

Discussion

# Kuhn and coherentist epistemology

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## Abstract

The paper challenges a recent attempt by Jouni-Matti Kuukkanen to show that since Thomas Kuhn's philosophical standpoint can be incorporated into coherentist epistemology, it does not necessarily lead to: (Thesis 1) an abandonment of rationality and rational interparadigm theory comparison, nor to (Thesis 2) an abandonment of convergent realism. Leaving aside the interpretation of Kuhn as a coherentist, we will show that Kuukkanen's first thesis is not sufficiently explicated, while the second one entirely fails. With regard to Thesis 1, we argue that Kuhn's view on inter-paradigm theory comparison allows only for (what we shall dub as) "the weak notion of rationality", and that Kuukkanen's argument is thus acceptable only in view of such a notion. With regard to Thesis 2, we show that even if we interpret Kuhn as a coherentist, his philosophical standpoint cannot be seen as compatible with convergent realism since Kuhn's argument against it is not "ultimately empirical", as Kuukkanen takes it to be.

*Keywords:* Thomas Kuhn; Jouni-Matti Kuukkanen; Coherentist epistemology; Rationality; Theory choice; Convergent realism.

## 1. Introduction

In his recent paper, Jouni-Matti Kuukkanen argues that Thomas Kuhn's philosophical standpoint does not necessarily lead to:

- a) an abandonment of rationality and rational inter-paradigm theory comparison, nor to
- b) an abandonment of scientific realism and the convergence thesis (p. 555).

(Kuukkanen, 2007, p. 555).

The reason why these two conclusions can be avoided lies, according to Kuukkanen, in the fact that Kuhn's ideas can be interpreted in terms of a coherentist epistemology. More precisely, he argues that a coherentist approach to theory evaluation provides the criteria for a rational inter-

paradigm theory comparison (Thesis 1) and is compatible with convergent realism (Thesis 2). The aim of this paper is to discuss Kuukkanen's arguments used for rejecting a) and b). We do not wish to criticize his interpretation of Kuhn as a coherentist, but to show that his theses, built on the basis of this interpretation, are either insufficiently explicated (Thesis 1), or should be entirely rejected (Thesis 2).

With respect to the first point, we will argue that Kuukkanen's notion of rationality, which he uses to characterize Kuhnian inter-paradigm theory comparison, needs to be further elaborated. We will show that Kuhn's ideas on theory choice allow only for (what we shall dub as) "the weak notion of rationality", which is, in fact, compatible with coherentist epistemology, but which might not be acceptable for some philosophers of science. We will conclude that, if Kuukkanen's aim is to interpret Kuhn in terms of some stronger notion of rationality, he is on the wrong track. If, on the other hand, his notion of rationality is the weaker one, introducing coherentist epistemology does not bring any novel insights into Kuhnian inter-paradigm theory comparison, since such a notion of rationality was already explicated by Kuhn himself.

With respect to the second point, we will show that convergent realism cannot be seen as compatible with Kuhn's philosophical standpoint even if we agree that it can be compatible with coherentist epistemology. We will argue that Kuhn's argument against convergent realism is not "ultimately empirical", as Kuukkanen takes it to be, and thus, cannot be refuted on empirical grounds.

The paper is structured as follows. In Section 2 we present a brief summary of Kuukkanen's arguments. In Section 3 we discuss the issue of inter-paradigm theory comparison, while Section 4 elaborates the problem of convergent realism. Section 5 brings some concluding remarks.

