

An Anti-Reductionist Argument Based on Spinoza's Naturalism

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In this paper I wish to concentrate on one aspect of an anti-reductionist view, namely on the central idea underlying the so called 'bottom-up' principle of the structure of science. This idea says that although the behaviour of any structured entity is governed by laws which apply to this kind of structure alone, these laws are the result of, or emerge from, the properties of its basic elements. The most important aspect of this view is the relationship it establishes between the unity of science and the unity of nature. Feynman, for example, argued that the greatest success of the quantum theory is in increasing the unity of science. He claimed that the advantage of the possibility to explain the whole of chemistry in terms of quantum mechanics is weighed against the previously accepted empirical principle, that in order to accept a theory, a detailed understanding is required of what goes on in every experiment. This advantage of quantum mechanics, he says, shows that we are on the right track. And he adds that this advantage is accentuated by the fact that if chemistry can be so reduced to physics, then the whole of life can be reduced to it as well. According to him, the most important hypothesis in biology is that there is nothing that living things do, that cannot be understood by seeing them as made of atoms acting according to the laws of physics [Feynman 1989, 3-3 and 3-6].

In other words, Feynman's conception of science is that of physicalism, understood as everything that can be explained by physics, including non-material things, like laws of nature, the geometry of space or abstract concepts like energy. He emphasizes that we do not know *what energy is* (the emphasis is his). All we know is that this abstract quantity has many forms; that it can be calculated in each of them, and that their sum total is constant, which is The Law of Conservation of Energy [Feynman 1989, 4-1]. And 'explained by physics' means 'explained by a hierarchy of natural sciences which are ultimately reducible to physics.' The 'bottom-up' principle says that this hierarchy reflects the evolution of the structure of the universe.

My first claim in this paper is that although Spinoza argued against Descartes' conception of science, his arguments apply also to physicalism. This is because the unity of science has remained the same as Descartes claimed in the seventeenth century, namely that all that science can do is to explain the physical world, in spite of the fact that most scientists do not accept Cartesian dualism.

My second claim is that starting from Spinoza's view of nature, the 'bottom-up' principle cannot be sustained as a universal law. This is because by the 'bottom-up' principle the properties of a structure which emerges from the properties of its basic elements have no effect on the structure of its elements. For example, the machinery of a cell includes a process for the production of proteins. The first step in this process is performed by an RNA molecule which selects that part of the DNA which prescribes its production. The 'bottom up' principle in this case says that, although this selection depends on the shape of this molecule, its biological function in the cell has no role in determining this shape. Its shape is exclusively determined by the laws of chemistry. In order to disprove the rival hypothesis, that it was a vital force of the cell that was

responsible for determining the shape of this molecule, molecular biologists who adhered to the 'bottom-up' principle removed the RNA molecule into a test tube, heated it so that it lost its shape, and allowed it to cool down outside the cell. As a result, the molecule regained its 3-dimensional shape, proving that there was nothing in the structure of the cell that contributed to its formation [Cairns 1997, pp. 101 and 94]. However, according to Spinoza's naturalism this independence cannot be maintained if the scientific hierarchy includes the structure of society emerging from the properties of individual people as its elements.

Spinoza's naturalism does not reject the idea that biology underlies a theory of mind. On the contrary. He explains that in order to recognize Peter the mind must abstract some essence of his by which he appears to us as the same person every time we see him. Yet, it is only by reflection on our factual recognition that we know that this must be the case. In fact, our brain derives this essence while we remain ignorant of it and of the process by which it is derived [Spinoza 1979 p.237]. In general, he says "no one has yet been taught by experience what the body can do merely by the laws of nature in so far as nature is considered merely as corporeal or extended, and what it cannot do save when determined by the mind." And he explains further that "*the body* can do many things by the laws of its nature alone at which the mind is amazed... when men say that this or that action arises from the mind which has power over the body, they know not what they say..." [Spinoza 1979 p.87].

