INCOMMENSURABILITY, REALISM
AND META-INCOMMENSURABILITY

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ABSTRACT: The essay begins with a detailed consideration of the introduction of incommensurability by Feyerabend in 1962 which exposes several historically inaccurate claims about incommensurability. Section 2 is a concise argument against causal theories of reference *as used as arguments* against incommensurability. We object to this strategy because it begs the question by presupposing realism. Section 3 introduces and discusses a hypothesis that we call meta-incommensurability which provides the reason for the wide-spread accusation of question-begging and use of circular argumentation among the proponents of both realist and non-realist interpretations of science.
Keywords: Feyerabend, incommensurability, meta-incommensurability, realism.

1. The Context of Feyerabend's Introduction of Incommensurability in 1962

In this section we will develop the context in which incommensurability was originally introduced by Feyerabend. Throughout this essay, we distinguish between 'incommensurability' which we use to refer to Feyerabend and Kuhn's conception of incommensurability, in the sense that it was a result arrived at through historical analysis, and 'the incommensurability thesis' which we use to refer to a semantic conception of incommensurability within a realist framework. Our goal, in this section, is to emphasize the differences between the perceived contemporary view (i.e. 'the incommensurability thesis') within semantic theory, and the original claims that Feyerabend actually made about 'incommensurability' in 1962. This will be achieved through a textual analysis.

In contemporary literature, incommensurability has been developed into the incommensurability thesis which concerns semantic issues that focus on meaning variance, reference invariance, and the possibility of inter-translatability of the vocabulary of successive scientific theories. However, incommensurability was neither originally restricted to such semantic issues, nor primarily used by Feyerabend to address such semantic issues.

Contemporary treatment of incommensurability seems to have lost sight of this historical fact. For example, Sankey claims that originally, "Feyerabend's use of the term 'incommensurability' was limited to semantic issues" (Sankey, this volume). We contend that this narrow focus on the 'semantic aspect' of Feyerabend's conception of incommensurability has lead to a general misunderstanding of the context in which incommensurability was originally developed; and consequently, to misguided attempts to confront incommensurability.

The main reason that incommensurability is believed to be a semantic issue is because Feyerabend introduced it *while* attacking 'the principle of meaning invariance'. According to this principle, "an explanation must not change the main descriptive terms of the explanadum" (Feyerabend 1962, p. 30). Feyerabend confronted this principle because he believed that it a) leads to difficulties in giving a proper account of the growth of knowledge, b) is inconsistent with empiricism, and most relevantly c) leads to difficulties in giving an account of incommensurable concepts (pp. 30-1).

However, while Feyerabend did introduce incommensurability in the context of an attack on certain aspects of empiricism,[2] through which he directly challenged what he called 'the assumption of meaning invariance' (see especially pp. 33-34), incommensurability was neither limited to semantic issues concerning how 'meanings' are determined, nor was it primarily aimed at problems with semantic considerations about 'meaning'. Feyerabend, in a response to his critics, clearly expressed his distaste for the narrow focus on 'meanings' and 'semantic issues' incommensurability subsequently provoked:

> In his paper Putnam creates the impression that I am mainly interested in meanings and that I am eager to find change where others see stability. This is not so. As far as I am concerned, even the most detailed conversations about meaning belong in the gossip columns and have no place in the theory of knowledge. This is true even in those cases where meanings are invoked to force a decision about some different matter. For even here their only function is to conceal some dogmatic statement which would not be accepted, if presented by itself, and without the chatter of semantic discussion. (Feyerabend 1981, p. 113)

Moreover, the claim that Feyerabend was lead to incommensurability and the neo-Kantian context in which he developed it because he adopted a descriptive theory of reference is incorrect. For examples of this view, see especially Devitt: "The contemporary route to Kantian metaphysics starts not with a theory of knowledge but with a theory of language" (Devitt and Sterelny 1989, p. 201). Furthermore, "What drives the radicals [Kuhn and Feyerabend] to this metaphysics? First, they start with a theory of language, in particular a

theory of reference. Second, the theory they subscribe to is a description theory" (p. 205). Musgrave represents the contemporary view when he begins an article with the claim, "The incommensurability thesis (...) says that successive major scientific theories, or paradigms, or world-views, are incommensurable *because* the meanings of terms occurring in them are different" (1979, p. 336 our italics). In fact, reference is not an issue with which Feyerabend was primarily concerned. The actual reasons that both Kuhn and Feyerabend were lead to posit incommensurability had little to do with semantic theory, and were certainly not developed out of any particular theory of reference. According to Kuhn, he first stumbled upon incommensurability while attempting to understand Aristotelian physics[3] and in Feyerabend 1962, incommensurability is derived from a comparison of the concepts of impetus and momentum[4]:

> My discussion [Feyerabend is referring to (Feyerabend 1962) in which incommensurability was first introduced by him in print] of the relation between impetus and momentum (...) is not an attempt to draw consequences from a contextual theory of meaning -theories of meaning play no role in this discussion- it simply shows that both facts and the laws of Newtonian mechanics prevent us from using the concept of impetus as part of Newton's theory of motion. (Feyerabend 1981, p. X)

Feyerabend argued that the principle of meaning invariance was inadequate *because* it could not incorporate 'incommensurable concepts'. He did *not* argue that a consequence of meaning variance is that there is incommensurability. Thus, incommensurability originally was not the result of abstract semantic considerations, or even general philosophical considerations, but rather was the result of attempting to achieve a historical understanding of the development of science.[5] Consequently, if one desires evidence that there are sets of incommensurable theories, in Feyerabend's sense, then abstract semantic or epistemological considerations about the structure of language or the possibility of translation are inappropriate: They can be no substitute for first-hand experience with the history of science.

The misunderstandings of the original claims about incommensurability concern more than the mis-identification of it as a semantic issue. They include the relationship of incommensurability to realism. For example Sankey remarks that, "it would undoubtedly be an important discovery, if it were shown that Kuhn and Feyerabend meant all along for incommensurability to be understood in the context of an anti-realist position of the kind described by Hoyningen-Huene" (Sankey, this volume).[6] The position Hoyningen-Huene describes is based on a neo-Kantian metaphysics; and consequently, is clearly not realist. In

order to see the context in which incommensurability was introduced, and to show that it was intended to involve more than semantic issues, we turn to the introduction of Feyerabend 1962:

> The position may be said to consist of two ideas. The first idea is that the influence, upon our thinking, of a comprehensive scientific theory, or of some other general point of view goes much deeper than is admitted by those who would regard it as a convenient scheme for ordering facts only. According to this first idea scientific theories are ways of looking at the world; and their adoption affects our general beliefs and expectations, and thereby our experiences and our conception of reality. We may even say that what is regarded as "nature" at a particular time is *our own product* in the sense that all the features ascribed to it have first been invented by us and then used for bringing order into our surroundings. As is well-known, it was Kant who most forcefully stated and investigated this all persuasive character of theoretical assumptions. (p. 29 italics in original!)[7]

The position defended and developed by Feyerabend in which incommensurability was introduced clearly has a Kantian flavor. But Feyerabend is no simple Kantian. Instead, he tempers Kant with a critical attitude.

> However, Kant also thought that the very generality of such assumptions and their omnipresence would forever prevent them from being refuted. As opposed to this, the second idea implicit in the position to be defended here demands that our theories be testable (...) It is this second idea which makes science proceed to better and better theories (...). (pp. 29-30)

Thus, Feyerabend's texts explicitly state that incommensurability was not a semantic issue which was derived from considerations about meaning or reference, and Feyerabend made it clear that incommensurability was not introduced within a realist context. Contrary to contemporary literature, the notion of incommensurability was not the result of *a priori* considerations about the nature of meaning, but was the result of an historical investigation of actual scientific practice.[8] Of course, none of this supports Feyerabend's claims, that is, that there really *are* incommensurabilities. In other words, the claims in this first section are neither intended as a defense of incommensurability, nor as a criticism of the on-going project to *re*-interpret incommensurability within a realist perspective and thereby incorporate incommensurability into a realistic interpretation of science. It should now be clear, however, that incommensurability, as it was originally intended by Feyerabend in 1962, was neither a semantic issue, nor was it introduced into the context of a realist interpretation of science. For more details about the historical influences that lead to the development of

incommensurability as described by Feyerabend himself, see Feyerabend (1993, pp. 210-213).