## **2. Kuukkanen on Kuhn**

Kuukkanen characterizes Kuhn's work as compatible with coherentist epistemology on the basis of what he calls "Kuhn's epistemological conservatism" and the idea that science is fundamentally problem-solving<sup>1</sup> (ibid., p. 559). Let us have a brief look at each of these points. First, Kuukkanen argues that the historical perspective underlying Kuhn's approach represents an epistemological framework according to which knowledge is evaluated against a background of accepted beliefs characteristic of a specific scientific paradigm. Further, what needs to be evaluated is not beliefs as such, but the desirability of a particular change of belief. Maintaining that Kuhn adopted a piecemeal approach to theory change in which "it is rational to attempt to improve the justification of the old system, rather than to reject the whole system and try to construct an alternative one", Kuukkanen characterizes Kuhn's position as

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<sup>1</sup> Since Kuukkanen uses "puzzle solving" and "problem solving" interchangeably, we do the same. For Kuhn's remark on the difference between the two (i.e. between Popperian "problem solving" and his own "puzzle solving") see Kuhn (1970), p. 4-5.

“epistemological conservatism” (p. 558).

The second relevant feature of Kuhn’s views is that scientific practice is essentially puzzle-solving, and that “the choice between two theories turns, therefore, to the question of whether the suggested alternative manages to solve the puzzle that the older theory could not, or whether it can solve more puzzles than the old one” (Ibid., p. 558-559).

In view of these two theses Kuukkanen argues that Kuhn’s standpoint can be incorporated into coherentist epistemology. He primarily calls upon L. Bonjour’s theory of coherence, summarizing Bonjour’s approach in the following three criteria: consistency of the system, the degree of inferential connections it contains, and the number of unexplained anomalous instances it exhibits (ibid., p. 560). According to Kuukkanen, the first point of his interpretation of Kuhn – epistemological conservatism – fits the coherentist idea that the system should not be changed if that results in a decrease of its coherence, and the other way around: if coherence can be increased, the system ought to be changed. The second point – puzzle (or problem) solving – is characterized as a natural component of coherentist epistemology: “Problems, that is, phenomena unexplained by the machinery of the set, decrease the number and strength of inferential relations between the components of the set, making the system less coherent.” (p. 561). In other words, problem solving can be described as coherence-increasing activity.

Although Kuukkanen remarks that Kuhn himself might not have agreed with the description of himself as a coherentist, he points out that there are indications in Kuhn’s work that actually go in the direction of coherentism. In this paper we are not going to discuss whether such an interpretation is valid. Kuukkanen himself mentions a number of obstacles for incorporating Kuhn into coherentist epistemology. What we are interested in is the following question: provided we agree with the interpretation of Kuhn as a coherentist, are Kuukkanen’s points regarding Kuhn’s view on the rationality of inter-paradigm theory comparison and convergent realism acceptable? The following two sections are devoted to these issues.

### **3. Inter-paradigm theory comparison and theory choice**

The first thesis that Kuukkanen argues for is that Kuhn’s philosophy does not necessarily lead to an abandonment of rational inter-paradigm theory comparison, since it can be incorporated into coherentist epistemology. However, he makes no remarks on the notion of rationality that is employed here. In this section we present three possible concepts of rationality with respect to the determination of theory choice. Next, we discuss which of the three can be taken to describe Kuhn’s own approach to theory choice. Finally, we explicate the notion of rationality Kuukkanen needs to accept when arguing that Kuhn’s standpoint can be incorporated into coherentist epistemology.

Let us begin by distinguishing two concepts of rationality governing theory choice, with respect to the relation between the criteria of theory choice and the determination of choice. In order to speak at all of a theory choice being rational, we presuppose that the criteria used in this process are, generally speaking, shared by the scientific community, that is, scientists in

general agree that arguing according to these standards is rational.

1. *Strong notion of rationality*: the choice of a theory is strictly determined by the criteria shared by the scientific community. That is, an application of the criteria leads to a unique theory choice.

2. *Weak notion of rationality*: the choice of a theory is not strictly determined by the shared criteria. That is, the criteria do not provide a linear preference order on the set of theories in question. With respect to the way the criteria are applied, we can make a further distinction between:

a) *Moderately weak notion of rationality*: although the preference order on the criteria, as well as the rules of their application, is fixed, a linear order on theories is not guaranteed: the given criteria together with the rules of their application might be insufficient for deciding between two theories.

b) *Very weak notion of rationality*: even though the criteria are shared, the rules of their application as well as the preference order on them are not a priori fixed, but are dependent on the particular context and/or the background knowledge, beliefs, values, etc. of an individual scientist.

