

MIND-BODY INTERACTION, PHYSICAL CAUSATION, AND THE NATURES OF SUBSTANCES IN DESCARTES'S PHILOSOPHY

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Abstract. The article discusses the problem of the compatibility of Descartes's doctrine of interactionist substance dualism with his claims about the law of the conservation of the quantity of motion, about the way God maintains the world in existence, and about minds and bodies having only properties that are modes of thinking or extension respectively. The case is made that although there seem to be *prima facie* conflicts, they can be neutralised as merely apparent. The position that mental states cause some motions in the brain is consistent with Descartes's postulation of the existence of the law of conservation of the quantity of motion, insofar as it derives from God's immutability whereas souls are not immutable, as well as with the laws of conservation established by Newtonian physics, insofar as they don't prohibit purely redistributive changes and are established only for physical interactions. Descartes's interactionism does not conflict with his statements about the way God maintains the world in existence, if the latter are construed in the sense that God preserves motion in the world by preserving the laws of nature, and the conservation of the world by God is a continuation of the initial act of creation. The principle that all properties of a substance are modes of its main attribute agrees with substance dualism and interactionism, if we admit that Descartes's ontology of the world includes, besides substances of two kinds with their main attributes and modes of those attributes, something more — irreducible *sue generis* entities, such as the substantial union of body and soul and/or psychophysical laws of nature.

Keywords: Descartes, mind, body, attribute, substance, modus, dualism, interactionism.

Introduction

René Descartes's philosophy of mind-body relationship is a matter of intense debate both in contemporary philosophy of mind and history of philosophy. The former is concerned with the tenability of interactionist

substance dualism (the direction classically represented by Descartes); the latter focuses on the intrinsic coherence of Descartes's philosophy as a whole — especially, the relationship between Descartes's dualism and his explanations about the substantial union of soul and body ([7], [21], [23], [24], [25], [31], [34], [42], [43], [46], [52], [53]).

In particular, contemporary historians of philosophy pay much attention to a number of apparent tensions (conflicts) between, on the one hand, Descartes's thesis that mind and body causally interact, and, on the other hand, several other specific positions Descartes upheld. One source of such apparent tensions is found in the causal principle formulated in the Third Meditation. It was amply discussed in the recent literature ([2], [4], [6], [8], [9], [19], [20], [25], [28], [33], [34], [35], [37], [38], [40], [41], [44], [48], [49]), and I explored a number of possible ways to deal with the tensions elsewhere [47]; so we will not consider this issue here. Instead, we will focus on three other objections that purport to reveal incoherence in Descartes's views about substances and their interaction. Two of these originate in Descartes's physics, and the third one proceeds from his ontology in terms of substances, attributes and modes.

(1) Many contemporary opponents of interactionism think that the action of something non-physical (mind) on something physical (body) would violate fundamental laws of nature, such as the law of conservation of energy or momentum. Cartesian scholars ([13], [14], [18], [32]) point out that Descartes also postulated the existence of a law of this kind — the law of the conservation of the total *quantity of motion*. If mind-body interaction contradicts such laws, then Descartes's views are incoherent.

(2) A number of Cartesian scholars ([3], [15], [16], [17], [21], [22]) argued that some Descartes's statements in *Principles of Philosophy* and *Meditations* entail that bodies are causally inert, even with respect to other bodies. All motions in the world are caused by God; moreover, God maintains the world in existence *in the same way as he had created it* (AT VIII-1, 61-62 / CSM I, 240).¹ That is, God permanently recreates the world anew. Accordingly, the motions of bodies are just a matter of the

¹ Here and forthwith, references to the texts of Descartes and his correspondents are made to the classical French/Latin edition by Adam and Tannery [10], abbreviated as AT, and the English editions: Volumes I and II of *The Philosophical Writings of Descartes*, transl. by J. Cottingham, R. Stoothoff, and D. Murdoch [11], abbreviated as CSM; Volume III of *The Philosophical Writings of Descartes*, transl. by J. Cottingham, R. Stoothoff, D. Murdoch, and A. Kenny [12], abbreviated as CSMK. The abbreviation is followed by a blank, the volume (if any, in Roman numerals), a comma, and the page number.

changes of their relative spatial locations in the process of God's permanent recreation of the world. In this perspective, it seems that there cannot be genuine causation between the physical (human body) and the mental (soul). Bodies cannot cause any mental states because they are inert, and the mental states (souls) have no influence on any motions in human bodies, because all such motions are entirely results of the continuous recreation of the world by God.

