

# WHY VERISIMILITUDE SHOULD NOT BE DEPENDENT ON CONCEPTUAL SYSTEMS<sup>1</sup>

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## Introduction

Although I am not the person who is primarily attacked in Raclavský's paper (2007), I've decided to comment on it critically. For, first of all, the paper was provoked by my paper (2007b), where I discussed the problem of the language dependence of some verisimilitude appraisals. This problem was formulated originally by D. Miller in a response to P. Tichý. In my opinion, Raclavský treats in a highly unfair and misleading way both the original problem as well as its author. Secondly, Raclavský's own approach fails to solve this outstanding problem and tries to dissolve it by giving to a reader the illusion that it is perfectly natural if your verisimilitude appraisals are dependent on the conceptual system you are working within. Perhaps it is natural, but it is hardly acceptable. In these comments, at least, I shall try to show that Raclavský's (2007) is so far from the truth (because of its deep mistakes) that it hardly counts as a serious contribution to the still lively discussion of „one of the fundamental problems in the philosophy of science” (Raclavský 2007, 334), namely, the problem of verisimilitude.<sup>2</sup>

## 1 The potential points of agreement and disagreement with Raclavský

If there is one thing about which we can be sure at all then it is the observation, often not appreciated enough, that our „ability to determine (to count) exactly the likeness to truth of this or that theory”, which Ra-

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<sup>1</sup> I am greatly indebted to David Miller for his useful comments, questions and corrections of the draft of this paper. Many thanks go also to Jozef Žilinek for discussions on intensional (and other) logics. The responsibility for eventual errors is, of course, mine.

<sup>2</sup> In order to reach a balanced opinion on this issue, I recommend to a reader also D. Miller's paper (2008) which is a shorter but much stronger critical reply to Raclavský's (2007).

clavský finds „really important” (2007, 334), is not so important, for, as Popper noticed, „there is no means of saying *how* near [to the truth a theory] is: even if we could *define* a metric for verisimilitude ... we should be unable to *apply* it unless we knew the truth – which we don’t” (Popper 1983, 61). In other words, *we really cannot* „be sure which theory is better than another” (Raclavský, *ibid.*), because our so-called verisimilitude appraisals saying, for example, that a theory **A** is so near to (or so far from) the truth are unjustifiable. Moreover, if we want to compare the degrees of verisimilitude of theories **A** and **B**, we shall find ourselves in the same situation: we can only guess what their degrees of verisimilitude are, but we cannot know them. (For this point see Taliga 2007a.) I stress that these claims of mine are not restricted to holding only in a „Popperian framework” (if there is such a thing at all) but are quite general. Perhaps they are not generally accepted (no wonder), but they are generally true. Just try to justify your verisimilitude claims and you will fail. If you succeed, nevertheless, I shall concede defeat.

For the present argument, I am happy to imagine that Raclavský would concur with this introductory remark of mine; for at the end of his (2007) he concedes (although in fashionable jargon) that we don’t know which „conceptual system” is the fundamental one or „the cogent one” (Raclavský 2007, 351 – 352) for assessing the degrees of verisimilitude of competing theories. But, then, he should accept also the thesis that *even if our own framework* or „conceptual system” *happens to be „the cogent one”*, we cannot be sure of this, and therefore cannot be sure that, say, theory **B** is closer to the truth than theory **A** is (henceforth **Vs (B) > Vs (A)** for brevity). Yet, for Raclavský the „wish for unique, cogent conceptual system with the method how to count verisimilitude exactly” is, as he puts it, still a „desirable” one (Raclavský 2007, 352). For critical rationalists (such as K. Popper, D. Miller, and myself, if I may be so brave), in contrast, that wish is not only a dangerous one but also an unsatisfiable one. It is dangerous, because it stems from the idea of exactness rather than from the idea of truth (see the end of section 2 below). And it is unsatisfiable, because we cannot know which conceptual system is the „cogent one” nor do we need to know it in order to make objective verisimilitude appraisals (see section 4 below).

These observations are straightforward consequences of Popper’s theory of science. Moreover, they are inherited and sharpened by Miller’s philosophy (see e.g. Miller 1994 or Miller 2006). It seems, therefore,

that Raclavský must have overlooked them for he is utterly wrong to ascribe to Miller such a dull tendency as „that Miller (completely ignorant of the changes of conceptual systems and dependences of verisimilitudes on them) in fact appeals to us to consider such ... fundamental conceptual system” (Raclavský 2007, 351). Indeed, it is a twofold dullness. For Miller was, in fact, among the first people to discuss in public the problem of the dependence of some verisimilitude appraisals on the so-called „conceptual systems” within which they are formulated. And from the very beginning he criticized theories of verisimilitude leading to such dependent appraisals (i.e. approximately from 1974). Secondly, Miller and Popper are excellent examples of men constantly fighting against the dogma that our knowledge, in order to be knowledge, has to be justified (see, for example, Miller 1994, chapter 3 or Popper 1963, Introduction). Thus, in his passage just quoted, Raclavský attacks a straw man.