Let us now move to Kuhn's views on inter-paradigm theory comparison and theory choice. First of all, Kuhn insisted that the theory comparison is done in view of a set of shared criteria (see, for example, Kuhn, 1977, p. 322; 2000, p. 96). However,

There is no neutral algorithm for theory-choice, no systematic decision procedure which, properly applied, must lead each individual in the group to the same decision. (Kuhn, 2000, p. 200)

Hence, our *strong notion of rationality* does not fit Kuhn's views. Moreover:

Individually the criteria are imprecise: individuals may legitimately differ about their application to concrete cases. In addition, when deployed together, they repeatedly prove to conflict with one another: accuracy may, for example, dictate the choice of one theory, scope the choice of its competitor. (Kuhn 1977, p. 322)

... for purposes of evaluation, one must embed it [a newly proposed law or theory] in a relevant body of currently accepted beliefs — for example, those governing the instruments with which the relevant observations have been made — and then apply to the whole a set of secondary criteria. Accuracy is one of these, consistency with other accepted beliefs is another, breadth of applicability a third, simplicity a fourth, and there are others besides. All these criteria are equivocal, and they are rarely all satisfied at once. Accuracy is ordinarily approximate, and often unavailable. Consistency is at best local ... Simplicity is in the eye of the beholder. And so on. (Kuhn, 2000, p. 114)

Even with respect to puzzle-solving (which Kuukkanen, as we have seen, takes to be Kuhn's key criterion of theory choice) Kuhn writes: "Like any other value, puzzle-solving

ability proves equivocal in application.” (Kuhn, 1996, p. 205). It follows that our *moderately weak notion of rationality* does not capture Kuhn’s standpoint either. We are thus left with *the very weak notion of rationality*.

So, for Kuhn there are indeed shared standards governing theory choice, but they alone are not sufficient for explaining it:

One can explain, as the historian characteristically does, why particular men made particular choices at particular times. But for that purpose one must go beyond the list of shared criteria to characteristics of the individuals who make the choice. (Kuhn 1977, p. 324)

These other criteria can be seen as reasons why the shared standards are applied in different ways. Their different application can be explained by different preference orders on the shared criteria, different ways of evaluating the same (shared) criterion, or different parts of a theoretical framework to which the same (shared) criterion is applied (see *ibid.*, p. 334). Thus, instead of an algorithmic path, discussions among scientists often take the path of persuasion:

... the superiority of one theory to another is something that cannot be proved in the debate. Instead, I have insisted, each party must try, by persuasion, to convert the other ... Debates over theory-choice cannot be cast in a form that fully resembles logical or mathematical proof. (Kuhn, 1996, p. 198-199)

Kuhn explains that this does not mean that there are no good reasons for being persuaded, or that these reasons are not ultimately decisive for the group of scientists involved in the discussion, or that they are different from the standard criteria of theory choice, such as accuracy, simplicity, etc. (see also Kuhn 1970, p. 238, 241, 260-262). His point is that the reasons used for persuasion “function as values” (Kuhn, 1996, p. 199): just as values can be differently applied and used to argue in favour of different positions, so can otherwise shared criteria be used to argue in favour of different theories.

Now, if we take into account these arguments, then the only way to incorporate Kuhn’s standpoint into coherentist epistemology is by accepting that:

1. the criteria of coherence evaluation do not represent an algorithm that, if properly applied, leads each evaluator to the same result;
2. the way in which the coherentist criteria are applied (for example, their preference order, the scope of their application, etc.) can vary, and is in this way context dependent.