2. Causal Theories of Reference as Used as Arguments Against Incommensurability

A consequence of the misinterpretations discussed in section 1 is that attempts to argue against incommensurability with the use of causal theories of reference beg the question. As we have seen, proponents of realism have attempted to disarm incommensurability by treating it as a semantic issue which can be handled by a causal theory of reference.[9] The first move of this argumentative strategy is the claim that incommensurability is a semantic issue which is a consequence of the adoption of a descriptive theory of language. Briefly, it follows that if descriptions determine reference, then when the description of an object change, the referent of that object also changes. Reference change leads to incommensurability because scientists must then be interpreted as speaking about different objects when they change their descriptions. For a longer and more precise analysis, see especially Sankey (1994). In any case, as we have seen in section 1, this is not the strategy by which Feyerabend introduced incommensurability. Given this, it is our contention that such a strategy for treating incommensurability is unsatisfactory because it begs the question against a proponent of incommensurability within a non-realist context.[10]

Our argument has three steps. First, any causal theory of reference must involve *both* linguistic and metaphysical considerations because it is about the relationship between the terms used in science *and* the objects picked out by those terms: reference is the connection between language and the world. Second, the claim that incommensurability is only a semantic issue restricted to problems within language (for example translatability) can only be defended if issues about the metaphysical status of the object being referred to have already been settled, i.e., if realist metaphysical commitments have already been established. And third, as these metaphysical issues are also a point of dispute between the proponents of a non-realist incommensurability and those of realist causal theory of reference, those who adopt the strategy of treating incommensurability as a semantic issue and thereafter disarm it with a causal theory of reference clearly beg the question from the perspective of the non-realist proponent of incommensurability. This argumentative strategy begs the question from the perspective of the proponent of incommensurability *exactly because* it treats incommensurability as a semantic issue which *only* concerns problems of language. Later, we will generalize this result by comparing it to other arguments within the realism

dispute that have also been accused of question-begging and circularity. Then, we will suggest and develop the reason for this re-occurring problem.

But first, let us consider the possible objection to our argument that realism has not first been presupposed by the proponents of the causal theory of reference. To object that those who treat incommensurability as a semantic issue by confronting it with a causal theory of reference do not first presuppose realist metaphysics is futile. For example, Devitt's "Maxim 3" at the beginning of *Realism and Truth* (1984) states, "Settle the realism issue before any epistemic or semantic issues."11 Furthermore, he explicitly admits, "I argue against this thesis [incommensurability] from the *already established* realist perspective" (p. 6 our italics). Furthermore: "Theories of language and understanding *should not* determine theories of the world" (p. 8 our italics). And together with Sterelny, Devitt explicitly admits, "Indeed, we have earlier found it easy to argue against incommensurability by *presupposing*, in effect, that terms referred to a theory-independent world" (Devitt and Sterelny 1989, p. 204 our italics). The ease with which Devitt's arguments can be constructed helps expose their blatant inefficacy from the perspective of the non-realist proponent of incommensurability.12 Once again, causal theories of reference are *not* themselves being criticized: we only argue against *using* causal theories of reference in a specific way; that is, in order to argue against incommensurability as understood in a non-realist context as was originally intended.

3. The Meta-Incommensurability Hypothesis

In the first section, we noticed that a realist conception of the incommensurability thesis as a semantic issue is not the same as incommensurability as originally introduced within a non-realist interpretation of science. In the second section, we argued that the realist's semantic treatment of the incommensurability thesis is unsatisfactory as used as an argument against a non-realist proponent of incommensurability such as Feyerabend in 1962. In 3.1, we add the observation that within the contemporary realism debate, the central terms are indeed used differently. In 3.2, we consider both the consequences that incommensurability has for theory choice on the level of scientific practice according to Kuhn, and show that Kuhn suspected that philosophical debate might also be the subject of an incommensurability. Then, we will introduce a hypothesis analogous to incommensurability: We call it meta-incommensurability. This will be achieved not by way of semantic, or even epistemological considerations, and certainly not through *a priori* philosophical considerations. Instead in 3.3, we intend to provide evidence from the contemporary philosophical debate about

realism which will provide us with substantial reasons for accepting the hypothesis. In other words, meta-incommensurability, like incommensurability for Feyerabend and Kuhn, is not the result of philosophical (semantic or epistemological) considerations, but is based on a contemporary historical case study. Afterwards in 3.4, we briefly consider some of the consequences that our meta-incommensurability hypothesis, if accepted, has for the realism debate. Finally, we will consider an objection to our hypothesis and consider the status of our justification for our hypothesis and of the hypothesis itself (3.5).

