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Towards to the mind-body problem

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Abstract

The mind-body problem is one of the most difficult challenges of modern science. An interesting attempt at providing a reductionist model of reality was made in the 18th century by Ruder Josip Bošković. The attractiveness of this model lies in the fact that it does not readily fit into any of the above categorizations. Although frequently associated with the third - a fact that laid it open to violent criticism, causing the philosopher serious trouble - it stands apart as an independent theory. For, according to Bošković, reality is neither material nor spiritual. Nor is it a union of both of these orders.

Key words: mind-body problem, aspects of the being, non-extended and discrete points, Theory of Everything, atom, monad.

The mind-body problem is one of the most difficult problems of modern science. The search for a theory explaining the co-existence of the physical and the mental realm has given rise to number of reductionist theories, proposing the following solutions:

- solution one, in the spirit of materialistic monism: only the body exists, while soul is the effect of physiological changes occurring in the brain,
- solution two, in the spirit of spiritual monism: only the soul exists, while the body is merely a collection of sensory impressions;

- solution three, in the spirit of pantheism: body and soul are merely two different aspects of the same being.

An interesting attempt at providing a reductionist model of reality was made in the 18th century by Ruder Josip Bošković. The attractiveness of this model lies in the fact that it does not readily fit into any of the above categorizations. Although frequently associated with the third – a fact that laid it open to violent criticism, causing the philosopher serious trouble – it stands apart as an independent theory. For, according to Bošković, reality is neither material nor spiritual. Nor is it a union of both of these orders.

Bošković's entire theory can be summarized thus: "matter is made up of absolutely separable, non–extended and discrete points"[1]. An innovative definition of substance, the reduction of all types of force to an attractive–repulsive force, and the formulation of a law to explain all phenomena are the main features this original theory. It is one of the first attempts at a so-called Theory of Everything.

Bošković's conception could constitute a veritable challenge for modern science, as indeed could many of his other ideas. And yet it has been somewhat overlooked. The reason for this is its initial incorrect interpretation by commentators, who presumed that Bošković – in the footsteps of Spinoza – was arguing for the unification of spiritual and material substance and advocating something akin to pantheism. Such a charge usually had grave consequences for the one accused, and Bošković was only able to avoid these thanks to his personal acquaintance with the Pope[2]. The allegations were misplaced of course, and only formulated as a result of the failure to grasp what – for the time – was a revolutionary conception of matter. A closer look at them does however reveal a number of important insights into the nature of the mind-body problem.

Let us begin with the notion of pantheism. Pantheism brings together the concepts of God and Nature, considering them two complementary faces of the same entity. For Spinoza[3], pantheism provided a means of reducing Cartesian dualism. It is important to note that to achieve his purpose, Spinoza made use of the Cartesian definition of substance stating that that which exists,

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[1] Boscovich, R.J., *Theoria philosophiae naturalis*, the Latin-English edition, transl. R. Steward, New York 1922, pp. 139-140.

[2] At the request of the Pope, Bošković supervised the great renovation works at St. Peter's Basilica. See Bangert W., *A History of the Society of Jesus*, St. Louis 1972, p. 810.

[3] Spinoza B., *The principles of Cartesian philosophy; and, Metaphysical thoughts*, transl. by S. Shirley, Indianopolis 1998.

does so in and of itself and is its own definition[4] – thus, it cannot be limited or created by anything else (and therefore there is no substance other than God). In effect – the traditional interpretation of Spinoza runs – Spinoza[5] places equality between the concepts of God and Nature. Soul and body are thus two different aspects of the same entity.

In its main lines I agree with this typical interpretation of Spinoza's thought[6]. But somehow I think it does not touch the heart of the problem. I would not so much characterize Spinoza's démarche as a unification, as I would as a generalization. Although the difference may seem trivial, I believe that in the end similarities between these two systems are all but superficial.

