Queries of Pragmatic Realism

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Sami Pihlström (2003, 351) has proposed pragmatism as a promising philosophy for dedicated "middle-ground-thinkers" who attempt to find reconciliatory standpoints between extreme and even incompatible positions. I have been fascinated by pragmatism as an inspiring movement which is able to interact with all other major philosophical schools. Therefore, we both have appreciated the dialogue between pragmatists and realists, with the hope that we could learn from our agreements and disagreements (see e.g. Pihlström, 2007; Niiniluoto, 2009). In this paper, both of these points are illustrated by the main problem of Pihlström's doctoral thesis *Structuring the World* (1996): the possibility of *pragmatic realism*, taking seriously some of the key ideas of these two rival approaches. The topic is vast and deep, full of intricate philosophical and metaphilosophical issues, and in a single short article I can only take up some selected interesting examples: Pihlström's own pragmatism with a Kantian turn, Rein Vihalemm's practical realism, and Hasok Chang's pluralist pragmatic realism. I cannot argue here who is right in these debates, but in the queries my own critical scientific realism (Niiniluoto, 1999) is used as a point of comparison.

Pihlström: Pragmatic Realism with a Kantian turn

Sami Pihlström's 1996 doctoral thesis is a heroic attempt to reconcile neopragmatism (especially in the form developed by Hilary Putnam) and scientific realism (especially as defended by Ilkka Niiniluoto). Later he has become a leading expert in classical American pragmatism. With

influences from the Wittgenstein scholar Heikki Kannisto's lectures on Kant, Pihlström's *Naturalizing the Transcendental* (2003) makes a Kantian turn in arguing that pragmatism offers a naturalized reconstruction of transcendental philosophy.

Pihlström's (1996, 379-381) main conclusions about pragmatic realism include the following:

(i)   Metaphysical realism, i.e., the myth of the ready-made world, is false.

(ii)   Minimal realism as a pragmatic assumption: the existence of the inexhaustible external world uncreated by the human mind and human practices.

(iii)   Metaphysical theses on what the world in itself is really like or what the things-in-themselves really are fruitless, since we do not possess a God's-Eye View to the world.

(iv)   The noumenal world and the phenomenal world are basically identical.

(v)   The ways the world is are dependent on the epistemic-pragmatic-conceptual points of view from which we structure the world.

(vi)   Science is our best method of obtaining knowledge, and unobservable theoretical entities have to be postulated for explaining phenomena.

Here the assumption (ii) is needed to avoid the relativist conclusion "anything goes", so that "right world versions" can be distinguished from wrong ones (*ibid*., 52). He continues (*ibid*., 411) with the "deeply Jamesian position" that we are responsible for the world which we "construct". This normative appeal is the central theme of Pihlström's later monograph *Pragmatic Moral Realism* (2005).

Even though there may be subtle differences in details, these conclusions are close to the definition of critical scientific realism in Niiniluoto (1999). Thesis (ii) accepts minimal ontological realism, and thesis (vi) epistemological and theoretical realism. Theses (i) and (v) agree with conceptual pluralism, which I have used for rejecting metaphysical realism and God's-Eye

View (*ibid*., Chapter 7). The main difference is that Pihlström does not commit himself to my claim (against Putnam's internal realism) that conceptual pluralism is compatible with the Tarskian correspondence theory of truth – even though "truthmaking" should have a role in pragmatist ontology (Pihlström, 2009)..

In a survey article on the history of pragmatist philosophy of science, Pihlström (2008) with good reasons regards Charles S. Peirce as a precursor of scientific realism, and admits that William James and John Dewey had an inclination to instrumentalism. But in the spirit of thesis (vi) Pihlström urges that skepticism about unobservable theoretical entities would be an "utterly unpragmatic attitude". Another issue that he discusses is the contrast between realism and constructivism. With references to Putnam, Joseph Rouse and Paul Hoyningen-Huene's Kantian interpretation of Thomas Kuhn, he concludes:

> "The world as investigated by science is an elaborate human construction, not absolutely independent of paradigms, theories, conceptualizations, or (scientific) practices and traditions. In this sense, but only in this sense, we 'construct' the world."