(3) In Descartes's philosophy, the fundamental ontology of the (God-created) world is described as constituted by substances of two kinds, minds or souls (*res cogitans*) and bodies (*res extensa*), such that all the properties and states of any substance are modes of one fundamental property, *attribute*, that of thought for minds and of extension for bodies. That is, no substance has any property, which is not a mode of the one attribute that represents its nature. Let us designate this claim as "the unification principle". This principle was explicitly formulated by Descartes (at least for substances of fundamental kinds, «pure substances»²) at least twice. Marleen Rozemond, in a recent influential re-examination of Descartes's dualism [42] made a special emphasize on the (underestimated, in her opinion) importance of this principle for Descartes's argument for dualism. And this seems to create a problem for Descartes's interactionism that, as far as I know, was not explicitly formulated and discussed in Cartesian scholarship.

The problem is that the principle of one attribute seems to entail that body and soul cannot have causal-dispositional properties-powers, such as the powers of some brain states to evoke certain sensational-perceptive states of the soul and the powers of some (volitional) states of soul to evoke certain states of (processes in) the brain (which, in their turn, cause behaviour). Such causal-dispositional properties-powers are neither modes of thoughts nor modes of extension. So, it seems that Descartes's ontology of substances, attributes, and modes is insufficient because it leaves no place for causal dispositions (powers), — at least, if Descartes was not a covert occasionalist (an adherent of the view of causation that was advanced later by Nicolas Malebranche). However, the hypothesis of Descartes's occasionalism is not supported by weighty textual evidence and seems to contradict to many statements about causation in Descartes's

² It is not clear, and is a matter of debates in the contemporary Cartesian scholarship, whether Descartes admitted the existence of «mixed» substances, in particular, whether he considered a human being, a *composite of soul and body*, as a substance (some representative pieces of the debate are [7], [23], [24], [26], [34], [46], [50], [51]).

texts throughout all periods of his work.

In what follows, we will consider these objections and problems in detail in order to find out whether and how Descartes's interactionism can be reconciled with his views about the existence of the law of conservation of the quantity of motion (as well as the conservation laws known to modern physics), about God's maintenance of the world in existence, and the unification principle.

1. Cartesian psychophysical interaction and the natural laws of conservation

The natural laws of conservation (of energy and momentum) can pose problems for Descartes's doctrine in two ways. First, if Descartes's physical theory posits the existence of such laws, it may seem that psychophysical interaction would violate them, and so holding both is incoherent. Second, even if psychophysical interaction does not contradict *Descartes's physics*, it may be ruled out by the conservation laws known by *modern physics*.

As for the first, Descartes's physical theory really posits the existence of the law of conservation of the quantity of motion (as one of the three fundamental laws of nature), pretty much like the law of conservation of momentum of modern physics. Although Descartes's account of this law is cast in terms that don't directly map into the terms of Newtonian and later physics, it suggests the following interpretation: «the total *quantity of motion*, as measured by the mass of each body multiplied by its speed, remains constant for the whole of the material world» [14, p.107]. It is important to note that Descartes's *quantity of motion* is a *scalar* quantity that involves speed but not its direction (unlike Newtonian physics's *momentum*, which involves velocity as a *vector* quantity, *speed and its direction*) [Ibid.]. Accordingly, there is «a standard view about Descartes that most commentators get from Leibniz»; on this view, «Descartes, of course, held that the quantity of motion in the world is conserved by God, as part of his conservation of the world as a whole through his doctrine of continual recreation», and so «Descartes held that mind can act on body only by changing the direction of motion in the world» [18, p.2]. Daniel Garber argues that this view is mistaken:

Descartes never held any such theory about how mind acts on body. For Descartes, it does not matter if the action of mind on body through volition causes a change in the quantity of motion. The laws of nature for Descartes are a consequence of God's action of the world through his activity as a *causa secundum esse*, a cause that sustains the world from moment to

moment. Because God is immutable, he maintains the same quantity of motion. But human minds are also causes of motion in the world for God. However, we are not *causae secundum esse*: we do not sustain bodies and motion. Furthermore, we are not immutable. So there is no reason why my body cannot add motion to the world [18, p. 3].