Let us examine this closely. Spinoza applies the traditional definitions of Nature and God, both of which ascribe an absolutely positive nature to their object. Matter is thus considered perfect in a quantitative sense, while God is seen as perfect in a qualitative sense. Generalizing these two definitions, we arrive at a thinking and imperishable substance (God) and an impenetrable and extended substance (Nature). This substance has an infinitely positive nature and thus no serious competitor. Viewed from this angle, pantheism is a finished work.

Unification would, on the other hand, lead to a blending of properties, with rather unclear results.

Many other thinkers have tried to formulate a unified definition of spiritual and material properties. Monists such as Philo, Plotinus, Basilides, Justin, Origen or Eriugena postulated the existence of ontological units (hypostases, emanations, eons, Angels, intermediate beings such as Christ the Logos, etc.) for which they sought a unified formula. The greatness of Spinoza lies in the fact that he was able to achieve this through simple means; he did not postulate ontological units or hypostases combining to form a single form of being, but posited only one Absolute: God–Nature.

This path of generalization, to call it thus, is also compatible with Bošković's theory (whence the first impression of its ideological closeness to pantheism). But Bošković, it seems to me, goes deeper than Spinoza, since he is not just searching for a generalization but for the basis of all classification – the primary level of being. Bošković's solution is based on the statement that all phenomena arise out of the spatial activity of identical particle points, influencing one another according to a type of universal law. Bošković viewed these particles as being endowed with

[4] See Descartes R., *Discourse on Method, Optics*… op. cit., p. 77.
[5] For example: Balz, Albert G.A., *Idea and essence in the philosophies of Hobber and Spinoza*, New York 1918.
[6] Spinoza B., *Selections*, ed. by John Wild, Charles Scribner's Sons, New York 1958.

specific properties – typical of matter (extension) on the one hand, and akin to those of spiritual substance (indestructibility and penetrability) on the other. In the philosophy of Bošković, particles of matter are living objects. This strange conglomerate of properties situates them at the boundary of materiality and spirituality. The particles are at once material and non–material, spiritual and non–spiritual. If we do however accept that they are in some measure equipped with the properties of matter as well as spirit – then of their very nature they provide a solution to the mind-body problem. The problem thus becomes reduced to an internal problem of individuals, ceasing to be that of relations occurring between two different (also qualitatively) objects.

Bošković reduces matter to points, which means that seemingly hard and impenetrable solids are in reality networks of physical points.

> I do not admit perfectly continuous extension of matter; I consider it to be made up of perfectly indivisible points, which are non–extended, set apart from one another by a certain interval, and connected together by certain forces that are at one time attractive and at another time repulsive, depending on their mutual distances[7].

Bošković goes even further. Since that which is materially extended cannot be simple in nature (a view shared by many philosophers of nature at the time), then atoms must be without dimension. Reality is thus made up of extra-natural particles, non-extended, non-measurable and imperishable. As simple entities, they can neither be divided nor limited in any possible domain (they are infinitely small, infinitely active, etc.). Their nature must therefore be homogeneous and changeless.

Bošković thus views atoms as something essentially different from the bodies perceived by our senses. Describing them as non–dimensional points, he considers them inaccessible to the imagination, not even as a fantasy. Indivisibility, non-extendedness and the possession of an internal living force make these particles somewhat akin to Leibniz's monads, which are without parts and shape but extended and endowed with perception and intentionality, necessary to counteract the force of inertia. Physical points on the other hand are devoid of perception and can be characterized as centres of force, in which the active force is *vis viva*.

Consequently, these parts do not have a mental character. Nor is their nature physical, since their being equipped with a living force stands in opposition to the way matter – commonly

[7] Boscovich, R.J., *Theoria philosophiae*..., op. cit., p. 461.

thought of as passive – is defined. What then is their nature? The answer to this question is not without significance, also for the mind-body problem.

The difficulty associated with providing an exact definition of physical points has given rise to many different trains of speculation, including the already mentioned charges of pantheism. But most importantly of all, it has been the reason why Bošković's intentions have widely been misunderstood.