As a realist, I can agree, if scientific practices here include interaction with reality, which was a key element of Peirce's conception of the scientific method. But I would add that conceptualization is a mediating step in our attempt to find scientific knowledge about the world as it is independently of us.

There is a tension between (iii) and (iv): if (in Kantian terms) the world in itself is the same as the phenomenal world, why does not our knowledge about the latter give also knowledge about the former? For example, Eino Kaila in 1939 argued that Kant was wrong in claiming that we know nothing of things-in-themselves, since after all we know their structure, which they share with

appearances (see Kaila, 2014, 14). Moreover, for a fallibilist scientific realist, the phenomenal world (*Mundus phaenomenon*) would be replaced by our scientific knowledge, which represents the world in itself (*Mundus intelligibilis*) in the sense of Peirce's semiotics (cf. Niiniluoto, 2014), but this knowledge so far is always only a tiny fragment of the inexhaustible world in itself. As Peirce argued in his pragmatist theory of truth, at best these "worlds" could become identical in the limit for the ideal scientific community.

Pihlström's (2003) project of reconciling pragmatism and transcendental philosophy starts by naturalizing the notion of the transcendental subject. Instead of "an ethereal metaphysical ghost", this subject is inherently social: it is "we" who are engaged in the construction of "our" world (*ibid.*, 223-24). This social emphasis is in line with Peirce's (and Kuhn's) emphasis that the true subject of scientific knowledge is the scientific community (*CP* 2.655), but Pihlström (2009, 11-12) also maintains that the constructive "self" is "not simply an entity or object to be found in the world" but rather "a limit of the world". Pihlström (2003) also acutely analyzes the role of transcendental arguments among several contemporary philosophers (including Peirce, Wittgenstein, and McDowell). His reading of Kant relies on Henry Allison's "one world" or "double aspect" interpretation, where the transcendental and empirical are "perspectives on one and the same thing" (*ibid.*, 162) (see also Pihlström, 1996, 222-225). Without going to detailed Kant exegesis here, I believe that the historical Kant was a two world thinker, who inconsistently with his own principles assumed a causal relation between the noumenal world and the phenomenal world. This gave reason to Fichte for abolishing the things-in-themselves, thereby starting a long period of idealism in German philosophy. Another reaction was Alois Riehl's "critical realism" in 1887, which argued against Kant's agnostic position that we have knowledge of *Dinge an sich* (see Neuber, 2014). This kind of realism against ungraspable thing-in-itself was shared by Peirce 1868 (*CP* 5.310-11), who explained in 1905 that a Kantist becomes a Critical Common-sensist as soon he corrects Kant's doctrine by accepting that "a thing-in-itself can, however indirectly, be conceived".

Similar views were expressed by Marxist thinkers like Friedrich Engels in 1886 and V. I. Lenin in 1909, Moritz Schlick in his early work in 1918/1925, and Eino Kaila in 1926 (see Niiniluoto, 1999, 91).

Allison's interpretation is extremely interesting as such, but I doubt its ability to resolve the difficulties in Kant's system – like the issues of agnosticism and causation. But my earlier remark that the one world interpretation would turn Kant into a critical realist who failed to express his views properly (see Niiniluoto, 1999, 92) is misleading. (Recall Peirce's 1905 statement about Kant, whom he "more than admires", as "nothing but a somewhat confused pragmatist" (*CP* 5.525).) If one asks what are those entities with a double aspect, Allison's reply is that in talking about things-in-themselves we are in fact talking about ordinary spatio-temporal objects without reference to the constitutive conditions of our sensibility and cognition. Thus, while for the scientific realist the basic entities in the world are noumenal things-in-themselves which can at least partially be known by perception and scientific inquiry, for Allison the basic entities are the phenomenal appearances and things-in-themselves are secondary, characterized only in a negative way.

In fact, Kant in *Prolegomena* (§13, Remark II) goes so far as claiming that things-in-themselves have no primary and secondary qualities, so that they cannot be identical with phenomena in any ordinary sense. For the critical realist, the inexhaustible noumenal world is richer than the phenomenal world – Kant's talk about "things" should not be taken too literally, since the mind-independent world is a lawlike flux of causal processes (Niiniluoto, 1999, 219), where physical objects are identifiable by their physical properties and spatio-temporal continuity in the physical space (see Hintikka and Hintikka, 1989).