It follows that there must be another serious problem that has incited Raclavský to respond to my (2007b). And there, indeed, is one. It is the problem of *how to control our already formed guesses about the closeness of scientific theories to the truth (or their distance from it)?* For if we cannot know which guess is the right one, the only possibility of controlling them that is left open is to try to find out when they are wrong. But this we again cannot know for sure, and yet, it seems, the importance of problem of the controllability of verisimilitude appraisals does not diminish. The question, therefore, is not only how we can form verisimilitude appraisals, and what the term „to be closer to the truth” means, but also how we can (objectively) control these appraisals in turn. I shall try to show that *in Raclavský’s theory there is no objective way of controlling verisimilitude appraisals* formulated within one of his „conceptual systems” and that his approach must therefore be mistaken. Despite criticizing word by word Raclavský’s declarations I follow, in section 3 below, his suggestion of how to proceed when we want to judge the verisimilitude of competing theories. For simplicity I shall make use also of his analysis of the so-called weather example. The result will be unambiguous: Raclavský’s method works in an unacceptable way.

## **2 Raclavský’s misinterpretations and errors**

Before I discuss the main points, I have to stress that in Raclavský’s paper there is a nasty misinterpretation of Miller’s argument, a misinter-

pretation ridiculing that argument instead of attempting to criticize it seriously. Raclavský invites us to imagine „two subjects,  $S_1$  and  $S_2$  standing side by side, [and measuring] the distance of an object,  $O$ , occurring directly before them” (Raclavský 2007, 340). He continues (340 – 341):

Suppose further that  $O$  is equidistant from  $S_1$  and  $S_2$  and that the distance is actually one meter. But  $S_1$  uses a system of measurement having one meter as its key length measure, whereas  $S_2$ 's system of measurement has one yard in its stead. ... Miller postulates a demand to the effect that ... when the theories are, for example, equally right (they express just the truth), then they should state the distance from  $O$  with the help of the exactly same number. For example, when  $T_{S_1}$  says the truth, it must state that the distance is just 1 (in meters) and  $T_{S_2}$  also saying nothing else but the truth must state that the distance is just 1 (in yards). Exactly similar 'logic' underlies Miller's way of reasoning.

However, if this quotation is to provide even at least a sketchy understanding of Miller's argument, it has to be adjusted as follows. Imagine that there are two other objects,  $P$  and  $Q$ , and that  $O$  lies between them. Suppose that we would like to know if  $O$  is closer to  $P$  or to  $Q$ . Now what Miller's argument objects to are all measurements of distance among  $O$ ,  $P$ , and  $Q$  that are dependent on the language or the „conceptual system” in which they are formulated. In other words, if subject  $S_1$  concludes in language  $L_1$  that  $O$  is closer to  $P$  than to  $Q$  while subject  $S_2$  concludes in language  $L_2$  that  $O$  is closer to  $Q$  than to  $P$ , and if the state of affairs they consider is the same, at least one of them, if not both, must be wrong. There is no sense in which  $S_1$  and  $S_2$  could both be right at the same time, each one in its own framework. And since it is more than natural to say, for example, that the measured distance between  $P$  and  $Q$  is 1 yard, or *equivalently*, 0.9144 metre, there need be no quarrel about their stating „the true distances” among the objects  $O$ ,  $P$ , and  $Q$  with „the help of the exactly same number”, as Raclavský tries to persuade us (see the quotation above). In short, the claim that Miller demands that equivalent or translatable distance appraisals (or measurements) be expressed by the same number is Raclavský's illusion. (If he has read somewhere such a demand by Miller it would be proper to quote it in context, of course.)<sup>3</sup>

In his argument between this (let's call it) „measurement example” and Miller's original counterargument to Tichý's „weather example” Ra-

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<sup>3</sup> See Miller (2008, section 3) for a more detailed reply to this Raclavský's attack.

clavský makes several minor errors. Here I would like to comment only on one of them. After his perplexing conversion of some conjectures about the state of weather formulated in language  $L_T$  to a different language  $L_M$ , Raclavský concludes that their „verisimilitudes are reversed similarly as lengths of  $O$  from  $S_1$  and  $S_2 \dots$  are reversed when we change the system of measurements” (Raclavský 2007, 351). However, *in Raclavský’s measurement example there is no reversal of measured quantities*. There is only a change in the number expressing the distance of  $O$  from  $S_1$  or from  $S_2$  *but no distance comparisons is reversed. Indeed, there is nothing to reverse.*<sup>4</sup> This explains my adjustment of Raclavský’s measurement example as presented above.