The solution – to my mind – consists in the following. Let us apply the principle of generalization. The standard formulation of the difference between material and spiritual substance pivots on the concepts of impenetrability and the ability to think. Matter is perceived by the senses, but is not able to think. Conversely, the soul is not perceptible but subject to mental processes. Bošković's points however combine the properties of impenetrable matter and those of spiritual non–extendedness and imperishability.

We thus arrive at:

- souls:
  characterized by thinking, penetrability, non-extendedness, imperishability;
- bodies:
  characterized by non-thinking, impenetrability, extendedness, peris-hability;
- points:
  characterized by non-thinking, impenetrability; non-extendedness, im-perishability.

It is thus that the worlds of physics and metaphysics merge together into a mutually complementary whole. The link between the two is force. This, not coincidentally, was also Kant's intuition, which led him to grant to force the status of a primary concept. According to Kant, though God may be the Creator, force is not a part of His nature. God is merely its depository[8]. Kant's vision is that of a cosmic structure, simple in nature, worked upon by forces. The stretching out of force in space gives rise to a field, and within this field, to a dimensional presence. Active within the field is a substance made up of a multitude of small, mobile particles – centres of force, revolving around a central body and interacting with one another. As a result of their dynamic interaction these particles gain the attributes of matter. Thus force builds up and underpins the entire structure of the universe. Furthermore, space expands together with force

[8] I. Kant, *Idea for a Universal History from a Cosmopolitan Point of View*, transl. Lewis White Beck, Oxford 1963, p. 249.

(while time emerges as a result of the self-ordering of the world). It is thus that the dynamic expansion of force creates space, while the mutual interaction of particles gives rise to structure. The union of force and space – this is the Kantian power of creation[9].

Bošković – who made the notion of force the central axis of his system – did however decide that the concept should be replaced with that of acceleration, and derived from the category of absolute movement[10]. This thesis is interesting, since the concept of force, especially in light of the mathematical notion of a period, has multiple meanings.

Bošković's solution is difficult to interpret. It constitutes an alternative to the Cartesian model of reality. Atoms are and are not material, they are and are not spiritual. The difference between Spinoza and Bošković lies in the fact that Spinoza continues to operate within the Cartesian framework, while Bošković makes an attempt to step beyond it.

Soul and body thus create a common space. They are bound together by force. For Kant, force constitutes an independent entity; for Bošković, it has its origin in God. Force gives direction to particles. For Leibniz, these become distinct points of viewing the world. For Bošković, whose particles are not endowed with consciousness, they become images of the world.

The above clearly demonstrates that the solution of the mind-body problem has implications for the relationship between:

- physical and mental phenomena,
- macroscopic and atomic phenomena,
- external and internal phenomena,
- conscious and unconscious acts,
- acts of free will and determined acts.

In seeking to resolve the mind-body problem Bošković makes reference to the opposition between free will and determinism. He thus reduces the mind-body problem to a question concerning the existence of free will.

As Bošković writes, free will requires the determination of an intentional cause. Here are some examples:

Example one:

[9] Ibid., p. 250.
[10] See Whyte L. L., *Roger Joseph Boscovich SJ*, New York 1961, p. 86.

> I readily acknowledge this much; that, if all the letters that go to form a poem of Virgil are shaken haphazard in a bag, and then taken out of it, and all the letters are set in order, one after the other, and this operation is carried on indefinitely, that combination which formed the poem of Virgil will return after a number of times, if this number is greater than some definite number[11].

Example two:

> If in an urn there are a hundred and one names, and it is a question with regard to one determined name, whether it has been drawn from the urn, the improbability is a hundredfold to the contrary; and if there were a thousand and one names, a thousand fold; if the number of names is infinite, the improbability will be infinite; and this passes into a certainty. But if anyone should have seen the drawing and give us information, then the whole of the improbability would immediately be destroyed. Again, in this example, the particular determination by a created agent will not be from among an infinite number of possibles, except on account of laws already determined in Nature by an infinite Determinator and from the determination to the individual by the same power; as I said, a little earlier, when speaking of the selection of a particular form for a statue[12].