Interestingly enough, such a weak notion of rationality is not incompatible with coherentist accounts themselves. Neither Bonjour nor Thagard offers a preference order on the criteria of coherence evaluation or a strict way in which these criteria are to be applied. On the contrary, both conceptions imply a contextual approach to coherence evaluation. In the case of Bonjour, his Doxastic Presumption, as well as his Observation Requirement, directly implies context dependency of coherence evaluation (see Bonjour, 1985, especially p. 119, 283). In the case of Thagard’s account, its contextual character is equally obvious: with regards to the comparative

coherence evaluation of phlogiston and oxygen theories, Thagard explicitly points out that his model

is biased towards the oxygen theory, since it was based on the analysis of Lavoisier's argument. [... It] is not intended to represent the point of view of a phlogiston theorist, a neutral observer, or the entire scientific community (Thagard, 1992, p. 85, 88).

Let us now return to Kuukkanen's interpretation of Kuhn. With regards to Kuhn's point that the criteria of theory choice might be differently applied, he writes:

Yet, this does not make theory choice arbitrary or irrational. The shared values, however differently shaped, seem to lead to the same theory choice by community members, as 'most members of the group will ultimately find one set of arguments than another decisive' (Kuhn, 1996, p. 200). (Kuukkanen, 2007, p. 559; the reference to Kuhn adapted to our list of references)

This remark does not help in clarifying what Kuukkanen understands by "rational". On the one hand, he is aware of Kuhn's point that the criteria of theory evaluation might be differently applied. On the other hand, he omits to mention that the reason *why* community members tend to make the same choices is not explained by the shared criteria alone. The explanation of their unique choice, according to Kuhn, lies in the process of persuasion that enables the majority to accept specific application of the standards governing theory evaluation.<sup>2</sup> Which notion of rationality Kuukkanen uses here depends on the way in which the link between the criteria and the theory choice is understood. If his point that shared values "lead to the same theory choice" is supposed to mean that the shared criteria always determine the same result *in spite of* their different application, Kuhn is being interpreted in the sense of our strong notion of rationality. Moreover, Kuukkanen writes:

I show that problem-solving can be unproblematically connected to a coherentist epistemology. What is more, there are indications in Kuhn's writings that he might have accepted this conclusion. *Surprisingly*, this means that Kuhn *implicitly* agreed that there could be a rational inter-paradigm theory comparison. (ibid., p. 556; italics added).

Again, this passage could be understood as suggesting that the idea of rational inter-paradigm theory comparison is not at all obviously or explicitly present in Kuhn's writings. Since, as we have shown, the "very weak notion of rationality" is indeed elaborated by Kuhn,<sup>3</sup> it could be

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<sup>2</sup> This is clear already from the context in which the part of the sentence quoted by Kuukkanen appears. Let us have a look at the entire sentence: "What one must understand, however, is the manner in which a particular set of shared values interacts with the particular experiences shared by the community of specialists to ensure that most members of the group will ultimately find one set of arguments rather than another decisive. That process is persuasion [...]" (Kuhn, 1996, p. 200).

<sup>3</sup> We do not wish to argue that Kuhn gave an elaborated *theory* of rationality governing theory choice, but only that his repeated explication of this problem accords with the very weak notion of rationality defined in this paper.

assumed that Kuukkanen's aim is to interpret Kuhn's standpoint in terms of some stronger notion of rationality. In case this really is Kuukkanen's intention, his interpretation is on the wrong track.

If, on the other hand, Kuukkanen uses the term *rational* in the sense of our notion of very weak rationality, his analysis faces a different sort of criticism. First of all, such an idea of rationality might not seem all that *rational* to some philosophers of science, in particular to those for whom Kuhn's conception of rationality is too weak, that is, to those who, contrary to Kuukkanen, think that Kuhn should not be seen as a rationalist because of his weak notion of rationality (ibid., p. 562). Second, and more importantly, it could be asked, why the recourse to coherentism is needed at all if Kuhnian inter-paradigm theory comparison can already be shown to be rational (in the sense of our very weak notion) on the basis of Kuhn's own writings. If Kuhn already explicated his view on theory choice, what is the benefit of incorporating him into coherentist epistemology, with respect to this question? Such a benefit cannot be found in interpreting Kuhn in terms of some stronger notion of rationality, for such an approach would be inconsistent with Kuhn's own standpoint, as it has been shown in this section. But if we are left with the very weak notion, then coherentism does not offer anything new with respect to the issue discussed, and is thus unexplanatory. Moreover, linking coherentist epistemology with Kuhn is not at all straight forward, since, for example, Kuhn maintained that the development of science(s) leads to an increased incoherence among scientific disciplines, as Kuukkanen himself remarks (cp. Kuhn, 2000, p. 98-99 and Kuukkanen, 2007, p. 564).