3.1. Meaning Differences of Central Terms of the Realism Debate

Many of the central terms used in the realism debate have a different meaning when used in a realist or a non-realist context. The easiest examples are 'truth', 'world', 'fact', 'theory comparison', and 'reference'. These terms clearly have different meanings for the realist and the non-realist and the differences can be traced to the different metaphysical and epistemological commitments of the context in which they are used.[13] Consequently, to the realist certain non-realist positions (for example neo-Kantian constructivism) seem self-contradictory, but criticism of it is often ineffectual, while to the non-realist, realists appear utterly naive because they refuse to accept that their claims about 'world change' are not meant metaphorically. Instead of delineating the ways in which the various terms in the realism debate differ in meaning, for the sake of simplicity, we simply draw attention to *a consequence* of the fact that these words are often used with different meanings; specifically, the local communication difficulties that often can and often do occur. Musgrave provides us with explicit testimony to this fact. Considering the use of the term 'truth' he writes, "Confusingly, these different positions are all expressed using the same *words*. Realists and antirealists can both assent to the *words*- but only because they mean quite different things by them" (Musgrave 1989, p. 384). Of course, we agree that the differences in usage can be confusing,[14] but it is neither our contention that these confusions cannot be avoided nor our intention to argue that these differences in meaning cause a meta-incommensurability between realists and non-realists. We do, however, claim that meaning variance can cause local communication difficulties. In section I, we established that Feyerabend did not argue that differences in meaning cause incommensurability, but that certain theories that did not allow for meaning change must be rejected because of incommensurability. Similarly, we do *not* argue that the differences in the meanings of these terms cause meta-incommensurability, but rather that certain kinds of arguments in the realism debate cannot be made to work *because* of meta-incommensurability. Just as

incommensurability was not justified by Feyerabend with semantic considerations, our meta-incommensurability hypothesis is not justified by semantic considerations. Thus, we will not argue for incommensurability by presupposing a non-realist theory of reference, but instead will justify our hypothesis by offering independent reasons from which meta-incommensurability can be inferred. These kinds of confusions about the meanings of the words only lead us to suppose that there is a problem within the realism debate.

3.2. Circularity and Question-Begging According to Kuhn

Kuhn, in his famous debate with the Popperians, experienced the kinds of local communication difficulties that can arise because of the different meanings attached to the terms he used:

> this collection of essays [*Criticism and the Growth of Knowledge*] therefore provides an extended example of what I have elsewhere called partial or incomplete communication, the talking-through-each-other that regularly characterizes discourse between participants in incommensurable points of view. (Kuhn 1970b, p. 232)

It seems, then, that at least one of the features of scientific practice which Kuhn attempted to expose through historical analysis of theory choice situations, and which he described by introducing incommensurability, also occurs at the meta-level. In situations in which realists and non-realists engage in discussion about theory choice, they produce arguments aimed at forcing a choice between philosophical interpretations about science. According to Kuhn, there are several specific consequences that incommensurability has for the structure of these arguments when they are used for the purpose of theory choice by scientists belonging to incommensurable paradigms. We will consider two of these which are closely related: the use of circular and question-begging arguments, and the inability to make logically decisive arguments. For example, according to Kuhn:

> When paradigms enter, as they must, into a debate about paradigm choice, their role is necessarily circular. Each group uses its own paradigm to argue in that paradigm's defense. (1970a, p. 94)

Of course, Kuhn was speaking about scientific paradigms, but our meta-incommensurability hypothesis makes an analogous claim in the domain of philosophical discourse about realism. There is reason to believe that Kuhn was aware of this problem on the meta-level:

> Only when they must choose between competing theories do scientists behave like philosophers. That, I think, is why Sir Karl's brilliant description of the reasons for the choice

> between metaphysical systems so closely resembles my description of the reasons for choosing between scientific theories. In neither choice, as I shall shortly try to show, can testing play a quite decisive role. (1979, p. 7)

As Kuhn argued that a consequence of incommensurability is the indecisive character of the arguments in theory choice on the level of scientific theories, a consequence of meta-incommensurability is that arguments in the realism debate share this indecisive character. Again to quote Kuhn:

> I do not expect that, merely because my arguments are logical, they will be compelling (...) though my arguments are logical, he disagrees with my conclusion. Our disagreement must be about premises or the manner in which they are to be applied, a situation which is standard among scientists debating theory choice. When it occurs, their recourse is to persuasion as a prelude to proof. (1970b, p. 261)