Example three:

> The Being external to the series, which chooses their series in preference to all others of the infinite number in the same class, must have infinite determinative and elective force, in order that He may select this one out of an infinite number. Also He must have knowledge and wisdom, in order to select this regular series from among the irregular series; for if He had acted without knowledge and selection it would have been infinitely more probable that there would have been a determination by Him of one of the irregular series, than of one of the regular series, such as the one in question.
>
> For the ratio of the number of irregular series, to the number of regular series is infinite, and that too of a very high order; and thus, the excess of the probability in favor of knowledge, wisdom, and arbitrary selection is infinitely greater than blind choice, fatalism, and necessity, and this therefore leads to a certainty[13].

Bošković's arguments rest on the premise that determining the purpose of an action reduces the number of possible solutions to one (one consistent with the purpose). Intentionality, however, is seen by Bošković to be an attribute of God, which in itself is a metaphysical assertion and cannot be proved or disproved, making it impossible to comment further on this train of thought.

One may however discern certain interrelations which, though speculative, make it possible to take the problem of free will to a new level of discussion.

Let us posit a series of possible regarding the occurrence of fact x, that is: $x_1, x_2, x_3, \ldots x_n$. Let us assume that we want to act in accordance with possibility x_2. By all appearances this choice is an act of free will. But at the same time the terms of the series are determined by a mathematical formula (algorithm). By effecting a choice we are therefore merely selecting

[11] Boscovich, R.J., *Theoria philosophiae*..., op. cit., p. 461.
[12] Ibid, p. 465.
[13] Ibid, p. 466.

one of the available solutions, which means that we are not being wholly creative. We are choosing from among several *given* possibilities, each one owing its existence to a mathematical formula, and merely actualized by the will.

Another example. Let us make the series stand for possible forms of being. It is worth noting that until we define the purpose of actualization, each of the variables in the series has the same likelihood of occurring. But once conditions have been specified, only one possibility continues to be compatible with the intention. Purpose becomes the criterion of choice. Thus our question regarding consciousness can now be formulated as follows: is actualization the statement of boundary conditions for the existence of something or is it one of many possibilities, regardless of ways in which it may differ from the others, but such that only it was chosen to be actualized?

Should we now delve into metaphysics and ask about necessary existence, our question would take the following form: who is the conscious creator of things – the being that brings about their actualization (chooses them from among all other possible forms of existence) or an algorithm which gives these possible properties compatible with the purpose of actualization? To put things succinctly, who is the creator – the necessary being or mathematics? It should be noted that the answer to this question does not preclude the existence of a necessary being next to – so to speak – a creative mathematics.

Another example: let us posit a series of possible forms of being. Now let us assume that a being is to be actualized according to possibility x_6. If however there is a conscious free will, then the actualizing subject wanting to exercise it fully has to be able to actualize any given possibility. This is possible only on condition of supplying the chosen possibility with the necessary properties (for instance, by bestowing the properties of x_6 on x_2). Only then can we speak of true and conscious free will. From the point of view of nature it makes no difference which possibility becomes actualized – a world endowed with the characteristics of x_6 was to come into being, and it did. It is of no import to reality whether the content of x_6 or that of another possible, endowed with the properties of x_6 by the actualizing subject, becomes actualised. This is only of import to the world of possible things.

What then does the process of exercising will consist in? It is the indication of the original state of a given series. In light of this, the problem of freedom can be reduced to the question of whether such indication is arbitrary or whether it is the result of the operation of a certain

principle. If it is external, meaning that it has been performed by the necessary being, then the problem will remain unresolved because of this being's limitless perspective. We can only presume that in deciding on an actualization, the necessary being acted in consideration of the final purpose.