It is important to notice that, speaking in principle, there would be a third option left for Kuukkanen: namely, to show that even though Kuhn's conception of rationality is a weak one, it is not necessarily implied from "the core" of his views. In this case, Kuukkanen's aim would be to link some stronger notion of rationality with a part of Kuhn's views. Nevertheless, he explicitly states that he takes Kuhn's philosophy *as a whole* to be at least consistent with coherentist epistemology:

I will show below in detail that *Kuhn's philosophy* indeed fits with a coherentist epistemology. (Kuukkanen 2007, p. 558; italics added)

... I believe this extension of his philosophy does not distort his thinking. (p. 559)

Now we come to the crucial part. We have to assess how epistemological coherentism meshes with *Kuhn's characterization of science as a whole*, and specifically, how it agrees with the criteria that he suggests are used in theory choice. (p. 560; italics added)

... all criteria are linked either directly or indirectly via problem-solving to coherence, which makes *Kuhn's philosophy* consistently coherentist. (p. 561; italics added)

These passages clearly show that the notion of rationality used by Kuukkanen is not supposed to oppose of Kuhn's views taken as a whole, and therefore should not oppose

Kuhn's views on the rationality underlying theory choice either.

Thus, we can conclude that Kuukkanen's argument from coherentism to the rationality of Kuhnian inter-paradigm theory comparison is either invalid or unexplanatory.

#### **4. Convergent realism and correspondence theory of truth**

Having argued that Kuhn's position can be interpreted in terms of a coherentist epistemology, Kuukkanen goes on to argue that, since convergent realism is compatible with coherentism, it is therefore compatible with Kuhn's views as well.<sup>4</sup> Kuukkanen agrees that the link from coherentism to realism isn't straight forward, but if we can show continuity, increasing coherence and stability over the long run in the history of science, "an argument for the (approximate) truth of theories has some intuitive appeal" (Kuukkanen, 2007, p. 564). According to him, Kuhn's rejection of convergent realism is empirically motivated:

Although Kuhn had some reservations with the regard to the notion of truth-likeness, he assigned to empirical historical research a central role in deciding the issue of convergence.

And a bit further on:

Although Kuhn argued that the history of science does not yield support for convergent realism (and for an overall increase of coherence in science), convergent realism is not incompatible with his philosophy because Kuhn's argument is ultimately empirical. (p. 565)

Let us begin by noting that, in view of the above mentioned quote from Kuukkanen, what he actually claims is the following: had Kuhn found sufficient empirically based support for convergent realism, he would have agreed with it (or at least, such an agreement would be consistent with his own philosophical position). Consequently, if further research reveals some good empirically based arguments for realism, that will be sufficient to refute Kuhn's sceptical view on it.

In addition, in order to claim the compatibility between Kuhn's views and convergent realism, Kuukkanen first had to reassure us that Kuhn's position is compatible with one of the most crucial constituents of convergent realism: the correspondence theory of truth. Thus, at the beginning of his article he argues that Kuhn did not successfully reject the correspondence theory of truth. According to Kuukkanen, Kuhn only showed that there is no direct and unproblematic access to truth, but that did not refute the correspondence theory itself:

Even if we could not assess a match between a theory and reality, it [Kuhn's attack] does not make the idea that truth consists in a relationship of correspondence

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4 Even though Kuukkanen does not offer an explicit definition of convergent realism, it is clear that he refers to a view according to which scientific theories can be seen as converging towards the truth in the sense of the correspondence theory of truth (cp. "[...] the realist typically understands truth as correspondence with reality" (p. 562) and the rest of Section 4 in Kuukkanen, 2007).