Furthermore,

> Yet, whatever its force, the status of the circular argument is only that of persuasion. It cannot be made logically or even probabilistically compelling for those who refuse to step into the circle. The premises and values shared by the two parties to a debate over paradigms are not sufficiently extensive for that. (1970a, p. 94)

And again,

> In particular, he [Sir Karl] has sought to solve the problem of theory-choice during revolutions by logical criteria that are applicable in full only when a theory can already be presupposed. (1979, p. 19)

For the sake of the neutrality of our argument, let us take care *not* to assume that Kuhn is correct. More precisely, let us avoid begging any questions by remaining agnostic as to whether the historical description Kuhn gives of the scientific practice is accurate. Instead, we suggest an independent, but analogous hypothesis: meta-incommensurability. The analogy works like this: if there were a meta-incommensurability between the proponents of realist and non-realist philosophical interpretations of science, we would expect to find circular arguments, question-begging, and indecisive arguments when we survey the arguments used for and against realist and non-realist philosophical interpretations of science. That is, if we were to find an abundance of evidence supporting the claim that these properties are wide-spread in the realism debate, we would establish strong independent support for our hypothesis that the realism debate is permeated by a meta-incommensurability. Notice this strategy allows us to establish support for our hypothesis

regardless of whether Kuhn's claims about scientific practice are sufficient to support his claims about incommensurability. In other words, while our meta-incommensurability hypothesis is analogous to Kuhn's conception of incommensurability (hence the somewhat misleading name), the justification of our hypothesis will depend on evidence from the realism debate; and thus, is independent of any justification or evidence for incommensurability on the level of scientific theories. We will return to this point in section 3.4.

3.3. The Evidence in Support of Meta-Incommensurability

We will now demonstrate that the charges of circularity and question-begging are not restricted to our argument in section II against attempts to use semantic theories to argue against non-realism and for realism. Rather, it is a wide-spread phenomenon which exists independently of our considerations about incommensurability.

For example, Devitt, who as we have seen, has no qualms about presupposing realism in order to disarm incommensurability, "reject[s] his [Putnam's] model-theoretic argument against realism, pointing out that it begs the question," (Devitt 1984, p. 7) claiming that Putnam "is not entitled to assume the theory false in order to show it false" (p. 190). As expected given meta-incommensurability, the accusation goes both ways. Devitt writes:

> Putnam, in effect, accuses the metaphysical realist of begging the question in appealing to a theory to determine reference for a theory. I have accused him of begging the question in claiming that the reference of 'causally related' is not determinate. (1984, p 190)

Thus, Putnam and Devitt come to the kind of apparent impasse described by Kuhn on the level of scientific theory evaluation in revolution: They make the mutual accusation that the other is begging the question. The reason for this is that they both argue *from* their own position *for* their own position.

Outside the literature on incommensurability, many other arguments both for and against realism also suffer from the charge of circularity and question-begging. For example according to Fine, the explanationist defense of realism suffers from "a deep and insurmountable problem" (Fine 1986a, p. 114). He has often explicitly given the reason. For example:

> the issue under discussion in judging realism in this debate is precisely whether explanatory success provides grounds for belief in the truth of the explanatory story. To use explanatory success to ground belief in realism, as the explanationist defense does, is to employ the very type of argument whose cogency is the question under discussion. In this light, the

explanationist defense seems a paradigm case of begging the question, involving a circularity so small as to make its viciousness apparent. (Fine 1991, p. 82)

Considering a possible objection to this charge of circularity, Fine asks:

> Have I rigged the game? In directing the arrow of explanation at the instrumental success of science have I perhaps somehow excluded full-blown realism as a decent explanatory option and already put instrumentalism in the winner's box? (1986b, p. 153)

In other words, Fine is worried that his charge of circularity is itself circular. Given the meta-incommensurability hypothesis, this is exactly what we would expect. Furthermore, his answer supports our hypothesis:

> *Perhaps that is so*, but then so much the worse for realism, since I do not think that there is any better alternative here. For what we can be called on to explain in the context of a debate over realism cannot already suppose those very elements of realism that are under debate. (1986b, p. 153, our italics)

In other words, Fine admits that perhaps his assumptions which lead him to the conclusion that the explanationist defense of realism beg the question against realism, but for some unstated reason, according to Fine there seems to be no way avoiding this problem. Our hypothesis provides that missing reason.

