply have a confused idea of incorporeal substance, which they falsely attach to corporeal substance; and they relegate the true idea of corporeal substance to the category of extension, which, however, they term an accident. There is thus no correspondence between their verbal expressions and what they grasp in their minds.”¹⁷⁶

In article 10 that there is no difference between a body and what is contained in it:

¹⁷⁵ AT VIII-A, 44-45; CSM I, 226.

¹⁷⁶ AT VIII-A, 45; CSM I, 227.

“There is no real distinction between space, or internal place, and the corporeal substance contained in it; the only difference lies in the way in which we are accustomed to conceive of them. For in reality the extension in length, breadth and depth which constitutes a space is exactly the same as that which constitutes a body. The difference arises as follows: in the case of a body, we regard the extension as something particular, and thus think of it as changing whenever there is a new body; but in the case of a space, we attribute to the extension only a generic unity, so that when a new body comes to occupy the space, the extension of the space is reckoned not to change but to remain one and the same, so long as it retains the same size and shape and keeps the same position relative to certain external bodies which we use to determine the space in question”.¹⁷⁷

In this passage Descartes is using the distinction of ‘internal place’ from ‘external place’. Such a distinction has its origins in scholastics authors that distinguished between *locus internus*, or ‘internal place’ (the space by a body), and *locus externus*, or ‘external space’ (the external surface containing a body). Descartes employs the traditional terminology here and at art. 13 below, but puts it to his own use.

In article 11, Descartes argues that as the same that there is no distinction between extension and body also there is no real distinction between extension and space:

“There is no real difference between space and corporeal substance. It is easy for us to recognize that the extension constituting the nature of a body is exactly the same as that constituting the nature of a space. There is no more difference between them than there is between the nature of a genus or species and the nature of an individual. Suppose we attend to the idea we have of some body, for example a stone, and leave

¹⁷⁷ AT VIII-A, 45; CSM I, 227.

out everything we know to be non-essential to the nature of body: we will first of all exclude hardness, since if the stone is melted or pulverized it will lose its hardness without thereby ceasing to be a body; next we will exclude colour, since we have often seen stones so transparent as to lack colour; next we will exclude heaviness, since although fire is extremely light it is still thought of as being corporeal; and finally we will exclude cold and heat and all other such qualities, either because they are not thought of as being in the stone, or because if they change, the stone is not on that account reckoned to have lost its bodily nature. After all this, we will see that nothing remains in the idea of the stone except that it is something extended in length, breadth and depth. Yet this is just what is comprised in the idea of a space - not merely a space which is full of bodies, but even a space which is called 'empty'.¹⁷⁸

In article 12, there is in which way is possible to conceive body and space as a different thing. It is not clear what kind of distinction Descartes is employing in this passage. And it is interesting that the notion used here is quite similar to the notion of synopsis 'extension in general' and maybe this also can be only an abstraction for Descartes:

“There is, however, a difference in the way in which we conceive of space and corporeal substance. For if a stone is removed from the space or place where it is, we think that its extension has also been removed from that place, since we regard the extension as something particular and inseparable from the stone. But at the same time we think that the extension of the place where the stone used to be remains, and is the same as before, although the place is now occupied by wood or water or air or some other body, or is even supposed to be empty. For we are now

¹⁷⁸ AT VIII-A 46; CSM I, 227-228.

considering extension as something general, which is thought of as being the same, whether it is the extension of a stone or of wood, or of water or of air or of any other body - or even of a vacuum, if there is such a thing - provided only that it has the same size and shape, and keeps the same position relative to the external bodies that determine the space in question".¹⁷⁹

As in an example¹⁸⁰ or maybe to argue that a void is impossible, Descartes argues offers the analysis of what would happened to a concave vase if we extract all the content that it has:

"Almost all of us fell into this error in our early childhood. Seeing no necessary connection between a vessel and the body contained in it, we reckoned there was nothing to stop God, at least, removing the body which filled the vessel, and preventing any other body from taking its place. But to correct this error we should consider that, although there is no connection between a vessel and this or that particular body contained in it, there is a very strong and wholly necessary connection between the concave shape of the vessel and the extension, taken in its general sense, which must be contained in the concave shape. Indeed, it is no less contradictory for us to conceive of a mountain without a valley than it is for us to think of the

¹⁷⁹ AT VIII-A, 47; CSM I, 227.

