Appeared in: *Reduction and Elimination in Philosophy and the Sciences. Papers of the 31st International Wittgenstein Symposium,* volume XVI, ed. Alexander Hieke & Hannes Leitgeb, Austrian Ludwig Wittgenstein Society 2008, ISSN 1022-3398, Kirchberg am Wechsel, 227-229.

Defining Ontological Naturalism

Marcin Miłkowski

Abstract: Many philosophers use "physicalism" and "naturalism" interchangeably. In this paper, I will distinguish ontological naturalism from physicalism. While broad versions of physicalism are compatible with naturalism, naturalism doesn't have to be committed to strong versions of physical reductionism, so it cannot be defined as equivalent to it. Instead of relying on the notion of ideal physics, naturalism can refer to the notion of ideal natural science that doesn't imply unity of science. The notion of ideal natural science, as well as the notion of ideal physics, will be vindicated. I will shortly explicate the notion of ideal natural science, and define ontological naturalism based on it.

In most discussions, "naturalism" is thought to be equivalent to "physicalism". For example, David Papineau's book (Papineau 1993) doesn't even mention the word "naturalism," and uses "physicalism" instead. The standard text-book definitions follow the same pattern (Schmitt 1995; Guttenplan 1994).

In other words, it could seem that the term "ontological naturalism" is simply reducible to "physicalism" and, therefore, can be eliminated from the philosophical vocabulary. I will argue that naturalism is not to be reduced to physicalism, and that both positions should be distinguished. Physicalism must be committed to the view that all objects are physical, and that implies that objects mentioned in special sciences, for example, are reducible to physical. Naturalism doesn't have to embrace this view. This is not to say that naturalism is necessarily anti-reductive; on the contrary, it has to imply that all objects are natural objects, and that means that they are reducible to natural objects. The main difference is that narrow physicalism implies unity of science, and naturalism can remain neutral towards it, neither denying nor accepting it. To wit, naturalism is a broader notion and covers various other positions such as broad and narrow physicalism.

Physicalism is usually defined in two basic ways: (1) via the notion of a physical object; (2) via the notion of a physical theory (Stoljar 2001). What is notable is that it's impossible to define the notion of a physical object without implying a theory of it (it's not observational), and on the other hand, any physical theory will imply a notion of a physical object. So, both ways are inextricably linked to one another but the theory-based approach has two advantages: first, its ontological commitments can be analyzed the same way they are analyzed in the case of scientific theories; second, it will clearly present the theoretical background.

Even if the notion of a physical object is defined in a fashion that is deliberately non-scientific (see Strawson 2006), it will imply a theory at least in a sense that the notion of the physical cannot be taken to be purely observational. If this theory is based on *a priori* assumptions that are outright incompatible with the physics as we know it, it should be dismissed as highly objectionable example of armchair theorizing. In other words, object-based definition of physicalism must be vindicated against the objection that it is arbitrary and unjustified. Even if the definition is supposed to be based on conceptual analysis that starts with an intuitive notion of the physical (as in Strawson 2006), it should be asked which concepts were analyzed to reach this definition. If they are natural language concepts, then there is no guarantee they are correct: we still speak of the Sun rising. If they are scientific concepts, like in the case when the physical object is defined as whatever exists in timespace, it is already theory-laden. Either way, the object-based approach collapses into an implicit version of the theory-based physicalism.

Theory-based physicalism is not trouble-free, however. It cannot offer clear-cut conceptual solutions, if the theory it appeals to is scientific. For example, it is hard to stay nominalist while

positing ideally black bodies or timespace points. Moreover, physical theories of the genesis of timespace can hypothesize that there were once non-timespace objects that gave rise to timespace. A theory-based physicalist will have to embrace the claim (if scientifically valid), even if it would seem counterintuitive to her.

This is a minor problem compared to an objection that if theory-based physicalism refers to scientific physics, it is false insofar as current physics is not complete, abounds in tensions between disparate theories (e.g., quantum mechanics and relativity theory) and has obvious gaps. In reply, most physicalists claim that they refer to an ideal physics. Yet, they don't care to explicate the notion of ideal physics. Carl Hempel formulated a dilemma: physicalism is defined either with current physics, which is almost surely false, or with ideal physics, which is unknown, and therefore cannot be rationally asserted (Hempel 1970). Object-based physicalism, as it implies a theory, has to face it as well.