Boyd has reluctantly acknowledged this circularity in his use of abductive arguments for realism:

> Fine's criticism of abductive arguments for realism still has force. If what is at issue is the legitimacy of abductive inferences to theoretical explanations in general, then there is a kind of circularity in the appeal to a particular abduction of this sort in the defense of scientific realism. (Boyd 1984, pp. 41-82)

But Boyd continues by attempting to justify the circularity in his argument by drawing support from considerations that also only have force only if realism has already been accepted. Naturally, his attempts have met with little success, especially in convincing Fine, who in response to Boyd's reply, writes:

> Thus, Boyd's suggestion for how to assess the admitted circularity of grounding belief on one virtue (explanation) is to ground belief on several! I submit that this does not avoid circularity, but flaunts it. (Fine 1986b, p. 163)

And a few sentences later:

> The strategy that he [Boyd] adopts, therefore, is to change the canons of rational debate by ignoring an admitted circularity, and boldly to pursue the course of begging the question.

Thus, attempts to avoid the charges of question-begging and the use of circular arguments within the realism debate merely have lead to renewed accusations of circularity and question-begging.

In response to Fine's accusation of circularity, McMullin, another participant in this debate on the realist side, tries a different approach. He denies that the explanationist defense is circular (1991, p. 103), and thus seems to be a counter-example to our hypothesis. However, as we have seen above, a consequence of the meta-incommensurability hypothesis is that we should expect arguments in the realism debate to be severely limited in the same way that Kuhn claimed that arguments on scientific level are limited because of incommensurability. In other words, given the meta-incommensurability hypothesis, we would expect that the arguments for and against realist and non-realist positions cannot be made absolutely compellingly. In McMullin's case, this is exactly what we find. For example, McMullin concludes that "his [Fine's] argument against realism can be *deflected.*" McMullin admits that one "*cannot refute* the instrumentalist." Finally, even given all of the effort McMullin spends trying to make the instrumentalist position seem unreasonable, in the end he is left with the conclusion, "there is *no way* for the realist to over come his [the instrumentalist's] reluctance" (1991, p. 99, p. 105, and p. 106. All italics added).

Let us turn our attention to an article by Kukla which also assess several of the arguments predominant in the realism debate. Kukla begins by considering two arguments from scientific practice which, as he points out, have a similar structure: Putnam's model theoretic argument against realism, and Morrison's argument for antirealism based on the scientific practice of the use of multiple and incompatible models. The structural similarity is that both arguments claim that the rationality behind a certain methodological practice on the scientific level presupposes a philosophical interpretation of those practices. However, careful consideration leads Kukla to conclude that both practices are compatible with realist and antirealist philosophical interpretations (Kukla 1994, pp. 960-961). More generally, his considerations lead him to conclude that, so far, arguments from scientific practice have accomplished *nothing* for either side of the realism debate (p. 969). But that is not all. Kukla is a source of yet more substantial evidence for our meta-incommensurability hypothesis. Kukla argues that van Fraassen's arguments from scientific practice against realism are 'parallel' to Putnam's Miracle Argument for realism in the sense that they both beg the question (p. 970). He concludes, "So questions have been begged and arguments have

been superfluously multiplied on both sides in the realism debate" (p. 970). If that were not enough, Kukla proceeds to address Fine's critique of the miracle argument which also, as we have seen, contains the charge of circularity. But Kukla concludes that Fine's conclusion that instrumentalism offers a better account of the success of science than realism (see above) also "perpetuates the same circularity" (p. 971). Attempting to clarify the overwhelming extent of the question-begging and use of circular argumentation in the realism debate, Kukla writes:

> Perhaps a brief catalogue of circularities is in order: van Fraassen's argument from scientific practice begs the question in favor of antirealism; Putnam's miracle argument begs the question in favor of realism; and Fine's criticism of the miracle argument begs the question in favor of antirealism. (p. 971)

At the end of his article, Kukla poses the question that we have tried to answer:

> So what makes the realism issue so different as to place it beyond the pale of some ideal of reasoned discourse? (p. 974)

Accepting this question without any rhetorical tone, the answer that we propose is that the positions in the realism debate are meta-incommensurable.