¹⁸⁰ Also in a letter to Mersenne, Descartes makes a similar reasoning about the idea of a void: "If you wish to conceive that God removes all the air in a room without putting any other body in its place, you will have to conceive accordingly that the walls of the room touch each other; otherwise your thought will contain a contradiction. Just as we could not imagine him flattening all the mountains in the world while leaving all the valleys, so we cannot think that he removes every kind of body and yet leaves space behind. For the idea that we have of body, or matter in general, is contained in the idea that we have of space, i.e. of something which has length and breadth and depth, just as the idea of a mountain is contained in the idea of a valley." AT, II, 482; CSM III, 132. And a letter to More: "And so, since I see that it conflicts with my way of conceiving things for all body to be taken out of a container and for there to remain an extension which I conceive in no way differently than I previously conceived the body contained in it, I say that it involves a contradiction that such an extension should remain there after the body has been taken away. I conclude that the sides of the container must come together. This is altogether in accord with my other opinions." AT V, 272-3; CSM III, 363

concavity apart from the extension contained within it, or the extension apart from the substance which is extended; for, as I have often said, nothingness cannot possess any extension. Hence, if someone asks what would happen if God were to take away every single body contained in a vessel, without allowing any other body to take the place of what had been removed, the answer must be that the sides of the vessel would, in that case, have to be in contact. For when there is nothing between two bodies they must necessarily touch each other. And it is a manifest contradiction for them to be apart, or to have a distance between them, when the distance in question is nothing; for every distance is a mode of extension, and therefore cannot exist without an extended substance.”¹⁸¹

In the above passage, Descartes sustain that a concave vase could be empty is a naïve interpretation, it cannot be considered in such a way if we pay attention to its nature.¹⁸² For Descartes, such a vase that seems empty is filled with extension. There is a distance between its sides and distance is a mode of extension it is necessary that there is extension to be determined by such a distance. If, for example, God would retrieve the extension that fills the inside of the vase, such a distance would disappear and the sides of the vase would touch themselves. If the two sides of the vase are separated, there must be some distance between them, and if there is distance, then there must be body. On the other hand, if there is no body, there can be no distance, and if there is no distance, then the two sides must touch. Therefore, if there existed no extension between two bodies, there would be no distance between them, and they would also touch.

A consequence of the affirmation that particular bodies are substances for Descartes it seems to be that parts of extension must be substances and in this way

¹⁸¹ AT VIII-A, 50; CSM I, 230-231.

¹⁸² The scientific plausibility of Descartes example in the period is discussed in Jammer, *Concepts of Space: The History of Theories of Space in Physics*, pp. 43-4.

really distinct one from another. The problem is to consent that a part is clearly and distinctly conceived without another part, and in this way that a part does not depend of the other for its constitution. This position of independence seems to amount to the undesirable affirmation that there is a void, an empty space, between those parts. Spinoza, points that such a difficulty would emerge from a real distinction between the parts of extension:

“...It is just as absurd to assert that corporeal substance is composed of bodies or parts as that a body is composed of surfaces, surfaces of lines, and lines of points. This must be admitted by all who know clear reason to be infallible, and particularly those who say that a vacuum cannot exist. For if corporeal substance could be so divided that its parts were distinct in reality, why could one part not be annihilated while the others remain joined together as before? And why should all the parts be so fitted together as to leave no vacuum? Surely, in the case of things which are in reality distinct from one another, one can exist without the other and remain in its original state. Since therefore there is no vacuum in Nature (of which [more] elsewhere) and all its parts must so harmonize that there is no vacuum, it also follows that the parts cannot be distinct in reality; that is, corporeal substance, insofar as it is substance, cannot be divided”.¹⁸³

To maintain the plausibility of the pluralist thesis in face of the Cartesian denial of the vacuum we found a thought experiment.¹⁸⁴In the attempt to avoid the affirmation that the distinction of two parts of extension implies in the existence of the void, we have to conceive God annihilating all parts of extension with one exception. Let us call this part that is left ‘a’. In this reasoning ‘a’ would be the only constituent of the material world and in such case ‘b’ is clearly and distinctly conceived apart and independently

¹⁸³ EI15sc

¹⁸⁴ Cf. Edward Slowik Descartes and Individual Corporeal Substance. p. 12. See also Skirry p. 77.

of all other possible parts of extension and of extension taken in general as well. Hence, it seems that is conceivable that a part of extension exist independently of any other part of extension. The problem of the void between two parts would not be raised, since that the existing part does not presuppose the existence of any parts in its vicinity. If a finite part of extension can be thought as really independent of the other parts, then any part of extension can be thought as independent from any other part of extension and as independent of the totality of the material world as well. It is possible then to sustain a plurality of extended substances for Descartes without falling into the trap of admitting a void.

To reach such a conclusion, that the real distinction of the parts does not admit any void, we need to have a special treatment of the borders and the surface of the parts of extension. The argument in the *Principles* is based on the idea first that nothing has no properties and that extension, body and space are interdependent definitions of the same object. Parts of extension are delimited portions of body that we conceive abstraction made of the other parts and the relations that they possess. To affirm, then, that the parts are substances it means, according to Descartes that we can have a conception of such entity without conceiving anything else. Even though we can say that parts of extension are contiguous with each other and there is no space or void between one and the other they are not the same thing, since they are not the same substance. So the surface of the body A is really distinct from the surface of the body B, even though they are contiguous. In such a way, or A and B share a surface and they are not independent or they do not share and are independent; but then, in this case, we have to admit that there is something that is not substance A or B an entity C that exist between them. This entity cannot be another substance conceived as a part, for in this case we would ask the same questions about the relation between AC and CB. This entity must be something not substantial between the substances, a void.