As for the second, a number of philosophers (see, for example, [1], [5, p. 107-109], [36, p. 180]) pointed out that the causal influence of mind on body can be produced in a way that does not change the total quantity of energy and momentum in the world (or a closed system) but results in the redistribution of energy and momentum between different parts of the world (or a closed system). Besides, because scientific evidence for the laws of conservation of energy and momentum is based on the experiments involving interactions only within the physical realm (rather than interactions between physical bodies and presumably nonphysical minds), it may be that the laws pertain only to such interactions, and there is no evidence of their applicability to the mind-body relationship. Even if the total quantity of energy or momentum changed as a result of nonphysical mind's action, this should not be considered as a *violation of the laws of nature*; it would be merely a matter of an *additional source of influence* that makes its contribution into the general dynamics of the physical processes in the brain (arguments to this point were advanced in [27, p. 58], [39, p. 110]). Consider an analogy: although Newton's law of universal gravitation says that *all bodies attract one another* with the force directly proportional to their masses, in fact, *bodies can repel one another if they are electrically charged* and their charges are either both negative or both positive, or *attract one another much stronger* if one charge is negative and another positive. No physicist takes the fact that bodies sometimes repel or attract one another under the influence of other (non-gravitational) forces as a violation of Newton's law of gravitation.

2. Was Descartes an occasionalist with respect to physical events?

In *Principles of Philosophy*, Descartes wrote that the universal, primary and general cause of all motions in the world is God (AT VIII-1, 61 / CSM I, 240). This does not amount to ruling out the possibility that physical events can cause physical or mental events. It can be that God is universal and general cause of all motions in the world in the sense that he is the *initial cause* of all there is, insofar as he had created the world with all

its laws of nature and provided bodies with causal dispositions. If so, then bodies (their states and motions) can be *direct efficient causes* owing either to God-established laws of nature or to God-provided causal dispositions (powers).

However, Descartes stated also that God maintains the world in existence *in the same way he created it*. In the Third Meditation, Descartes explained his *continued* existence by there being «some cause which *as it were creates me afresh at this moment* — that is, which preserves me» (AT VII, 49 / CSM II, 33; italics mine) and then wrote 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» and so «the distinction between preservation and creation is only a conceptual one» (AT VII, 49 / CSM II, 33). *Principles of Philosophy* contain a similar statement: God «now preserves all this matter in the same way, and by the same process by which he originally created it» (AT VIII-1, 62 / CSM I, 240). Some Cartesian scholars, such as Martial Guérolt [21], Gary Hatfield [22], Daniel Garber [15, 16, 17], Jonathan Bennett [3], and Tad Schmaltz argued that this means that God permanently recreates the world anew and «conserves motion by creating bodies in different positions from one moment to the next» [43, p. 314].³ Let us designate this construal as «recreationism».

Recreationism entails *occasionalism with respect to the physical*: the locations of all bodies at any moment, and, hence, all their motions in any period are entirely determined by where God (re)creates them every moment and so not by actions of other bodies. However, *occasionalism with respect to the physical* conflicts with Descartes's interactionism, which entails that some motions (in a human brain) are caused by mental states of a soul.

However, is the recreationist-occasionalist construal correct? The dominant answer among the contemporary Cartesian scholars seems to be negative. The opponents of the occasionalist construal point out that Descartes very often, throughout all periods of his work, talks of the motions of bodies and the volitions of souls as causes of other motions of bodies and mental states of souls [51, p. 295-296], and that an important (although not sufficiently explicated) place in Descartes's philosophy belongs to the notion of *occasional causes*, or simply *occasions* considered as occasions *not for God but for other efficient causes, especially for a human soul*. In particular, Descartes sometimes described motions in the brain as occasi-

³ Schmaltz later changed his view.

ons on which a human soul (*mind*) forms the corresponding *sensational-perceptual states and sensory ideas* «by means of the faculty innate to it» (AT XI, 149; AT VIII-2, 359 / CSM I, 304; for a detailed discussion, see [33]). Descartes also often talks of the soul's causing motions in the brain and (by their means) motions of parts of the human body (behaviour). Against this background, the statement that Descartes was an occasionalist (in the usual sense of Malebranche) with respect to all physical motions requires very strong textual evidence. Descartes's statements to which the supporters of the occasionalist construal appeal fall short of this requirement because they allow for other, non-occasionalist construals.