Spinoza agreed with the empirical scientists of his time that *whenever possible* we must seek evidence for a theory of mind as much as we must do so for knowledge of the physical world. An argument to this effect we find in his comment on the idea that a person cannot judge something to be bad for him and yet want it. This, he says, is *contrary to experience*. As philosophers, we should acknowledge the fact that a person can very well want what is bad for him, and look for a natural explanation for it [Spinoza 1998, p.138].

I emphasize the phrase 'whenever possible' because Spinoza agreed with Descartes that we have some knowledge for which we cannot find evidence in the sense acceptable to empirical scientists. In fact, his own claim that there is nothing outside nature is not provable in this way. But according to him, this assumption is essential for creating a correct science. It is essential because it serves the best guide for research and the best standard of truth for its judgements [Spinoza 1979 p.241]. Of course, physicalism is also held to be the best guide and a standard of truth for research. The question is whether biology, which takes the theory of evolution as its guide and standard of truth can accept the 'bottom-up' principle as advocated by physicalism, or whether its inclusion of humanity in the evolving animal world is better explained by accepting Spinoza's conception of the human mind as part of natural evolution.

According to Spinoza, Descartes' assumed distinction between Thought and Extension is in fact a distinction between two ways by which the world can be understood. Either according to its conceived abstract laws or by its causal relations as they are observed in

space.[Spinoza 1979, p.7 (note to proposition X)]. The distinction, he explains, must be made only because none of these ways of understanding can be derived from the other. Taking an example from physics, instead of his own [Spinoza 1966, p.7], the abstract law of gravitation cannot be derived from observed movements alone, and knowledge of this law is not sufficient for explaining a particular movement in space. But the world they explain is clearly the same.

Again we should note that although not many scientists or philosophers adhere to Cartesian dualism, Spinoza's argument is still relevant because this dualism has been replaced by a new one, namely of culture versus nature. Being beyond the permitted length of this paper, I can only point out that in spite of the influence of Darwin, his followers only included the human body in their study of evolution. And an influential scientist like Richard Dawkins, or philosophers like Charles Peirce, Quine, Wittgenstein and Daniel Dennett, among many others, see in rational thinking a cultural invention, where a culture is largely independent of nature. But by Spinoza's view a culture cannot be independent of nature. Anything which can affect human behaviour must be explained in natural terms because there is nothing outside nature.

Spinoza's conception of *substance* is his conception of Nature as a whole. Its definition says that substance is its own cause and is to be conceived through itself, namely by nothing outside itself [Spinoza 1979 p.1, definitions I and III], implying that the laws of nature are not imposed by God on inert matter, as Spinoza's contemporaries, and even Newton, believed. These definitions say that the laws of nature express the internal dynamic force of material existence – which is the meaning of his equating God to Nature, and that every thing which comes into existence is a modification of substance, and its own internal forces must be understood in terms of the internal forces of Nature.

In his *Metaphysical Thoughts* [Spinoza 1998 p.120] Spinoza argues that the essence of life should be understood as "the force through which things persevere in their own being." It is because this force can be *conceptually* distinguished from the things themselves, he explains, that the idea arose that things *have* life, namely souls, as if life was distinct from the living things themselves. In the *Ethics* he generalizes the idea to all structured things. *All things*, he says, behave so as to sustain their own survival [Spinoza, 1979 p.91 (proposition VI)].

Commenting on Descartes' "*I think therefore I am*" Spinoza says that Descartes indeed discovered an essence of man. But this essential feature is part of the internal forces by which people persevere in their natural existence [Spinoza 1998 pp.9-10]. Spinoza explained the function of reason, as a corrective mechanism by which ideas are accepted or rejected by a balance of reasons, akin to the balance of forces in the body [Spinoza 1979 p.255]. He explains the necessary inclusion of this mechanism in human nature as a result of his other explanation that the more a body can perceive and respond to many things at the same time, the more it depends on understanding [Spinoza 1979 p.48].