There are two strategies for dealing with this dilemma. First is to define ideal physics in terms of empirical accessibility (Guttenplan 1994), and the second is to specify requirements that ideal physics will have to meet. The first strategy implies either that physicalism is equivalent to empiricism (including a priori versions) or that empirical access will not be defined in terms of ontological commitments of empirical theories (possibly a posteriori). I suggest that "empiricism" and "physicalism," are not to be equated; the second possibility boils down to adding some explicit criteria for theories that will be able to identify empirical objects. It seems that either way, physicalism will have to say something more specific about ideal theories.

One of the ways of spelling out Hempel's objection is to say that physicalists cannot ensure that the future ideal physics won't include the term "ectoplasm," or "nonmaterial substance" in its vocabulary. These terms would be worrying for a physicalist because they don't seem to be reconcilable with the current physics. Currently, referring to ectoplasm boils down to stipulating that there be a miracle happening: There is no place for any entity like that in physical laws. Should there be genuine cognitive progress in physical theories that leads to introducing the term and appropriate laws to physics just the way other entities are admitted in scientific theories, theory-based physicalists would have to accept that. In other words, as soon as ectoplasm is no longer a miracle in a theory, it is not embarrassing for physicalism. In spite of the skepticism about the cumulative nature of scientific theories, it remains relatively uncontroversial that physics remains faithful to methodological naturalism. If this feature of science is relatively constant, then we know enough about ideal physics to be able to refer it, as it won't admit any supernatural objects. In other words, ideal theories must fulfill the Humean prescription that *explananda* cannot be more improbable than *explanantes* (famous section X of Hume 1902).

Two things might be observed. First, even ideal physics cannot be an absolutely complete theory; it will never be free from cognitive constraints, such as inability to observe infinite physical bodies at once by any finite cognitive agent. Second, the hypothesized complete physics will have limited power of expression; it could not decide logically undecidable problems, or problems that lead to combinatorial explosion.

The ideal physics doesn't have to be conceptualized as the most complete theory of the world in the sense that it would contain all the possible physical knowledge. In other words, it's not what Mary the color scientist would know (by definition she has all the possible knowledge of colors; cf. Jackson 1986); no finite cognitive agent can have all the knowledge due to cognitive limitations. It would be much more limited; by referring to this ideal physics, we mean that we are ready to accept all progress in physical theories that would enhance explanatory, predictive and descriptive powers of the current physical knowledge. To wit, theory-based physicalism defines physical objects as objects that physics is committed to, and physics is understood as the current-day physics including any future enhancements to it. So physicalism claims:

(P) There exists everything that can be explained by ideal physical theories or observed using the best standard observational procedures in these theories, and whatever is excluded as impossible by ideal physics, doesn't exist.

The above explication of the idea of the ideal physics doesn't imply that physics will turn out to be united or unifying science at all. It just has more explanatory, descriptive and predictive power, while remaining faithful to scientific standards. It is probable that it will remain the most basic and most universal science but we can only hope that it will help us unify special sciences (interdisciplinary unification) or even physical theories (intradisciplinary unification). The claim (P) can be made stronger (or narrow) by adding an explicit condition that the ideal physics will unify the special sciences as the most basic and universal theory. Yet, such a condition is not based on any evidence and as such is simply metaphysically dogmatic and unpalatable for naturalists. Weak (or broad) physicalism doesn't have to be overoptimistic *per definitionem*.

This is one of the reasons why ontological naturalism might seem more attractive than narrow physicalism. While we might hope that physics will be the most basic science, as physical laws are known to be universal, it may turn out that special sciences that deal with objects on other level of organization and with context-dependent phenomena will remain irreducible to physics (or to one of the competing universal physical theories). Even if the microreduction should remain possible if universal laws of conservation are not undermined (the parts of complex systems as described by special sciences will remain reducible to physical processes and properties), the system-level properties, or emergent properties, could be out of the scope of physics.