In particular, considering Descartes's statement in the Third Meditation that there is «some cause which as it were creates me afresh at this moment» (AT VII, 49 / CSM II, 33), we should pay attention to the idiom «as it were» («quasi» in Latin original), which indicates non-literal, figurative use of language. «As it were creates» (Latin *quasi creet*) is clearly not the same as «creates». If so, we can construe the discussed statement simply in the sense «that the same level of power needed to create a thing anew is required to conserve that thing in existence» [45, p. 366]. This construal becomes even more plausible if we consider another Descartes's statement in *Meditations*, Second Set of Replies: proceeding from the same premise («There is no relation of dependence between the present time and the immediately preceding time»⁴), Descartes formulates his conclusion somewhat differently: «hence no less a cause is required to preserve something than is required to create it in the first place» (AT VII, 165 / CSM II, 116). So it is very likely that Descartes meant the same by his statements in the Third Meditation and *Principles of Philosophy*: that the preservation of the world requires the same power as its creation, and that the order (laws of nature) God had established when he created the world is retained unchangeable while he preserves the world. Note that in *Principles* Descartes was especially concerned with the immutability of the order in the world (the fundamental laws of nature) that follows from the immutable nature of its creator, God.

We can also interpret Descartes's claims 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» and that «the distinction between preservation and creation is only a conceptual one» (AT VII, 49 / CSM II, 33) in the sense that

⁴ The point here is about logical necessity: the totality of facts about the world at a certain moment does not entail any facts about the world at a next moment; in particular, a thing's existence in past does not entail its existence at present.

immutable God (who acts in eternity rather than in time) does not perform a multitude of distinct acts of world-creation and world-preservation but that in some sense, the creation and the preservation of the world is *one continuous God's act*. In this perspective, the creation of the world and its preservation can be seen as two aspects of one God's act, and that is why «the distinction between preservation and creation is only a conceptual one» — in roughly the same way as the distinction between such properties of a triangle as the property of having three sides and the property of having three angles (these properties are conceptually distinct but inseparable, because it is logically impossible for a polygon having three sides to have any other number of angles but three).

Tad Schmaltz ([44, 45]) draws attention to the relevant historical background: such eminent medieval philosophers as Thomas Aquinas and Suarez considered the conservation of the world not as a series of distinct God's acts but as a continuation of the initial act of creation, and Descartes was well acquainted with this doctrine. In *Discourse on the Method*, he wrote about the claim «that the act by which God now preserves it [the world] is just the same as that by which he created it» as «an opinion commonly accepted among theologians» (AT VI, 45 / CSM I, 133). So, Schmaltz suggests that Descartes's later statements in that vein (in *Meditations* and *Principles*) are to be understood in the sense that «divine conservation consists in the continuation of an initial act of creation, and not in a series of distinct creative acts» [45, p. 366].

In his main works about the physical world — relatively early treatise *The World* as well as relatively late *Principles of Philosophy* — Descartes attributed causation of the motions of bodies not only to God (as the primary cause of the world with all its bodies and their motions) but also to other bodies' motions and laws of nature. So, in *The World* he wrote:

God alone is the author of all the motions in the world in so far as they exist and in so far as they are rectilinear; but it is the various dispositions of matter which render them irregular and curved. Likewise, the theologians teach us that God is also the author of all our actions, in so far as they exist and in so far as they have some goodness, but it is the various dispositions of our wills that can render them evil (AT XI, 46-47 / CSM I, 97).