This explanation is given in a note to proposition xiii in part II of the *Ethics*, which in a slightly different formulation says that an idea always reflects either an objective state of the human body or a certain mode of existence outside the body, and nothing else [Spinoza 1979 p.47]. In order to understand this proposition we may

start by noting that 'ideas' should be understood as including everything of which we are conscious. For example, feeling hungry is also an idea. The objective state, or as he says, the object of this idea, in the body is comparable to a biologist saying that this feeling *is* the set of processes in the body which produce it. A feeling is clearly not the same as these processes. But if it is what we are conscious of when certain changes occurs in the body, in terms of which feeling hungry is fully explained. In this sense we may talk of a reduction of this mental state to a physical one. However, according to Spinoza, this explanation is not complete because a feeling is categorized as a kind of pain – a general term describing transitional states of the body by which its power of action is reduced [Spinoza 1979, p.128 (definition III and the explanatory note)]. And it follows from his conception of life, that this feeling must be combined with a desire to restore the body to its natural capacities, which in this case means a desire to assuage the pain of hunger.

While the objective state in the body underlying feeling hungry is a universal state reducible to biology, the actual behaviour for restoring the body to its natural capacities depends on the knowledge how to do it. Hence, the objects of the ideas constituting this knowledge are 'certain modes of extension actually existing' outside the body. This knowledge cannot be universal. If it were universal to our species, it would have meant that perception of these objects outside the body together with, as he says, the amazing laws of nature that move the body without the mind's interference, would have been sufficient for survival. And a theory of mind would be reducible to biology, even if environmental influence includes learning by imitating other animals of the same species. In this case, the 'bottom-up' principle might have been saved. The reason why this is not so for human beings is that the objects outside the body which affect behaviour are the behaviours of other people whose desire is to live according to *their* natural drives.

Again, Spinoza's naturalistic approach does not reject the assumption that the laws which govern a social structure emerge out of the properties of its elements, namely the properties of individual human beings. In the first chapter of his *Political Treatise* he says that his intention is to demonstrate that a sound political science can and ought to be based on what is known both of human nature and of political practice. This, according to him, agrees with other branches of science which verify or reject their theories by available evidence. What his study of human nature taught him is that passions are stronger motives of behaviour than reason. It follows that when people in power design rules for preserving the integrity of their community, they can never be free from the influence of their passions. Yet, he also learned that *all* people know that if they want to pursue their own plans of life they must surrender a great part of their power to the state [Spinoza 1951 pp.296-297 (15-16)]. This knowledge, according to him, is not a result of using reason – as Hobbes argued at the time – but is an intuition, which stated in modern terms means innate knowledge, that we need each other's help. People could not have discovered this essence of political life if they were not already living in societies [Spinoza 1966 p.269]. This he says, applies to all knowledge of a true essence of a thing, even to mathematics. We would not be able to know the essential equation of a parabola, for example, without first knowing parabolas. And we know parabolas because they exist [Spinoza 1998, p.99].

Spinoza explains that the basic political problem is not the imposition of law and order but the tendency of people in power to suppress the tendency of other people

to use reason, so that they passively accept these leaders' ideas, as if they necessarily provide the best way to satisfy everybody's desire to live according to their nature in peace and security [Spinoza 1951 pp.215-216 and 313-315]. Spinoza's intention with developing his political science was to show that the best way to satisfy this basic desire was to design civil laws which would encourage rationality and thereby prevent this behaviour of leaders. But my purpose in this paper is only to show that, at least when the study of the human mind is included in the scientific project, it is impossible to maintain that a structure has no effect on the structure of its elements. This is because, as Spinoza maintained, to say that something is natural does not mean that it cannot be distorted [Spinoza 1979 pp.139-140]. For example by the influence of the natural behaviour of leaders.

Literature

[the year of Spinoza's books refer to the editions I used].

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