In yet another article, Kukla supports our claim that arguments concerning realism cannot be made decisively, and in addition also argues that this does not prevent the endorsement of either a realist or a non-realist position. (Kukla 1995, p. 433). As we have seen, according to Kuhn this is the kind of situation he found himself in confronted by criticism, and thus is exactly the kind of seemingly paradoxical conclusion that follows from our meta-incommensurability hypothesis.[15]

3.4. A Brief Consideration of Some Consequence of Meta-Incommensurability

Although space limitations preclude the possibility of comprehensive analysis of the consequences of meta-incommensurability, it is our contention that if there is the kind of meta-incommensurability that we have described, then there may be some profound consequences for philosophical dispute about realism. To begin with, as should by now be obvious, defense and attack of any position is in danger of circularity if articulated from the point of view of that position. The circularity consists, for example, in a presupposition of a particular conception of reality or theory comparison which may make arguments for realism ineffective to the non-realist and vice-versa. In order to make understanding of the opposing position possible, it is necessary to change one's point of view, at least temporarily. This is

not possible if one has not realized which critical concepts are being used differently and in what those differences consist. The only way out of the deadlock is to become bilingual (or more accurately, *multi*-lingual as the different positions in the realism debate continue to proliferate) in order to have the possibility of understanding the different points of view in their own terms, given their own assumptions. This allows for the possibility of criticism from within a position, thereby without presupposing anything that would beg the question against the position being considered. Unfortunately, more detailed considerations which would include other consequences of meta-incommensurability are beyond the scope of the present essay.

3.5. The Status of the Meta-Incommensurability Hypothesis: A Response to an Objection

Given all the question-begging and the use of circular arguments within the realism debate, it is opportune to consider whether meta-incommensurability is also prone to the charge of circularity or question-begging. This would, of course, be the case if we have presupposed incommensurability in order to develop meta-incommensurability. However, our development of meta-incommensurability has been intended to be an acceptable hypothesis to both realist and non-realist interpretations of science. In order to see this, let us clarify the status of our justification for meta-incommensurability. First, we have *not* argued for meta-incommensurability from semantic considerations that require any particular theory of reference- in particular, we have avoided begging the question against realism by not making use of a descriptive theory of reference. Second, we have not presupposed any form of non-realist interpretation of scientific theories or entities in order to argue for meta-incommensurability. Meta-incommensurability is compatible with any position, however realist or anti-realist it may be and it is completely neutral with regard to the realism issue. It only restricts the kinds of arguments that can successfully be made when debating the realism issue. Third, we have in no way presupposed that there is incommensurability on the level of scientific theories. We have *not* argued for meta-incommensurability by claiming that it is a consequence of incommensurability. Our argument for meta-incommensurability is completely independent of any arguments for or against incommensurability on the level of scientific investigation. Furthermore, one can accept the meta-incommensurability hypothesis without accepting incommensurability on the level of scientific investigation. The justification for meta-incommensurability is completely independent of the justification of incommensurability. Instead of these question-begging procedures, we have provided

independent evidence for our hypothesis through a close inspection of the contemporary realism debate.

That our argument for meta-incommensurability is compatible with realism can be clearly seen if we consider the structure of it. We began by taking the realism debate as the object of an empirical investigation. We documented a re-occurring, widespread phenomena: the accusation of question-begging and the use of circular argumentation, and we presented the evidence. We offer a hypothesis which posits a common cause (technically, of course, meta-incommensurability is a common 'reason') for the evidence that has been presented (see Salmon 1984). Put another way, we infer meta-incommensurability as the best explanation of this evidence. As such, our argument for meta-incommensurability meets the naturalistic requirements Devitt, among others, demand and in no way begs any question against a proponent of realism: Meta-incommensurability is not the result of *a priori* epistemology, it is the result of an empirical analysis of the realism debate.

Lastly, it is appropriate to ask about the status of the meta-incommensurability hypothesis. For example, what *is* this hypothesis about? First, note that the meta-incommensurability hypothesis is not part of any position on realism, but rather is applicable to any such position. For this reason, the realist is free to interpret meta-incommensurability as a semantic issue about the difference between the use of terms in the realism debate, while the anti-realist can, if he so wishes, conclude that the realist and the non-realist live in different worlds. In other words, as stated above, the status of the meta-incommensurability hypothesis is completely irrelevant to the realism issue while the methodological consequences of meta-incommensurability thesis follow given either a realist or a non-realist interpretation of science.