In fact, Descartes brings the question about the relations of the surfaces of different particular objects in the *Principles*. In article 15, he says:

“It should be noted that 'surface' here does not mean any part of the surrounding body but merely the boundary between the surrounding and surrounded bodies, which is no more than a

mode. Or rather what is meant is simply the common surface, which is not a part of one body rather than the other but is always reckoned to be the same, provided it keeps the same size and shape. For if there are two bodies, one surrounding the other, and the entire surrounding body changes, surface and all, the surrounded body is not therefore thought of as changing its place, provided that during this time it keeps the same position relative to the external bodies which are regarded as immobile".¹⁸⁵

In a letter to Mesland Descartes address this point as well:

"This surface intermediate between the air and the bread does not differ in reality from the surface of the bread, or from the surface of the air touching the bread; these three surfaces are in fact a single thing and differ only in relation to our thought. That is to say, when we call it the surface of the bread, we mean that although the air which surrounds the bread is changed, the surface remains always numerically the same, provided the bread does not change, but changes with it if it does".¹⁸⁶

The basic point seems to be is that the surface of the bodies are shared mode of the particular bodies that exist in the material world. A particular body, in this sense, must be surrounded by another particular body to have a surface and then to be considered a delimited and finite part of extension. It is a condition to be a part, to have a surface but to have surface is supposed the existence of another part of extension another body. Coming back to the suggested thought experiment, the part 'a', according to the article of the *Principles* would have a surface and hence it would not a determinate part of extension. What follows from this? It seems that the thought experiment is not

¹⁸⁵ AT VIII-A, 48; CSM I, 229.

¹⁸⁶ AT IV, 164; CSM III, 241-242

well constructed and what seems to generate a clearly and distinct conception of something extended it does not actually deliver this and only is abstraction that does not indicate an object but only a manner of existence of an object. But it seems that there is another alternative.¹⁸⁷

But is not possible to maintain that an isolated part of extension has a surface? It seems undeniable that for Descartes that the surface of a part of matter depends on other surrounding parts; it is also said by Descartes that a part of extension change when the surrounding parts to it change. And since they would share a surface, it seems to be the case that when one thing changes the surrounding things must also change. Thus the letter to Mesland brings different elements to the discussion that we saw in passage of the *Principles*. The letter suggests that 'a' that once was surrounded by other parts of extension but now it is by itself can conserve its surface even in the case that the immediate objects that existed next to it does not exist any longer. But a change in the surrounding bodies is different than their annihilation. In a change of the surrounding bodies there is a replacement or of bodies that maintain the same surface relation or of properties of bodies. In both cases the surface keeps existing because there are still a surrounding body to it. But the annihilation of the surrounded bodies does not seem to leave open the possibility of the maintenance of the surface.¹⁸⁸ It seems at best that this abstracted conception of a part of the extension potentially have a surface because it can be conceived in its relations to other parts of extension. It still necessary a collection of surrounding bodies to 'a' have a surface.

But surfaces are the only way to determine and delimit parts of extension? In article 60 of the first part of the *Principles*, Descartes says:

“For example, even though we may not yet know for certain that any extended or corporeal substance exists in reality, the mere fact that we have an idea of such a substance enables us to be certain that it is capable of existing. And we can also be certain that, if it exists, each and every part of it, as delimited by us in

¹⁸⁷ Cf. Skirry, 92.

¹⁸⁸ Skirry, 89.

our thought, is really distinct from the other parts of the same.”¹⁸⁹

In this passage, Descartes leaves open the possibility to determine the parts of extension as really distinct from each other, that is, as substances, only by thought. It seems that surfaces are somehow necessary to the knowledge of the individuality of the parts of the extension but not to determinate a part of extension as a substance. But the individuality of the part of the substance is necessary to identify it and delimitate it, what is also necessary for it to be a part. Although, the substantiality ‘a’ is not questioned in thought experiment, what is questioned is the substantiality of ‘a’ as a part. The thought experiment is capable to avoid the problem of vacuum posed by the parts of extension it does not guarantee the substantiality of the parts when we analyze the role that surfaces play in the nature of parts in the Cartesian theory of bodies. In the attempt to guarantee the thesis that parts of extension for Descartes are substances we come to see that is hard to avoid the surface challenge and keep that the parts are actually really distinct from themselves.

The thought experiment can be interpreted as having a more radical conclusion than was initially supposed. ‘a’ would not be conceived as determinate part of extension because we lack its conception of a surface and hence it is an abstract view of a mode; ‘a’ is in itself conceived as something extended that has no limitations. In this way, ‘a’ would not be a delimited part, but some indeterminate extension. It seems that the attempt to reduce an extended universe that is indeterminate to a single part generates another indeterminate extended universe.

4.2. The Argument against Atoms:

¹⁸⁹ AT VIII-A, 28; CSM I, 213.