between *an independent world* and our beliefs, theories, and so on, meaningless. In other words, the correspondence theory is a theory that offers an interpretation of what truth is without any epistemic concern as to whether we can know the truth. (ibid., p. 556; italics added)

By making this point, Kuukkanen is able to argue in the following way: Kuhn never refuted the correspondence theory itself, so his theory is compatible with it, as well as with convergent realism; if historical arguments show stability, continuity and increasing coherence of scientific theories, it is plausible to accept a convergent realist standpoint, which is thus not necessarily incompatible with Kuhn's approach.

The main problem with this line of reasoning is that, according to Kuhn's central ideas, a valid empirically based argument for convergent realism is, principally speaking, *not possible*. In what follows we will first show that Kuhn himself thought of his argument to be an a priori one. Second, we will present this argument as Kuhn's rejection of the very condition of possibility of the convergent realist view – the correspondence theory of truth.

Let us begin with the first point. Although Kuhn referred to a historical meta-induction, he pointed out that his argument does not rely on it:

... my generation of philosophers/historians saw ourselves as building a philosophy on observations of actual scientific behavior. Looking back now, I think that the image of what we were up to is misleading. Given what I shall call the historical perspective, one can reach many of the central conclusions we drew with scarcely a glance at the historical record itself. ... And it is taking longer still to realize that, with that perspective achieved, many of the most central conclusions we drew from the historical record *can be derived instead from first principles. Approaching them in that way reduces their apparent contingency ...* . (Kuhn, 2000, p. 111-112; italics added)

Taking the context into account, it is clear that by first principles Kuhn means the principles that constitute scientific practice *as such*. A rejection of convergent realism could thus rely on what we can conclude from the nature of science, i.e. on its key constituents, without which it would be difficult to conceive science in the sense of the term as we know it. But was such an approach undertaken by Kuhn? By presenting his "tripartite conviction" Kuhn answered this question:

First, the Archimedean platform outside of history, outside of time and space, is gone beyond recall. Second, in its absence, comparative evaluation is all there is. ... And third, if the notion of truth has a role to play in scientific development, which I shall elsewhere argue that it does, then truth cannot be anything like correspondence to reality. ... I've reached that position from principles that must govern all developmental processes, without, that is, needing to call upon actual examples of

scientific behavior. (ibid., p. 115)<sup>5</sup>

Furthermore, the objections on his reference to history and sociology of science were not unknown to Kuhn and he opposed them by emphasizing that “the generalizations which constitute received theories in sociology and psychology (and history?) are weak reeds from which to weave a philosophy of science” (Kuhn, 1970, p. 235).

The crucial part of Kuhn’s a priori reasoning against convergent realism is his argument against the correspondence theory of truth. Let us recall that, according to Kuukkanen, the correspondence theory can be seen as compatible with Kuhn’s account since Kuhn never succeeded at rejecting the theory itself. We argue that Kuukkanen does not take into account that Kuhn’s attack on the correspondence theory of truth is an attack on one of its main constitutive ideas – the notion of the mind-independent world. We shall present a number of places from Kuhn’s work that substantiate our point. We begin with his explicit rejection of the possibility of truth as the correspondence to “the one big mind-independent world”, and move towards arguments given in the framework of his so-called “Post-Darwinian Kantianism”.

... truth cannot be anything like correspondence to reality. I am not suggesting, let me emphasize, that there is a reality which science fails to get at. My point is rather that no sense can be made of the notion of reality as it has ordinarily functioned in philosophy of science. (Kuhn, 2000, p. 115)

Kuhn, thus, argues not only that the match between the mind and from it independent reality is not assessable, but that this match is *nonsensical*.