Pihlström (2003, 119) favors a weak formulation of transcendental idealism which does not presuppose any unchanging "fixed reality" that determines the conditions of objecthood. Kant's transcendental idealism can be reconstructed in a way that "avoids postulating any

supersensible realm of noumenal objects" (*ibid.*, 210). Elsewhere he has told that his pragmatism rejects "the materialist idea that there is, or even could be, purely material World 1 entities with no relation whatsoever to human culture" (Pihlström, 2007, 317). Still, "pragmatism, as such, is no enemy of (moderate) scientific realism", and "Kant himself was not only a transcendental idealist but also an empirical realist" (Pihlström, 2008). Indeed, "the kind of reasonable and moderate realism that one can defend in pragmatism" or naturalized transcendental idealism amounts to Kant what called "empirical realism" (Pihlström, 2003, 155).

Those scientific realists, who endorse eliminative or reductive materialism, may have difficulties in making sense of the Kantian framework even in a naturalized guise. But for emergent materialists, who apply the more flexible Popperian ontology of three worlds (see Niiniluoto, 1999), the constituted "phenomenal world" is a complex class of World 2 and Word 3 entities. Thus, this kind of realist has no objection, if "the world as we know it" is characterized as an "empirically real" human construction (Pihlström, 2008). Pihlström's account of "our world" is in fact much richer than Kant's phenomenal world, since (as Kannisto has suggested) it may include theoretical entities (cf. (vi) above) – such as electrons, physical space, dinosaurs, and Big Bang. (Perhaps the Kantian term "empirical" is not any more quite adequate here, but this is a side issue.) On the other hand, this construction should allow elimination as well: "our world" does not any more include angels, fairies, brownies, witches, evil spirits, ether, and phlogiston.

But Pihlström's Kantian *empirical realism* is definitely weaker than his earlier pragmatic realism, as the realist assumption (ii) is dropped. But without an external mind-independent reality, how can empirical realism distinguish correct and wrong constructions or avoid relativism of our life-worlds? It is illustrative to compare Pihlström's framework to the arch-constructivist Rudolf Carnap in the *Aufbau* in 1928. Carnap applied the Kantian term "empirical reality" to the objects that can be logically constructed from elementary experiences in his system (see Carnap, 1969, 273). They include on different levels (with clear distinctions)

autopsychological, physical, heteropsychological, and cultural objects – i.e., all items of Popper's Worlds 1, 2, and 3. On the other hand, reality independent of the cognizing subject belongs to metaphysics. Hence, metaphysical realism and idealism (which assert or deny external mind-independent things-in-themselves) are meaningless pseudo-statements (*ibid*., 334).

Even though Pihlström would not approve the young Carnap's logical method of construction and his empiricist criterion of scientific meaning, both of them represent neo-Kantian ways of thinking. So it is important to ask why the minimal realist principle (ii) is not any more included in Pihlström's empirical realism. The existence of a mind-independent world could be

(a) a presupposition which is not needed, and therefore its truth is left open

(b) a metaphysical assumption, which is not meaningful

(c) a metaphysical assumption, which is rejected as false.

Here (a) corresponds to the step of *epoche* (suspension of judgment) in Edmund Husserl's phenomenology. It indicates a difference to pragmatic realism in the sense of Pihlström (1996), but would be compatible with scientific realism. Alternative (b) would agree with Carnap. For example, my conceptual pluralism is not plausible, since for a Putnamian pragmatist THE WORLD in itself "makes little sense" (Pihlström, 2009, 25). Alternative (c) would turn Pihlström into a metaphysical idealist, but this is denied by the thesis that "metaphysical antirealism, in its different forms, must be rejected as firmly as metaphysical realism" (Pihlström, 2009, vii, 7; cf. Pihlström, 2003, 222). Without the possibility of elaborating this theme here, one may note that the ontological positions of many neopragmatists (e.g. Hilary Putnam, Nicholas Rescher, Richard Rorty) are ambiguous between the alternatives (a) – (c) (cf. Niiniluoto, 1999, 28, 205-210).