In denying the possibility of a vacuum, Descartes rejected one of the central doctrines of the atomist tradition of Democritus, Epicurus, and Lucretius. But the central thesis of such conception of the material universe, the existence of atoms or the view that matter is made up of indivisible and indestructible parts is also rejected by Descartes. So, for Descartes, there is no ultimate parts that constitute the basic structure of every body. But if with the vacuum Descartes is apparently resolute with his position since his early work, with atoms is a little bit different. In his interaction with Beeckman Descartes describes the movement of water appealing to its atomic nature¹⁹⁰. But if Descartes is, at first, favorable to atoms, it does not take long for him to change his view. In a letter to Mersenne Descartes says:

“As for your questions: 1. The corpuscles, which enter a thing during rarefaction and exit during condensation, and which can penetrate the hardest solids, are of the same substance as visible and tangible bodies; but you must not imagine that they are atoms, or that they are at all hard. Think of them as an extremely fluid and subtle substance filling the pores of other bodies. You must admit that even in gold and diamonds there are certain pores, however tiny they may be; and if you agree also that there is no such thing as a vacuum, as I think I can prove, you are forced to admit that these pores are full of some matter which can penetrate everywhere with ease. Now heat and rarefaction are simply an admixture of this matter.”¹⁹¹

We can see from this passage that Descartes description of the physical world is filled with matter that is infinitely divisible. This indefinite division reappears on article 34 of the second part of the *Principles*:

“It must, however, be admitted that in the case of this motion we come upon something the truth of which our mind perceives,

¹⁹⁰ AT X, 68.

¹⁹¹ AT I, 139-140; CSM III, 21-22

while at the same time being unable to grasp exactly how it occurs. For what happens is an infinite, or indefinite, division of the various particles of matter; and the resulting subdivisions are so numerous that however small we make a particle in our thought, we always understand that it is in fact divided into other still smaller particles. For it is impossible for the matter which now fills space G successively to fill all the spaces between G and E, which get gradually smaller by countless stages, unless some part of that matter adjusts its shape to the innumerable different volumes of those spaces. And for this to come about, it is necessary that all its imaginable particles, which are in fact innumerable, should shift their relative positions to some tiny extent. This minute shifting of position is a true case of division".¹⁹²

Descartes affirms that even though the movement of little bodies that are necessary for his explanation of rarefaction that does not imply an atomism. In the third chapter of *The World*, we also see Descartes affirming that matter can be divided indefinitely:

"The first thing I want to call to your attention is the difference between bodies that are hard and those that are fluid. To this end, consider that every body can be divided into extremely small parts. I am not interested in deciding whether the number of these is infinite or not; at least with respect to our knowledge, it is certain that it is indefinite and that we can suppose that there are several million of them in the smallest grain of sand visible to the eye"¹⁹³

¹⁹² AT VIII-A 60, ; CSM I, 239

¹⁹³ AT XI, 12.

In the *Meteors* we have a similar affirmation:

“But so that you get all these assumptions with less difficulty, know that I do not see the small parts of bodies as atoms or indivisible particles, but, considering all of the same material, I believe that each could be re-divided into an infinite number of ways, and that they differ only like stones from several different figures, which were cut from the same rock”¹⁹⁴

One characteristic that Descartes points out, in *Meditation VI*, that differentiates mind than bodies is that bodies are indefinitely divisible and minds are indivisible:

“The first observation I make at this point is that there is a great difference between the mind and the body, inasmuch as the body is by its very nature always divisible, while the mind is utterly indivisible...By contrast, there is no corporeal or extended thing that I can think of which in my thought I cannot easily divide into parts; and this very fact makes me understand that it is divisible”.¹⁹⁵

In the article 26 of the first part of the *Principles*, Descartes explain the distinction between indefinite and infinite and the reason to consider the extended things as indefinitely divisible:

“For our part, in the case of anything in which, from some point of view, we are unable to discover a limit, we shall avoid asserting that it is infinite, and instead regard it as indefinite.

¹⁹⁴ AT VI, 238-239.

¹⁹⁵ AT VII, 86; CSM II, 59. Also see similar passages where Descartes mentions the aspect of the indivisibility of matter. In the Geometric exposition AT VII, 163; CSM II, 115; in the *First Replies*, Descartes addresses the indefinite divisibility of matter when he compares his *a posteriori* argument for the existence of God that mobilizes the idea of God as an infinite entity is rather different from the arguments introduced by Saint Thomas Aquinas in question II of the First Part of the *Summa Theologiae*. See AT VII, 106; CSM II, 77.

There is, for example, no imaginable extension which is so great that we cannot understand the possibility of an even greater one; and so we shall describe the size of possible things as indefinite. Again, however many parts a body is divided into, each of the parts can still be understood to be divisible and so we shall hold that quantity is indefinitely divisible. Or again, no matter how great we imagine the number of stars to be, we still think that God could have created even more; and so we will suppose the number of stars to be indefinite. And the same will apply in other cases.”¹⁹⁶

It is also in the *Principles* that we find Descartes’ most detailed argument against the atomism. In article 20 of part II, Descartes says:

“We also know that there can be no atoms, that is, parts of matter by their nature indivisible. For if there were such things, they would necessarily have to be extended, however small we imagine them to be, and hence we could in our thought divide each of them into two or smaller ones, and thus we could know that they are divisible. For we cannot divide anything in thought without by this very fact knowing that they are divisible. And therefore, if we were to judge that a given thing were indivisible, our judgment would be opposed to what we know. But even if we were to imagine that God wanted to have brought it about that some particles of matter not be divisible into smaller parts, even then they shouldn’t properly be called indivisible. For indeed, even if he had made something that could not be divided by any creatures, he certainly could not have deprived himself of the ability to divide it, since he certainly could not diminish his

¹⁹⁶ AT VIII-A, 15; CSM I, 202.

own power. . . And therefore, that divisibility will remain, strictly speaking, since it is divisible by its nature”.¹⁹⁷

It is, then, the infinite divisibility of geometrical extension together with divine omnipotence that are used to attack atomism, Descartes argues in this passage.