This statement apparently contradicts the recreationist construal because it attributes God with the authorship of only the existence of motions and their «natural» rectilinear course, whereas all the deviations are imputed to bodies themselves. A recreationist can object that *The World* is Descartes's early work and it is likely that «mature» Descartes, the author of *Meditations* and *Principles*, has changed his views. However,

Descartes's statements in *Principles* about causes of motions are also unfavourable for the recreationist construal.

In the same fragment in *Principles* where Descartes talks about God as the cause of all motions in the world, he describes this cause not merely as universal and general but also as primary, and mentions that besides this general *primary* cause, «there is the particular cause which produces in an individual piece of matter some motion which it previously lacked» (AT VIII-1, 61 / CSM I, 240). In the next paragraph, he explains that these «secondary and particular causes of the various motions we see in particular bodies» are laws of nature (AT VIII-1, 62 / CSM I, 240). The very distinction between God as primary, universal and general cause and laws of nature as secondary and particular causes implies that God does not directly assign locations to every body at any time by (re)creating the world with new locations anew every moment; rather, he rules them by means of the secondary causes, laws of nature (which were established and are preserved by his power).

Somewhat later, after repeating the view that God continuously preserves the world «through an action identical with its original act of creation», Descartes explained that «when he created the world in the beginning God did not only impart various motions to different parts of the world but also produced all the reciprocal impulses and transfers of motion between the parts»; so «the motion which he preserves is not something permanently fixed in given pieces of matter, but something which is mutually transferred when collisions occur» (AT VIII, 66 / CSM I, 243). This clearly conflicts with the recreationist construal: if we suppose that God creates the world anew every moment, and this determines locations of every body at any time, Descartes's claim that God initially, when he created the world, imparted bodies with motions and produced «all the reciprocal impulses and transfers of motion» would make no sense.

In other Descartes's texts we also often meet statements about bodies having causal powers. So, in a letter to Princess Elisabeth (21 May 1643) Descartes wrote about «the power one body has to act on another» (AT III, 667 / CSMK, 219) and «the body's power to act on the soul and cause its sensations and passions» (AT III, 665 / CSMK, 218); in a letter to Mersenne (28 October 1640) he explained that «a body, once it has begun to move, has in itself for that reason alone the power to continue to move, just as, once it is stationary in a certain place, it has for that reason alone the power to continue to remain there» (AT III, 213 / CSMK, 155). If Descartes believed that bodies have the powers to retain the states of movement and rest, and to act on other bodies, and that some (human)

bodies have the power to act on the associated souls, he could not hold that bodies are entirely passive (causally inefficient). Moreover, the attribution to bodies of the powers to retain the states of motion and rest conflicts with the recreationist claim that a body's motion or rest is just a matter of succession of the momentary relative locations of bodies continuously recreated (and so relocated) anew by God.

I think that there is yet one important consideration (that I did not happen to meet in the Cartesian scholarship) against the recreationist construal. Consider again Descartes's statement in the Third Meditation that God «as it were creates me afresh at this moment», and so preserves me (AT VII, 49 / CSM II, 33). Suppose we omit «as it were», as the recreationist construal enjoins. Now think: what would such «recreation» (not merely «as it were recreation», whatever that means) amount to? In the same way as physical bodies, human selves as mental subjects (souls, or minds) — those who feel, think, will *etc.* — would every moment end to exist, and God would create, in their place, selves with continuous mental states anew. However, this would hardly be the continuous existence of (numerically) the same «thinking thing», mental subject (me, for example); it would rather be a chain of momentary static entities (which would not even qualify as «thinking things» because every such entity exists only for a moment and its mental states don't change). If I cease to exist, a new self created next moment in my stead (however much like me mentally) is not myself; just like if I do continue to exist and God creates my mental twin, that twin is just that — my mental twin, not me. So Descartes's «as it were creating me afresh», *if it really preserves me*, cannot be what recreationism entails.

3. The problem of the place of causal dispositions (powers) in Descartes's ontology of substances, attributes and modes

Marleen Rozemond [42] argued that for Descartes's philosophy (in particular, his proof of the real distinctness of mind and body), one of the fundamental claims is that every substance has one fundamental property-attribute (thought or extension), and all other properties of a substance are modes of its attribute. We will refer to this claim as «the unification principle». Rozemond bases her construal on Descartes's statements in *Principles of Philosophy* (1.53) and *Comments on a Certain Broadsheet*. In the former, Descartes wrote that «each substance has one principal

property which constitutes its nature and essence, and to which all its other properties are referred», and explained:

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 (AT VIII-1, 25 / CSM I, 210-211).