Vihalemm: Practical Realism

Rein Vihalemm (1938-2015) was the leading philosopher of science in Estonia, with a specialization in the philosophy of chemistry. His *practical realism* is an interesting contribution which attempts to find a middle way between standard scientific realism and anti-realism (see Vihalemm, 2012). Its five basic theses are the following:

(1) science does not represent the world "as it really is" from a God's eye view point

(2) Putnam's internal realism and social constructivism are not acceptable

(3) science is a practical activity in the real world, involving a purposeful and critically guided constructive, manipulative, and material interference with nature

(4) scientific practice includes a normative aspect

(5) what is "given" in scientific practice is an aspect of the real world.

The key idea of Vihalemm's treatment comes from the Marxist conception of practice. Karl Marx argued in 1845 in his second thesis on Feuerbach that "the dispute over the reality or non-reality of thinking which is isolated from practice is a purely scholastic question". Praxis for Marx is "a human sensuous activity", or material work in the transformation of reality. For Friedrich Engels in 1886 this implies that practice is the criterion of truth, when practice means "experiment and industry". Vihalemm's theses (3) and (5) accept the ontology of the real world against all forms of idealism and dualism (cf. (2)), but thesis (1) expresses epistemic caution, reflected in the conclusion that "to speak about the world outside practice means to speak about something indefinable or illusory".

Vihalemm acknowledges citations to Marx and Engels in Niiniluoto (1999, 39, 275), but argues that my critical scientific realism is "too abstract as the context of practice is not thematised in it". This may be fair, as more about practice should be said within the realist framework. On the other hand, a difference between our approaches is that (following Joseph Rouse) Vihalemm treats truth in a deflationary way, while in my view the practice criterion warrants truth in the correspondence sense (even when something like (1) is accepted). Moreover,

Vihalemm's account of the production of the hormone releasing substance TRH is somewhat different from mine (see Niiniluoto, 1999, 271-274). While I argued that TRH was isolated in Guilleman's laboratory from masses of pig brains, but not created by the "negotiations" of his team (as the social constructivists Latour and Woolgar claim), Vihalemm admits that TRH is real and has the chemical structure Pyro-Glu-His-Pro-amide, but claims that there could not be such a thing as TRH "independent of certain practices (comprising also beliefs)". In my view TRH is a substance with causal powers in rats and pigs even before it was isolated and identified by Guillemin or taken into account "in our dealings with the world". The case of TRH, which is an independently pre-existing theoretical entity found by a research team, should be distinguished from real constructions using genetic technology in synthetic biology (e.g. the discovery and building of new artificial molecules which serve as antibiotics).

Vihalemm (2012) also compares his practical realism to Pihlström's pragmatic realism, suggesting that they should agree with each other. Theses (1) and (4) are clearly common points of these views, but Vihalemm also emphasizes the Marxist background of his conception of practice in thesis (3). Pihlström (2012), who had already published his Kantian monograph in 2003, admits that Vihalemm is in a sense "more realistic" and "more distant from the Kantian transcendental concerns". Perhaps one could say that for Vihalemm the world is constructed "from inside" by our material practices, not from outside (Kant) or from the limit (Wittgenstein).

Chang: Pluralist Pragmatic Realism

Hasok Chang is a prominent historian and philosopher of science, well-known for his contributions to the development of chemistry. In particular, with emphasis on the constructive role measurement apparatus, he has argued in detail how our conception of temperature has evolved from the

discovery of thermometers – just as our conception of time depends on clocks. Such case studies are useful ways of showing how "our world as we know it" is constituted by scientific practices of measurement.

Chang (2016) has recently formulated his own position which he calls – once again – *pragmatic realism*. For him metaphysical realism is "a religious hangover", and notions like "representation" and "correspondence" are dead metaphors. It is no wonder that Chang's version of pragmatism opts for William James rather than Peirce. He defines pragmatic coherence as "a harmonious fitting-together of actions that leads to the successful achievement of one's aims". Then truth is defined in terms of coherence:

> "a statement is true in a given circumstance if (belief in) it is (necessarily) involved in a coherent epistemic activity".