Does the denial of atoms represent an objection to the pluralist view of extended substances in Descartes? The indefinite divisibility of extension could put at risk the integrity of the substantial parts of the substances since, they are divisible they are corruptible, but the criteria for substantiality that we find in *Summary of the Meditations* expressly ascribe incorruptibility as a characteristic of substances. If the parts of extension are indefinitely divisible, then they are corruptible. And if that is the case, parts of extension cannot be substances for Descartes.

Descartes, at least in two letters, seems to depart from the argument of the *Principles*. To the extent that atomism involves a contradiction, Descartes argues in two different letters:

“In the same way we can say that the existence of atoms, or parts of matter which have extension and yet are indivisible, involves a contradiction, because it is impossible to have the idea of an extended thing without also having the idea of half of it, or a third of it, and so conceiving it as being divisible by two or three. From the simple fact that I consider the two halves of a part of matter, however small it may be, as two complete substances, whose ideas are not made inadequate by an abstraction of my intellect I conclude with certainty that they are really divisible”.¹⁹⁸

“In the same way I say that it involves a contradiction that there should be any atoms which are conceived as extended and at the

¹⁹⁷ AT VIII-A, 51-52; CSM I, 231-232.

¹⁹⁸ AT III, 477; CSM III, 202.

same time indivisible. Though God might make them such that they could not be divided by any creature, we certainly cannot understand that he might deprive himself of the power of dividing them. Your comparison with things which have been done and cannot be undone is not to the point. For we do not take it as a mark of impotence when someone cannot do something which we do not understand to be possible, but only when he cannot do something which we distinctly perceive to be possible.”¹⁹⁹

In those letters, Descartes sustains that the idea of an atom or of an indivisible body is a contradictory idea since it belongs to the nature of extension to be divisible therefore no extended thing can be indivisible.

Although Descartes refuses the idea of an atom or atoms in the physical universe, he does recognize some patterns in particles that constitute the physical objects. These patterns permit the conceptions of regularity in the motions of bodies. In the article 52 of part three of the *Principles*:

“We have. . . two very different kinds of matter which can be said to be the first two elements of this visible universe. The first element is made up of matter which is so violently agitated that when it meets other bodies it is divided into particles of indefinite smallness ... The second is composed of matter divided into spherical particles which are still very minute when compared with those that we can see with our eyes, but which have a definite fixed quantity and can be divided into other much smaller particles. The third element, which we shall discover a little later on, consists of particles which are much bulkier or have shapes less suited for motion. From these elements, as we shall show, all the bodies of this visible universe are composed.

¹⁹⁹ AT V, 273; CSM III, 363.

The sun and fixed stars are composed of the first element, the heavens from the second, and the earth with the planets and comets from the third . . .”²⁰⁰

But despite these significant departures from atomist doctrine, Descartes still shared their mechanist view of explanation. All there is in body is extension, the world is made up of the same kind of stuff and everything must be explicable in terms of size, shape, and motion. Descartes writes in article 64 of the second part of the *Principles*:

"I openly admit that I know of no other matter in corporeal things except that which is capable of division, shape, and motion in every way, which the geometers call quantity and which they take as the object of their demonstrations. And, I admit, I consider nothing in it except those divisions, shapes, and motions”²⁰¹

4.3. The Argument against Substantial Forms:

Another aspect of Descartes natural philosophy is his rejection of substantial forms. The arguments offered to that conclusion are closely connected with the identification of body and extension and represent a major depart from the scholastic background. In *The World*, there is an argument appealing to the unnecessary role of substantial forms in the explanation of the physical universe. All can be explained by the notions of size, shape and motion:

²⁰⁰ AT VIII-A, 159; CSM I, 258.

²⁰¹ AT VIII-A, 78-79; CSM I, 247. See also article 23 of the second part: “The matter existing in the entire universe is thus one and the same, and it is always recognized as matter simply in virtue of its being extended. All the properties which we clearly perceive in it are reducible to its divisibility and consequent mobility in respect of its parts, and its resulting capacity to be affected in all the ways which we perceive as being derivable from the movement of the parts. If the division into parts occurs simply in our thought, there is no resulting change; any variation in matter or diversity in its many forms depends on motion. This seems to have been widely recognized by the philosophers, since they have stated that nature is the principle of motion and rest. And what they meant by 'nature' in this context is what causes all corporeal things to take on the characteristics of which we are aware in experience.” AT VIII-A, 53; CSM I, 232-233.