Likewise in *Comments*, Descartes wrote that «at least when it is a question of a simple subject [...] rather than a composite one», it is impossible that one such subject (that is, substance) had several different «attributes which constitute the natures of things», so that «the concept of the one is not contained in the concept of the other» (that is, a property of a substance is not a mode of its main attribute). It is impossible because if a simple substance had several such (main) attributes, this would mean that it has two different natures, and Descartes considered this as a contradiction (AT VIII-2, 349-350/ CSM I, 298).

The focus on the unification principle is pivotal for Rozemond's view of Descartes's philosophy in at least two respects. First, she advances a construal of Descartes's argument for the real distinctness of soul and body as crucially dependent of the unification principle. Second, she claims that the principle «one substance — one main attribute» refutes the construal of Descartes's doctrine as *trialism* (rather than dualism), which involves the recognition that not only souls and bodies are substances but a *human being as a composite of soul and body* is a (third kind of) substance as well. Both these Rozemond's points are very controversial. As for the first, there are good alternative construals of Descartes's argument — such as one advanced by Margaret Wilson [47], [48, p. 185-199], which better fits the structure of Descartes's argument as it was explicitly formulated in *Meditations* and does not requires further principles, formulated by Descartes in other works for other purposes. As for the second, one can object, as Paul Hoffman [24, p. 269] did, that Descartes statement in *Comments* was made with the explicit reservation «at least when it is a question of a simple subject [...] rather than a composite one», and this reservation leaves open the possibility of a composite substance that has several conceptually independent attributes that are not modes of one another.

However, the fact that Descartes held the unification principle for simple substances, souls and bodies, can on its own be taken as posing a problem for his interactionism. According to the unification principle, all mental states (sensations, imaginings, volitions, etc.) belong to souls and are modes of thought, and all properties or states of bodies are modes of extension. However, where in this ontology is the place for such properties as powers (causal dispositions) of the human body (brain) to evoke mental states (sensations) of the soul and powers (causal dispositions) of the soul (when in some volitional state) to evoke some motions in the brain (that, in their turn, evoke the corresponding behaviour)? They are neither modes of thought nor modes of extension, so, according to the unification principle, they cannot belong neither to the soul nor to the body.

That Descartes's ontology of substances, attributes and modes leaves out causal powers was noted already by Nicolas Malebranche in *Dialogues on Metaphysics and on Religion*:

But that bodies should in themselves be capable of receiving a certain power by the efficacy of which they can act upon the mind I can not understand. For what would this power be? Would it be a substance or a mode? If a substance, then the bodies do not act, but only this substance in bodies. If this power is a mode, then there is a mode in bodies which will be neither movement nor figure ([30, P. 150-151] / [29, p. 180]).

In other words, if Descartes's fundamental ontology of the (God-created) world is confined to substances of two kinds (*res cogitans* and *res extensa*), and each substance has only the properties that are modes of its nature-constitutive main attribute (thought and extension accordingly), then causal powers (at least those that connect minds and bodies) are left out. If so, Descartes's should have repaired this deficiency, and there seems to be four alternative ways to do it:

- either (1) make such causal powers into special kind of substances, neither thinking nor extended;
- or (2) renounce the unification principle;
- or (3) allow for special ontologically fundamental kind(s) of entities that are neither substances nor substance's main attributes nor their modes;
- or (4) accept occasionalism, of the kind later developed by Malebranche (the view that all causation in the world is a matter of direct God's actions).

Malebranche considered a possible Cartesian reply that «God has united my mind to my body so that in consequence of this union my mind and my body can act reciprocally upon one another, in virtue of the natural laws», and objected that this reply lacks explanation as to what kind of reality is meant by such terms as «union» and «general laws» ([30, p. 152] / [29, p. 181]). It seems to be neither substance, nor substance's main attribute, nor its mode.