There is yet a deeper reason for thinking that simple convergence to physics is not a realistic account of science. Natural kinds, and physical objects are a natural kind, are notoriously hard to define with a normal definition. They are rather determined by bundles of laws in which they are referred to. The more independent various determinations are, the more robust the objects (for more on robustness in theories, see Wimsatt 2007). Robust objects tend to appear in several clusters of laws. Real progress of science doesn't invalidate this robustness; as finite cognitive agents, we need several independent ways of confirming that objects are real, and we try to find new ways of doing that. But this also means that any kind of unification is actually detrimental to robustness of the objects we quantify over in theories: we lose ways to re-engineer and correct mistakes in theories, if we replace several theories with one. This is not to say that reduction is necessarily wrong; if successful, it shows that what was thought of as independent, is actually inter-related, and it shows unexpected features of theories.

Moreover, as there is no universal algorithm for discovering physical laws, we must use fallible heuristics instead. The biased heuristics generate different clusters of laws that operate on various levels of abstraction, and unifying them might be not only infeasible but useless as well: add as many heuristics as you might, you'll never get a universal algorithm out if it. So there is little hope for getting rid of heuristics even in the long run.

This is why it seems more appropriate to remain at least neutral towards the unification in science, and endorse a weaker naturalistic position:

(N) There exists everything that can be explained by ideal natural science or observed using the best standard observational procedures in science, and whatever is excluded as impossible by ideal science, doesn't exist.

(N) is a paraphrase of the famous Sellars adage (Sellars 1956) that science is the measure of things. It doesn't exclude the possibility that it will be physics that will unify sciences via reduction or similar procedures but it doesn't require it. Yet, it shares a certain feature with (P) that needs to be elaborated. It could seem that it's possible that there exist some objects that are inaccessible to science because of the cognitive limitations that are specific to human beings. Though we might try to alleviate this situation by using more instruments and artificial cognitive systems, there will always remain objects that, for example, do not interact causally with anything we might possibly have access to. Doesn't (P) or (N) say that those objects do not exist? The explicit second clause states that the criteria for non-existence should be supplied by a theory. If the existence of such an isolated object X is not excluded by physics in case of (P), or any other science in case of (N), we

can remain agnostic towards it. On the other hand, if anyone wants to assert that X exists, (P) and (N) will rather imply we should use standard methodological approaches, and that will include using Occam's Razor against objects with no evidence whatsoever. So, it's far from suggesting that (N) is a version of idealism where the role of the subject is played by science; it's not the science that determines what exists. It's rather other way round: science uses its procedures to see what does exist and what does not.

Ontological naturalism appreciates that we have multiple ways of access to objects on various levels of their organization. Far from denying the role of physics in contemporary science, it is able to integrate special sciences in the realistic account of human knowledge. There is no better source of knowledge than science, and there is no evidence that all special sciences will converge into ideal physics. No ideal physics will be a complete, all-inclusive theory as there are unsurmountable cognitive limitations. We will need different, independent ways of explaining, describing, and predicting the world.

Literature

Jackson, Frank 1986. "What Mary didn't know", *Journal of Philosophy* 83 (May):291-5.

Guttenplan, Samuel 1994 "Naturalism", in: Samuel Guttenplan, *A Companion to the Philosophy of Mind*, Oxford: Blackwell.

Hempel, Carl 1970 "Reduction: Ontological and Linguistic Facets", in: S. Morgenbesser et al. (eds.), *Essays in Honor of Ernest Nagel*, New York: St Martin's Press.

Hume, David 1902 *Enquiries Concerning Human Understanding,* ed. by L. A. Selby-Bigge, Oxford: Clarendon Press.

Papineau, David 1993, *Philosophical Naturalism,* Oxford: Blackwell.

Schmitt, Frederick F. 1995 "Naturalism" in: Jeagwon Kim and Ernest Sosa (eds.)*, A Companion to Metaphysics,* Blackwell.

Sellars, Wilfried, 1956, "Empiricism and the Philosophy of Mind," in Herbert Feigl and Michael Scriven (eds.), *Minnesota Studies in the Philosophy of Science, Volume I: The Foundations of Science and the Concepts of Psychology and Psychoanalysis*, 253-329.

Stoljar, Daniel 2001 "Physicalism", in: Edward Zalta, *Stanford Encyclopedia of Philosophy,* URL = <http://plato.stanford.edu/entries/physicalism/>

Strawson, Galen, 2006, "Realistic monism: why physicalism entails panpsychism", *Journal of Consciousness Studies* 13, 3-31.

Wimsatt, William 2007, *Re-Engineering Philosophy for Limited Beings*, Cambridge, Mass.: Harvard University Press.