“When the fire burns wood or some other such material, we can see with our own eyes that it removes the small parts of the wood and separates them from one another, thus transforming the more subtle parts into fire, air, and smoke, and leaving the grossest parts as cinders. Let others imagine in this wood, if they like, the form of fire, the quality of heat, and the action which burns it as separate things. But for me, afraid of deceiving myself if I assume anything more than is needed, I am content to conceive here only the movement of parts.”²⁰²

Claiming that such a notion or concept is not useful is quite different than saying it is meaningless. If in *The World*, Descartes approaches the refusal of substantial forms from the perspective of parsimony, in a variety of other texts his claims are about the meaning of such concept. In a letter to Mersenne, Descartes says:

“Motion, and all the other modifications of substance which are called *qualities*, have no greater reality, in my view, than is commonly attributed by philosophers to shape, which they call only a *mode* and not a *real quality*. My principal reason for rejecting these real qualities is that I do not see that the human mind has any notion, or particular idea, to conceive them by; so that when we talk about them and assert their existence, we are asserting something we do not conceive and do not ourselves understand.”²⁰³

And in a letter to Morin:

“There is no more problem than if I said that a clock shows the time only by the movement of its hands, and that its quality of

²⁰² AT XI, 7; CSM I, 83

²⁰³ AT III, 649; CSM III, 216

showing the time is not a more actual or absolute being than its movement, and that this movement belongs to it by its nature and essence, because it would cease to be a clock if it did not have it. I know that you will say that the form of the clock is only an artificial form, while the form of the sun is natural and substantial; but I reply that this distinction concerns only the cause of these forms, and not at all their nature; or that the substantial form of the sun, in so far as it differs from the qualities to be found in its matter, is an altogether philosophical entity which is unknown to me".²⁰⁴

Another contrast that Descartes makes is between the efficacy of the mechanistic philosophy and the lack of development in the scholastic philosophy. To Voetius Descartes writes:

"the common philosophy which is taught in the schools and academies. . . is useless, as long experience has already shown, for no one has ever made any good use of primary matter, substantial forms, occult qualities and the like"²⁰⁵

All of these passages explicitly show Descartes opposition to the notion of form and substantial forms that underlie the Aristotelian vision of the physical world. And not surprisingly they are related to Descartes notion of what a body is, since to identify body with extension is to reject the hylomorphic ontology. And when we approximate this concept of body with the concept of mind and the reasons presented for their distinction we can observe, according to Descartes, that the notions we had of forms must derived from the conception of the mind and its relation to body, but not from the bodies analyzed on themselves. In this way the Cartesian doctrine of the

²⁰⁴ AT II, 366-367, CSM III, 121-122.

²⁰⁵ AT VIII-B, 26

distinction between mind and body is intended not only to clarify the notion of the mind, but also that of the body.²⁰⁶

This interpretation of forms and substantial forms that Descartes presents are correct? His arguments against this concept are convincing? The approximation of forms with the mind seems to go against the idea that such notions have no meaning. And while he claims that he is able to explain all of the phenomena of the natural world relying only on the notions of size, shape and motion it is not clear that Descartes does not appeal to qualities in his natural philosophy. See for example, the *Principles* parts III and IV.

The argument that is supposed to lead from the nature of body as extension to the denial of substantial forms has some problems. If we grant Descartes his arguments for the distinction between body and mind, and his characterization of both, we can agree that if there are forms, they must be tiny minds of a sort, distinct from the extended bodies whose behavior they are supposed to explain. But that by itself does not seem to eliminate forms. It is possible to maintain that they are meaningful and existent entities and only Descartes has a different way of describing their nature. To be able to exclude such notions of existence it is necessary, to demonstrate that not only that they are a kind of minds but also that there are no minds despite human minds or God. In part V of the *Discourse*, Descartes address this question in the attempt to argue that there are no such thing as animal soul:

“I made special efforts to show that if any such machines had the organs and outward shape of a monkey or of some other animal that lacks reason, we should have no means of knowing that they did not possess entirely the same nature as these animals; whereas if any such machines bore a resemblance to our bodies and imitated our actions as closely as possible for all practical purposes, we should still have two very certain means of recognizing that they were not real men. The first is that they

²⁰⁶ This is a theme Descartes takes up at some length in the Sixth Replies. See AT VII 443-4: CSM II 298-9. See Etienne Gilson's "De la critique des forms substantielles au doute methodique," in his *Etudes sur le role de la pensee medievale dans la formation du systeme cartesien*, pp. 141-90.

could never use words, or put together other signs, as we do in order to declare our thoughts to others. For we can certainly conceive of a machine so constructed that it utters words, and even utters words which correspond to bodily actions causing a change in its organs (e.g. if you touch it in one spot it asks what you want of it, if you touch it in another it cries out that you are hurting it, and so on)".²⁰⁷

²⁰⁷ AT VI 56-9: CSM I 139-41. The issue also comes up in the Fourth Replies and in the Sixth Replies.