In the perspective of this criticism and weighty reasons (discussed in section 2) to think that Descartes was not an occasionalist, how can Descartes's substance dualism agree with his interactionism?

I think that the answer that best agrees with the corpus of Descartes's texts is that although the way Descartes usually explicitly sets forth and explains his philosophical system is as if his fundamental ontology reduces to the substances of two kinds with their main attributes and modes of these attributes, this exposition is not precise, because in fact, Descartes recognizes that there is something more — special relationship (substantial union) of soul and body and/or general laws of nature. The most adequate answer to Malebranche's question as to what kind of reality Descartes means by these terms would be that they are special kinds of reality, *sui generis*, that go beyond the ontology of substances, substances' main attributes and their modes. It is mistaken to require their explanation in terms of other notions, because they are themselves fundamental, *primary* notions that are sort of inherent in us. Descartes explicitly states this in his letter to Princess Elisabeth (21 May 1643):

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. . . . 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 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. I observe next that all human knowledge consists solely in clearly distinguishing these notions and attaching each of them only to the things to which it pertains (AT III, 665 / CSMK, 218).

On the other hand, some Descartes's statements can suggest another construal, that as far as soul-body interaction is concerned, the «locus» of causal dispositions is the soul. Sometimes, Descartes states that the capacity of uniting with body (that is, of making with it a substantial union as a special relationship that underlies causal interactions) belongs

to the nature of the soul itself. So, in the letter to Chanut (1 February 1647) Descartes wrote that «[t]he soul's natural capacity for union with a body brings with it the possibility of an association between each of its thoughts and certain motions or conditions of this body so that when the same conditions recur in the body, they induce the soul to have the same thought; and conversely when the same thought recurs, it disposes the body to the same condition» (AT IV, 604 / CSMK, 307). Much earlier, in the *Treatise on Man*, Descartes, while considering the human body as a machine, explained that «when God unites a rational soul to this machine [...] he will place its principal seat in the brain, and *will make its nature such* that the soul will have different sensations corresponding to the different ways in which the entrances to the pores in the internal surface of the brain are opened by means of the nerves» (AT XI, 143 / CSM I, 102; italics mine). In both these statements, the causal connections between the soul and the body are described as something that *belongs to the nature of the soul*.

Besides, Descartes often talked of sensational-perceptive states of the soul as a result of activities of the soul on the occasion of the corresponding motions in the brain (AT XI, 149; AT VIII-2, 359 / CSM I, 304). On the other hand, Descartes more often talked of such states of the soul being caused by motions in the brain. However, these two ways of talking don't conflict if we suppose that Descartes held that motions in the brain are *occasional causes* of sensational-perceptive states of the soul, whereas their efficient cause are causal properties (powers) inherent in the soul itself. Of course, the soul is active also in the interaction with the body in the opposite direction, when its volitions cause brain motions that evoke the corresponding behaviour.

So, did Descartes hold that causal dispositions (powers) that enable mind-body interaction in both directions are inherent in the soul, are parts of its nature? Although this is possible, I think that the first construal, on which Descartes attributed such dispositions to laws of nature and/or the union of soul and body, is preferable for at least two reasons.

Firstly, on the second construal, Descartes should have renounced the unification principle that entails that the soul can have only such properties that are modes of its definitive attribute, thought. Dispositions (powers) to react and act on bodily (brain) motions in certain ways can hardly qualify as modes of thought.

Secondly, in his letter to Princess Elisabeth (21 May 1643), Descartes clearly gives at least *conceptual priority* to the notion of the union of soul and body as a *primitive* (that is, most fundamental) *notion*, «on which

depends our notion of the soul's power to move the body, and the body's power to act on the soul» (AT III, 665 / CSMK, 218). And it is natural to suppose that this conceptual priority reflects ontological priority.

On the other hand, Descartes's statements that the nature of soul is such that the soul can have various sensations depending on various motions in the brain can be construed without the attribution to the soul of inherent causal powers. A plausible possibility, suggested by the above statement in the *Treatise on Man*, is that Descartes meant merely that the nature of soul encompasses the capacity to have all kinds of human sensational-perceptive states, which are modes of thought and which God then associates with the corresponding motions in the brain by means of the union, or special psychophysical laws of nature (the Natural Institution, in terms of Margaret Wilson [50]).