This definition, which equates truth with empirical confirmation, is the same as "James without misunderstandings". Next reality is defined in terms of coherence:

> " a putative entity should be considered real if it is employed in a coherent epistemic activity that relies on its existence and its basic properties (by which we identify it)."

In other words, we should consider as real "the presumed referents of concepts that play a significant role in a coherent system of practice" (Chang, 2018).

According to Leszek Kolakowski (1971), the crucial difference between Marxism and pragmatism is that the former regards practice as a *criterion* of truth, while the latter *defines* truth in terms of practice. Thus, for the Marxists success in the practical application of a theory is an indicator of the correspondence of the theory with reality. For the pragmatists such success is conceptually related to truth, so that in a sense truth is created along with pragmatic and empirical success.

Kolakowski's interpretation is not unproblematic. Some scholars question whether James gave a definition of truth at all (see Pihlström, 1996, 41), and Philip Kitcher (2011) takes James to support a "modest" correspondence theory. Vihalemm (2012) avoids this issue by supporting the deflation theory of truth. But Chang's new "coherence theory of truth" is clearly intended as a definition, thereby giving new flesh to Kolakowski's thesis. On the other hand, Chang's "coherence theory of reality" refers to Ian Hacking's entity realism, which uses success in "intervening" as a criterion of existence ("electrons are real, if you can spray them"). This is similar but weaker than the practice criterion of Engels, which mandates inferences to the existence and properties of theoretical entities (see Niiniluoto, 1999, 275).

Chang's definition of reality is restricted to entities which can relied on in our activities. But is also leads to a very tolerant pluralist ontology. As Priestley made some successful experiments with his phlogiston theory of combustion, Chang is ready to grant reality to phlogiston. However, for the same reason oxygen too has to be accepted as real. Chang does not see this as a problem for his pluralism, since "phlogiston is real" and "oxygen is real" do contradict each other, and some chemists have made coherent hybrid system which admitted the reality of both (see Chang, 2018). But clearly as descriptions of the process of combustion phlogiston theory and oxygen theory are in contradiction, so that it would be problematic to include both of them in our world picture. Therefore, Chang has to appeal to Hacking's criterion in the narrow sense that our judgment of the reality of an entity is not tied to all the related theoretical statements. For this

reason, a critical realist formulates conceptual pluralism so that, as fragments of the same underlying reality, correct world-versions within different conceptual frameworks cannot be incompatible with each other (see Niiniluoto, 1999, 224).

As Chang's coherence theory establishes a *conceptual* connection between success, reality, and truth, he concludes that "it is not that our activities are coherent because our theoretical entities are real and our theoretical propositions are true". So his pragmatism excludes the "no miracle argument" which is used by scientific realists: the best *explanation* for the pragmatic and empirical success of science is the assumption that our theories are true or at least sufficiently truthlike (see Niiniluoto, 2018).

As the final query, one may ask how pragmatic realism is able to treat the issue about the reality of the past. Some prehistorical and historical events and objects have left causal effects (the cosmic microwave background for the Big Bang, fossils for dinosaurs, documents for Napoleon Bonaparte etc.), from which we can infer backward by abduction or retroduction to their real existence in the past (see Niiniluoto, 2018). Many past events have left no traces to the present, so that we do not have any more evidence about them, even though they were real. (This was the crux of Russell's critique of Dewey's theory of truth as warranted assertability.) If abduction is included among the principles of construction, Pihlström (and Putnam) can find a place for some past things in the empirically real world-versions. Vihalemm does not raise this question in his Marxist account of practical realism, in spite of the problem that we cannot interact with past objects with our material practices. Therefore, practical realism should be supplemented with methods which indirectly test hypotheses about past events and facts. Chang's version of pragmatic realism has to face the problem that there were entities (like dinosaurs) which inhabited the earth even before any human beings and epistemic practices were around them (cf. Niiniluoto, 1999, 40). In order to avoid anti-realism about the past, he should formulate examples of coherent epistemic activities whose success today relies on the existence and properties of past entities.

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