5. Conclusion:

Following the interpretation of substance as a particular determinate nature we were able to reconstruct Descartes' basic metaphysical concepts in a way that do not suppose a relation of inherence between a property and a subject of properties. This conclusion leads us immediately to the refusal of the subject model, since the incoherence between the function of the principal attribute thesis in Descartes' ontology and the idea that substance is an entity capable of existing by itself that by itself is deprived of any determination. Analyzing the structure of Descartes' argument for the real distinction between mind and body we found another evidence for such refusal. The Cartesian thesis supposes the identity between substance and its principal attribute and hence the subject model of interpretation does not fit the required elements for a proper reconstruction of Descartes' intended reasoning. Further, Descartes' definition of mode and the fundamental difference that it has from the notion of accident presented the distance of Descartes' ontological view from the idea of distinction between two entities when it comes to substances and its properties, from another perspective.

It was stated in presentation of the difficulty of comprehension of the nature of bodies in Descartes' that the monist interpretation fits better in the independence model and that the pluralist interpretation requires the subject model of interpretation. Once it was established that the subject model is not an adequate interpretation of Descartes' metaphysics we have already reasons to discard these possibility. When we analyzed more closely Descartes' treatment of the bodies in the *Principles* and other texts as well as three important thesis that are fundamental for his physics (refusal of the vacuum, of atoms and of substantial forms) guided by the model substance we achieved in the conclusion of the section about substance we faced another problems to the idea that particular bodies can be substances in Descartes' system. The kind of independence required for substantiality is not in accordance with the possibility of an empty space or even the case of indivisible elements of extension. The refusal of substantial forms, however, is not yet clear how Descartes is able to establish a solid argument against it.

That said it still necessary to present a positive reading of the monist interpretation of bodies in Descartes. How this interpretation can answer to the difficulties that we presented? How can we understand the apparent cases of substantial particular bodies in terms of only one extended substance? It was also said that the natural way of describing the particular bodies in the monist interpretation is as modes of the only extended substance that exists. However, our sensations of bodies and the description of change and motion in the physical world seem to require the identification of particular distinct and determined bodies. This is consistent with the idea that they are modes?

In the article 25 of the second part of the *Principles*, Descartes says:

“If, on the other hand, we consider what should be understood by motion, not in common usage but in accordance with the truth of the matter, and if our aim is to assign a determinate nature to it, we may say that motion is the transfer of one piece of matter, or one body, from the vicinity of the other bodies which are in immediate contact with it, and which are regarded as being at rest, to the vicinity of other bodies. By 'one body' or 'one piece of matter' I mean whatever is transferred at a given time, even though this may in fact consist of many parts which have different motions relative to each other. And I say 'the transfer' as opposed to the force or action which brings about the transfer, to show that motion is always in the moving body as opposed to the body which brings about the movement. The two are not normally distinguished with sufficient care; and I want to make it clear that the motion of something that moves is, like the lack of motion in a thing which is at rest, a mere mode of that thing and not itself a subsistent thing, just as shape is a mere mode of the thing which has shape”.²⁰⁸

²⁰⁸ AT VIII-I 54; CSM I, 233.

Motion appears as the principle that turns possible the separation the parts of extension, since it is responsible by the distinction between them. But if what makes a part of body distinct from another part of body is motion, then such identity of part can only be achieved through motion, which means that particular bodies can only exist in so far they move. Two bodies at rest, by this definition, are not two bodies only perhaps two characteristics of a single body.

Motion is a described as a mode of the extended substance. Can we say that particular body is a mode since its nature is determined by another mode? We have seen in the discussion with Hobbes that modes can be further determined. Then this consequence would not be a problem for Descartes. However, we also came to the conclusion that a modification is nothing other than a substance existing in specific way. Particular bodies may hence be described as the extension existing in a specific way as result of motion.

Another suggestion that we find in the literature is to consider the quantity of matter of bodies as their criteria for individuation.²⁰⁹This possibility, though, faces some problems with the idea of the indefinite divisibility of extension. To be able to identify a part of body by its quantity of matter it is necessary that such a part have a stable quantity of matter. This, however, does not seem possible for matter is always susceptible to change.

When we are dealing with the individuation of particular bodies we are dealing with our conception of a part of extension as a particular body and also with a part of extension being a particular body by its nature. That is, how can we distinct parts of bodies and what parts of bodies really are. That we can conceive parts of bodies as individuals on their own is clear from the variety of examples that Descartes gives us in his writings. But this does not mean that such an individuation is a characteristic of the parts of bodies themselves. As Descartes recognizes in the article 12 of the second part of the *Principles*, we can achieve conceptions of individual bodies by an operation of the intellect as the same we can conceive a generic extension something that is

²⁰⁹ Alice Sowall, p. 223

common to diverse bodies. This conception, nonetheless, is not clear and distinct. It is an abstraction of the nature of what extension really is.