Conclusions

Although Descartes's interactionism is likely to seem *prima facie* in conflict with some other aspects of his philosophy, there are sufficient interpretative resources to neutralise these apparent conflicts. In particular, the position that mental states (which belong to *re cogita* — minds, or souls) cause some motions in the brain is consistent with Descartes's postulation of the existence of the law of conservation of the quantity of motion, insofar as it derives from God's immutability whereas souls are not immutable, as well as with the laws of conservation established by later (Newtonian) physics, insofar as these laws don't prohibit changes involving only redistributions of momentum and energy (without changes in their total amount) and are established only for physical (rather than psychophysical) interactions. Another source of an apparent conflict with interactionism, the recreationist construal of Descartes's statements about the way God preserves the world, can be removed by considerations that suggest the inferiority of this construal to the one on which 1) God preserves motion in the world by preserving the laws of nature and 2) the conservation of the world by God is a continuation of the initial act of creation rather than a series of distinct God's acts. As for the unification principle, which posits that every substance has only those properties that are modes of its main attribute, thought for souls and extension for bodies, the best way to reconcile it with substance dualism and interactionism is to recognize that Descartes's ontology of the (God-created) world does not reduce to substances of two kinds with their main attributes and

modes of those attributes, but implies something more — irreducible *sue generis* entities, such as the substantial union of body and soul and/or psychophysical laws of nature.

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ПСИХОФІЗИЧНА ВЗАЄМОДІЯ, ФІЗИЧНА ПРИЧИННІСТЬ І ПРИРОДА СУБСТАНЦІЙ У ФІЛОСОФІЇ ДЕКАРТА

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Анотація. У статті висвітлено проблему сумісності між інтеракціоністським субстанційним дуалізмом Декарта та його висловлюваннями про закон збереження кількості руху, про спосіб, у який Бог підтримує існування світу, і про те, що всі властивості душ і тіл є модусами, відповідно, мислення або протяжності. Обґрунтовано можливості інтерпретацій, які усувають позірний конфлікт між цими аспектами вчення Декарта. Зокрема, положення про те, що психічні стани (які належать до *res cogitans* — умів або душ) викликають певні рухи в мозку, узгоджується із вченням Декарта про закон збереження кількості руху, оскільки цей закон впливає з незмінності Бога, тоді як душі не є незмінними; воно також узгоджується із законами збереження у фізиці Ньютона, оскільки ці закони не забороняють змін, у яких відбувається лише перерозподіл енергії й імпульсу (без зміни їх загальної кількості), і оскільки вони встановлені лише для фізичних (а не психофізичних) взаємодій. Ще одна позірна суперечність у філософії Декарта, між інтеракціонізмом і висловлюваннями про спосіб, у який Бог зберігає світ, походить від рекреаціоністського тлумачення цих висловлювань (згідно з яким Бог щомиті створює світ наново), тому у статті запропоновано й обґрунтовано інше тлумачення, яке усуває цю суперечність. Згідно з пропонованим тлумаченням, відповідні висловлювання Декарта слід розуміти в тому сенсі, що, по-перше, Бог зберігає рух у світі через збереження законів природи і, по-друге, збереження світу Богом є радше продовженням початкового акту творення, ніж серією окремих актів Бога. Принципи уніфікації, згідно з яким будь-яка субстанція має лише такі властивості, які є модусами її головного атрибута (мислення для душ і протяжності для тіл), також узгоджується із субстанційним дуалізмом та інтеракціонізмом, якщо визнати, що у філософії Декарта онтологія світу (створеного Богом) не зводиться до субстанцій двох видів з їх основними атрибутами та модусами цих атрибутів, але включає ще дещо — такі особливі нередуковані сутності, як субстанційний союз тіла і душі та/або психофізичні закони природи.

Ключові слова: Декарт, ум, тіло, атрибут, субстанція, модус, дуалізм, інтеракціонізм.

Надійшла до редакції 20 серпня 2022 р.

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<https://doi.org/10.31812/apm.7624>