But if the indication of the original state is internal, that is, if it is consciousness in the strict sense of the word, then purpose must exist in substance, be an integral part of it. Granted this however, considering Bošković's definition of particles, the will would have to be a mechanical function (and thus would not really exist).

Thus, choice is infinite when purpose is not indicated. Purpose does not so much uncover as it constitutes – in itself – the very formula whereby a series becomes ordered. It is what makes choice possible and eliminates randomness. Applying this to the creation of the world, one should state that were it not for an intentional cause, the world – though it would doubtless come into being – would not likely be as it is.

How does all of this impact the mind-body problem? Well, in dualistic models, physics provides content while the mind realizes it on the basis of choice. Many systems have been formulated to shed light on this interrelation, such as parallelism or affect theory. As far as monist solutions are concerned, we have the following options:

- material monism: there is no such thing as free will, mental phenomena are subject to the same mechanistic laws that physical phenomena are subject to. Thus choice is always determined.
- Spiritual monism: human beings are free in the choices they make. Free will is the independent choice of one of several possibilities (supplied by physics).

The operation of free will should thus go further than selecting one of the options supplied by the content of sensory impressions. This is why there has to be a way of transforming physical phenomena into mental ones. But Bošković's claim says more: free will, though operating in the world of mind and not in that of physics, has universal consequences. This is why the transformation of mental phenomena into physical ones has to be possible.

The mind however is not one of the organs, as Descartes would have it. According to Bošković, mind is present throughout the body. This claim seems to have religious overtones, but in fact belongs to a wider tradition stemming from unpublished and forgotten works of Descartes, supported by the works of Newton and Kant.

In the said works, Descartes differentiates between the principle of apprehending the external world by means of the senses and their associated bodily structures, and the principle of internal intuition.

Now it should be possible to point to some property, characteristic of each of these types of cognition, that makes them differ from one another. We have to conclude that the object of sensory perception is the external world, while the internal world, the reality of a given organism, is the object of internal intuition. As for the sources of these cognitive processes, it is quite obvious that sensory perception relies on external stimuli (and that it also requires the ability to reason and to sense). In the case of internal intuition, we are dealing with a kind of immanent cognition, and it remains to be determined whether this type of cognitive process is necessarily limited to corporeity or whether the fact that it is limited to corporeity follows from some limitation or dependence it is subject to.

The first solution would lead us to conclude that soul and body have been created so as to overlap in every possible way, and only with respect to one another. But instead of saying that God designed parts capable of forming the only possible arrangement, would it not be more rational to say that the creation of unified psychosomatic beings, or indeed a unified world, would have been easier in the first place?

The second option is more interesting. What it entails is the soul's capacity for knowing the nature of every thing it is in union with. Internal intuition is thus an innate way of perceiving things. It is here – at least as I see it – that the long journey of the Kantian forms of intuition begins.

As a form of immanent cognition, internal intuition is a way of understanding the object of cognition, and something indispensable to the mutual interrelationship of soul and body. It constitutes an immediate understanding of the nature of bodies, and furthermore, is the full knowledge of their dispositions as well as of the manner in which they present the world. It is therefore the ideal of cognition.

Bošković's claim develops previous attempts at solving the mind-body problem. For Bošković, the soul is not tied to an organ or a specific abode within the body. It is self–perception, a manner of understanding oneself. It is self-sensation, issuing from the consciousness of one's own corporeity, something akin to a center of balance, but with respect to the order and laws of the mind. The center of balance is, after all, not a typical *idea*, since it refers to a specific physical

process. Just so the mind, which – as Bošković might have said – is perhaps concentrated in the brain, just as the center of balance concentrates in a specific section of the body but does not constitute a substantial presence therein, being present only by way of its effect.

Bošković's theory, though forgotten, constitutes an interesting attempt at solving the mind-body problem, moving it beyond the dualistic Cartesian framework. It seeks a different, third, independent inroad into the observation of reality.

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