The extended substance considered from the perspective of its nature is solely an extended thing. If we observe the extended substance from the perspective of its modes, differently from what happens with the mind, we do not only have acts of thought. Matter is, as we have seen, indefinite when it comes to its quantity. However, the simplicity that qualifies the perfection of God requires that creation happens in a single act. So although indefinite the total of quantity of matter must be from the perspective of God invariable. To affirm differently is to say that the act that creates extension is not sufficient to determine its nature. Motion, as well, requires a single act of God and from the perspective of God it must be invariable. Now, modes when it comes to extension are defined as alterations of shape, size and motion. Which seems to imply an alteration of matter and motion. How can we conceive modifications of the extension. We cannot assume that there is an alteration in the extended substance on itself, however if we take that the immediate modes of extension are the particular bodies, it seems possible to understand how can the extended substances can be modified. When Descartes describes an alteration of size, shape or motion in his physics it is described in terms of a particular body.²¹⁰ It is not extension by itself that is subject of such changes. As we know from the *Principles* we are able to conceive particular bodies and variations on their characteristics and this is one the manners that we can conceive extension. So, it seems natural that the modification of extension is a particular body. It is a determination of extension as whole we consider a part of it. In this sense, an alteration of extension is an alteration of the selection of its parts and not an alteration on extension in itself.

What may seem strange is that the discrimination of particular bodies, the determination of the parts of extension is an operation of the mind and not an event that is constituted of extension and its features. But this reading is consistent with what Descartes says about extension in the *Synopsis* and the distinctions on the conception of body that he explores in the *Principles*. What about the criteria of

²¹⁰ Parts III and IV of the *Principles* contain several examples. Particularly see article 57 of part III and 22 of part IV.

individuation? What is the role of motion? The criteria for the individuation of particular bodies in relation to extension as a whole is the operation of the mind that selects portions of matter. Motion is described as the criteria for distinction between particular bodies, hence it is also dependent of an operation of the mind. The individuation of a body is dependent of the conception by the mind of its possible configurations and changes.

A consequence of this reading it seems that alteration of size, shape and motion are not strictly real for Descartes. This affirmation is consistent with the development of a physics? Descartes addresses this topic on the article 23 of the second part of the *Principles*:

“The matter existing in the entire universe is thus one and the same, and it is always recognized as matter simply in virtue of its being extended. All the properties which we clearly perceive in it are reducible to its divisibility and consequent mobility in respect of its parts, and its resulting capacity to be affected in all the ways which we perceive as being derivable from the movement of the parts. If the division into parts occurs simply in our thought, there is no resulting change; any variations in matter or diversity in its many forms depends on motion. This seems to have been widely recognized by the philosophers, since they have stated that nature is the principle of motion and rest. And what they meant by 'nature' in this context is what causes all corporeal things to take on the characteristics of which we are aware in experience”.²¹¹

In the passage Descartes is referring to the capacity of the extended substance to be divided and its capacity to be moved. It does not in discussion an actual division or motion of the extended substance. Descartes' physics then can be analyzed as the

²¹¹ AT VIII-I, 53; CSM I, 232-3

investigation of the possibilities and capacities that we can determine in the material world. When we consider the world from the perspectives of its capacities the possibility of the determination of parts and local motions are presented to us. And the Physics is the most adequate description of such possibilities in the domain of the human intellect. This capacity, however, is not only determined by the human mind. It is derived from the nature of what extension is in itself. A nature that is created and maintained by God. It is by a clear and distinct understanding of the nature of extension is that the human mind conceives the possibilities of determination in parts. What is not clear and distinct is the assertion that such parts represent something real and mind independent.

How can we read the passages where Descartes describes particular bodies as substances? Certainly, if our interpretation is correct, they cannot be substances in the technical sense of term. Descartes assumed in the relation of God and created substances that there are degrees of substantiality. However, particular bodies do not respect the criteria of real distinctness for substantiality. They cannot be considered created substances in the level of body as a whole and of mind. They can be, nevertheless, considered individuals. Not in clear and distinct way, but they have some degree of independence. Particular bodies seem to be more independent than the motions, sizes and shapes that are used to describe them. They intend to stand as particular objects in material world. Metaphysically speaking they are nothing by the modes associated with extension by the mind. But the objects that result of this association are the subject matter of the physics and our general perception of extension. So it seems, that when Descartes attributes substantiality to them what is relevant is that they can constitute a manner of extension that has an determinate identity.

To be able to provide an adequate reconstruction of Descartes' physics much more investigation and study are necessary. This dissertation is only the start of this enterprise. The initial effort was to understand what Descartes means by body and extension, the main subject of his physics. In that search we came across the problem between the pluralist and the monist interpretations of extended substances. And our strategy to solve it was first to acquire a better knowledge of what is substance for

Descartes in general and then proceed to the investigation of the nature of body. In the investigation on the concept of substance it was seen that the pluralist interpretation is directly associated with the idea that a substance is a subject of properties for Descartes. This possibility of interpretation of substantiality was rejected in favor of one that was considered more suitable to Descartes' metaphysical project. Another result of this investigation is that Descartes' metaphysics differently from the Aristotelian and scholastic tradition cannot be considered the investigation of being qua being, but only the investigation of being qua divine, thought or extended. This results most prominently from the identity between substance and its nature.

The three arguments against possible features of the material universe corroborate our reading of substantiality and extension. So the subject model of interpretation is not only at odds with Descartes' metaphysics but with his physics as well. Finally we attempt to argue in defense that the monist theory is sound and is coherent with the view of substance that was presented in the dissertation.

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