Notes

[1] Though Feyerabend and Kuhn's conception of incommensurability are relevantly similar because they were both the result of historical analysis; and consequently relevantly different than 'the incommensurability thesis', we do not mean to equate Kuhn and Feyerabend's views. Many of the significant differences between Kuhn and Feyerabend's views, are critically discussed in Hoyningen-Huene (in preparation).

[2] Specifically, the original introduction of incommensurability by Feyerabend in print (1962) was directly used to attack Nagel's account of reduction (for this account see (Nagel 1949 and 1961) and the Hempel-Oppenheimer account of explanation (see Hempel 1948).

3 For a brief historical account in English see Hoyningen-Huene 1997a, a longer account is given in German in Hoyningen-Huene 1997b.

4 It has also been claimed that Feyerabend was lead to incommensurability through his study of Greek philosophy and its relationship to Western Rationalism, and by his critical comparison of science and myth (for example, see Neto, p. 545). While this may have affected Feyerabend in the late sixties, originally it was not a consequence of this comparison.

5 It is opportune to note that Feyerabend makes a similar argument concerning Mill's introduction of the concept of 'proliferation'. For example: "This is how proliferation is introduced by Mill. It is *not* the result of a detailed epistemological analysis, or, what would be worse, of a linguistic examination of the usage of such words as 'to know' and 'to have evidence for'." (Feyerabend, 1970 p. 28)

6 This is part of Sankey's response to our claim (Hoyningen-Huene, Oberheim, and Andersen 1996) that incommensurability is at odds with certain aspects of realism.

7 For how Kantian considerations can be used to clarify Kuhn's metaphysical position see Hoyningen-Huene 1993.

8 Feyerabend also states this explicitly! For example, see Feyerabend 1981, p. x, and p. 100.

9 See specifically, Sankey (1994), and this volume, and Devitt 1984 and Devitt and Sterelny 1989. Our considerations do not depend on any of the problems that have lead to hybrid causal-descriptivist theories of reference and our argument also applies to such hybrid theories of reference. For a synopsis of the developments that lead from a purely causal to a causal-descriptivist theory of reference see Sankey 1994 and Sankey this volume.

10 We use the label 'non-realism' as opposed to 'anti-realism' because we wish to include diverse positions, for example, instrumentalism and the neo-Kantian constructivism of Feyerabend and Kuhn. Furthermore, it is our contention that some of the positions which have been labeled 'anti-realism' are not as diametrically opposed to realism as has often been assumed. That is, they do not result *because of* a denial of realism. Rather correctly understood, they simply are developed with the intention of capturing different features of science that follow from considerations of historical episodes of science. For example, we urge that the fact that for a neo-Kantian metaphysical interpretation of science the question of completely extra-linguistic reference can not be sensefully answered is not a drawback of that position. Rather, it is a feature of a neo-Kantian metaphysical interpretation of science that such a question cannot not be sensefully posed. In short, the relationship between realism and non-realism should not be understood in terms of logical contradiction. Instead, they are simply incompatible with one another. This will become clearer as our essay develops.

11 Interestingly, Devitt seems to be aware of a problem here, he continues, "This maxim is oversimplified because realism, though largely metaphysical, *is* partly epistemic: the world must be independent of our knowledge of it." Three sentences later he admits, "I think a certain amount of vulgarity is appropriate in approaching the realism issue (and the religion issue too, for that matter)" (Devitt 1984, p. 4). This is particularly amusing given that Feyerabend saw a similarity between the dogmatism often shared by both religion and realism and that Devitt denies Putnam's claims about the relationship between realism and a 'God's eye point of view' later in his book.

12 We focus on Devitt only because he makes this strategy explicit. We have briefly argued that Sankey's argumentative strategy (1994) is also ineffectual from the perspective of the non-realist

proponent of incommensurability for similar reasons in Hoyningen-Huene, Oberheim, and Andersen (1996).

13 A brief and incomplete discussion of some of the ways in which these central terms differ can be found in Hoyningen-Huene, Oberheim, and Andersen (1996).

14 The claims we refuted in section I can be seen as a consequence of these kinds of confusions.

15 Dispute between proponents of realism and constructivist advocates of the sociology of scientific knowledge is another rich source of wide-spread accusations of question-begging and the use of circular argumentation that could also be used to support the meta-incommensurability hypothesis. For example, we would direct attention to Nola 1994.

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