But the natural sciences, dealing objectively with the real world (as they do), are generally held to be immune. Their truths (and falsities) are thought to transcend the ravages of temporal, cultural, and linguistic change. I am suggesting, of course, that they cannot do so. Neither the descriptive nor the theoretical language of natural science provides the bedrock such transcendence would require. (ibid., p. 75)

The reasons for these claims need to be explicated in view of Kuhn’s discussion of the notion of world. First of all, Kuhn emphasizes *the world-constitutive role* of intentionality and mental representations (p. 103), of a lexicon that is always already in place (p. 86):

... different languages impose different structures on the world. ... where the structure is different, the world is different. (ibid., p. 52)

The world itself must be somehow lexicon-dependent. (ibid., p. 77)

What is thus at stake is the notion of a mind-independent, or in Putnam’s terms, “ready-made” world. And for the reasons given above, this term is for Kuhn nonsensical. Nevertheless, he

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5 A bit further in the same article, Kuhn compares his arguments against an absolute Archimedean platform and the correspondence theory of truth with the ones he is about to present: “This one, unlike the last, is not necessary or an a priori characteristic, but must be suggested by observations.” (Kuhn, 2000, p. 116). The comparison thus explicitly shows that Kuhn thought of these arguments as a priori and not based on empirical observations.

warns his readers that this does not imply that the world is somehow mind-dependent: “the metaphor of a mind-dependent world — like its cousin, the constructed or invented world — proves to be deeply misleading” (p. 103).

How should the notion of world be treated then? Instead of the strict dichotomy between the mind-independent world and our representations of it, Kuhn proposes “a sort of post-Darwinian Kantianism. Like the Kantian categories, the lexicon supplies preconditions of possible experience” (p. 104). And as the lexical categories change (*ibid.*), both in a diachronous and a synchronous manner, “the world ... alters with time and from one community to the next” (p. 102). Kuhn compares a permanent, fixed, and stable foundation “underlying all these processes of differentiation and change” to “Kant’s Ding an sich”, which “is ineffable, undescrivable, undiscussable” (p. 104). And what replaces the dichotomy of mind/language/thinking and the one big mind-independent world (p. 120) is the concept of “niche”: “the world is our representation of our niche” (p. 103).

Those niches, which both create and are created by the conceptual and instrumental tools with which their inhabitants practice upon them, are as solid, real, resistant to arbitrary change as the external world was once said to be. (p. 120)

Now, what has become of the notion of truth in Kuhn’s post-Darwinian Kantianism?<sup>6</sup> Truth can at best be seen as having “only intra-theoretic applications” (Kuhn, 1970, p. 266):

Evaluation of a statement’s truth values is, in short, an activity that can be conducted only with a lexicon already in place. (Kuhn, 2000, p. 77)

By contrast, “[t]he ways of being-in-the-world which a lexicon provides are not candidates for true/false” (p. 103-104). None of these “form[s] of life”, “practice[s]-in-the-world” give “privileged access to a real, as against an invented, world” (*ibid.*, p. 104). Therefore the speech of theories becoming truer “has a vaguely ungrammatical ring: it is hard to know quite what those who use it have in mind.” (p. 115).<sup>7</sup>

Furthermore, if with Kuhn the sciences form a “complex but unsystematic structure of distinct specialties or species” and therefore have to be “viewed as plural” (p. 119), and if the niches “do not sum to a single coherent whole of which we and the practitioners of all the

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6 Kuukkanen is not the only one who skips over Kuhn’s arguments given in the tradition of Kantian philosophy. Brendan Larvor (*cp. Larvor, 2003*), for example, argues that “Kuhn worked into his model of science the historicism found in Koyre and Butterfield” (p. 386), so that his (Kuhn’s) claims “that there is no ahistorical standard of rationality by which past episodes may be judged and that science cannot be shown to be heading towards the Truth – [...] now appear as methodological commitments rather than historico-philosophical theses. Kuhn made waves by dropping an historicist stone into a scientific pond.” (*ibid.*, p. 389). However, as our discussion shows, Kuhn’s views on these issues cannot be reduced to a mere application of the methodological standards, characteristic for the tradition of historicism in which he stood, to philosophy of science.

7 Kuhn obviously emphasized his proximity to more “continentally minded” traditions in philosophy not just by his explicit “Kantianism”, but also by calling upon key notions such as Heidegger’s “being-in-the-world” or late Wittgenstein’s “forms of life”.

individual scientific specialties are inhabitants” (p. 120), then “there is no basis for talk of science’s gradual elimination of all worlds excepting the single real one.” (p. 86).

What these quotes show is that the problem with the correspondence theory is not only in the *correspondence* itself (as Kuukkanen takes it to be), but also in the notion of world that is supposed to participate in this correspondence. But what would it mean to offer a valid argument against the correspondence theory of truth if not to show that one of its constitutive terms, together with the correspondence itself, is meaningless. Thus, when Kuukkanen claims that Kuhn’s argument against the correspondence theory is epistemological, this interpretation is acceptable only if epistemology is taken in view of Kuhn’s *transcendental* perspective. Bearing this in mind, we have to reject Kuukkanen’s claim that Kuhn “failed to understand the nature of the correspondence theory as a non-epistemic theory”, for, as we have seen, such a non-epistemic character of the correspondence theory is for Kuhn plainly nonsensical. Once again:

There is, I think, no theory-independent way to reconstruct phrases like ‘really there’; the notion of a match between the ontology of a theory and its ‘real’ counterpart in nature now seems to me illusive in principle. Besides, as a historian, I am impressed with the implausibility of the view. (Kuhn, 1996, p. 206).

We have thus shown that Kuukkanen’s arguments against Kuhn’s rejection of the correspondence theory of truth, and for the compatibility of the Kuhnian standpoint with convergent realism – both fail. Showing that Kuhn’s position can be incorporated into coherentist epistemology cannot help in bringing him closer to convergent realism since a coherentist approach should either be compatible with Kuhn’s a priori argument, or if it is incompatible with it, then so much worse for Kuukkanen’s idea of incorporating Kuhn into coherentism.

## **5 Conclusion**

J. M. Kuukkanen tried to show that by incorporating Kuhn into coherentist epistemology we can reject the claim that Kuhn’s philosophical standpoint abandons a rational inter-paradigm theory comparison, as well as the claim that it is incompatible with convergent realism. In this paper we have argued that there are certain problems with Kuukkanen’s arguments. On the one hand, we have shown that Kuhn’s views on theory comparison and theory choice allow only for, what we have called, “the very weak notion of rationality”, and that Kuhn can be interpreted as a coherentist only in view of this notion. On the other hand, we have shown that Kuhn had an argument against convergent realism, which Kuukkanen did not take into account when claiming that Kuhn’s standpoint is compatible with it. In both cases Kuukkanen’s point faces the following problem: either coherentist epistemology claims the opposite of Kuhn, and is thus incompatible with Kuhn’s ideas, or it is compatible with Kuhn’s ideas, in which case this link offers no new and/or surprising insights into Kuhn’s philosophical standpoint, with

respect to the issues discussed.<sup>8</sup> We would like to conclude with two remarks regarding our arguments.

With respect to the rationality of Kuhnian inter-paradigm theory comparison, it is important to notice that our distinction between three notions of rationality, though not very refined, is sufficient for our point. That is to say, the distinction is not meant to serve discussions on the issue of rationality in general, since it can indeed be further refined. However, the fact that it is exhaustive is sufficient for our claim that Kuhn's position cannot belong to either of the first two categories.

With regard to Kuhn's a priori argument against the correspondence theory of truth and convergent realism, we would like to remark that in order to challenge Kuukkanen's claim that Kuhn's argument against convergent realism was ultimately empirical, it was sufficient to show that Kuhn, in fact, had an a priori argument. The question as to whether Kuhn's argument is a good one, or whether it is a novel one (or only based on arguments that were already given in the continental philosophical tradition) is irrelevant for our point.

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<sup>8</sup> This, however, does not mean that showing the possibility of incorporating Kuhn into coherentist epistemology is of no significance at all, for that is an interesting and valuable insight in itself.