So what’s the point of Miller’s argument, then? What do we want to achieve when we ask which of two competing theories is closer to truth? Raclavský suggests the following answer (Raclavský 2007, 351).

If we wish to know exactly how close to the truth two theories are, we must, firstly, relativize the truth to some conceptual system and, secondly, transform theories in order to be based on the same conceptual system. But once these two (preliminary) matters are fixed, mathematically exact measurements of the two theories propinquity to the truth was given. And we want to know, regarding the theories, just numerically precise degrees of their likeness to the truth.

And what purpose could these „numerically precise degrees of truth-likeness” serve, I wonder? What could we achieve with them? Nothing, as I argue in the next section. Here I just say straightforwardly that *what we really want to be able to do is to control our verisimilitude appraisals, no matter how precise they are*. For if we cannot be sure what measured value is the correct one, we should ask if the value already measured is acceptable at all. In my opinion, the question „What exactly is the degree of verisimilitude of this theory?” is of little interest, especially when put in contrast with the question „Is our verisimilitude appraisal of this theory correct?” While the first question begs for a justificatory or, perhaps,

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<sup>4</sup> It seems that in Raclavský’s measurement example two of Miller’s arguments there are conflated: that of language dependence and that of the reversal of accuracy of numerical predictions. Although the problem of language dependence pertains also to the second argument, the point is that it „affects only those theories - the majority, one would suppose - that give values for more than one independent quantity” (Miller 1975, 168).

an authoritarian answer, the second invites you to criticize the verisimilitude appraisals if you disagree with them.

But there is also another difference between exactness and truth. What would be the point of being exact if you are mistaken at the same time? Or perhaps it is better to be precise and wrong than vague and right? Following Popper (see e.g. Popper 1983, 7 – 8) I opt for the latter. *There is no question of exactness of our appraisals because they cannot be exact (though an admirer of analytic philosophy may think otherwise). But there is a question of their truth because they may be true; and if they are not, then they should be controlled.* That does not mean that we should not care about the exactness of our verisimilitude appraisals at all. All I want to stress here is what was stressed already by Popper in (Popper 1979, 58), namely, that „we should never try to be more exact or precise than the problem before us requires (which is always a problem of discriminating between competing theories)”. In my opinion, the concluding paragraphs of Raclavský’s paper make it clear that he does not bother about the different degrees of verisimilitude of two equivalent theories. (This point is elaborated in the next two sections.) For him, it is just natural (see Raclavský 2007, 351). For me, it is to ignore the problem before us – the problem of discriminating as fairly as possible between competing theories. It amounts to blindly ignoring the question of the truth of verisimilitude appraisals of competing scientific theories in favour of their (alleged) exactness. Someone could thus recall the saying „Never mind that you are wrong, what is important is that you have measured the (false) degrees in an exact way”. This is what I had in mind when I said, in section 1 above, that Raclavský’s approach could be dangerous. Therefore, we simply should not take on trust any verisimilitude appraisal that is relative to our language or framework. On the contrary, we should test it as thoroughly as possible. Hence arises the question whether verisimilitude appraisals calculated according to Raclavský’s method are controllable and acceptable at all. In order to find the answers to these questions, I now turn to the well-known weather example used also by Raclavský.

### 3 The failure of Raclavský’s approach

Raclavský writes that „before we count the verisimilitude of the theory saying, for instance,  $\lambda w [{}^{0\sim 0}\text{Hot}_w \& {}^{0\sim 0}\text{Minnesotan}_w \& {}^{0\sim 0}\text{Arizonan}_w]$  we

have to convert this construction to  $\lambda w [^0\sim ^0\text{Hot}_w \text{ \& } ^0\text{Rainy}_w \text{ \& } ^0\text{Windy}_w]$ " (Raclavský 2007, 349). In other words, he postulates a demand to convert diverse theories formulated in different frameworks to a common basic framework formed by basic concepts and other elements needed. Only afterwards we can compute fairly the degrees of verisimilitude of these theories. Natural as this demand may sound, it does not solve our problem. Let us fulfil this hyperintensional demand and see what happens next.

Imagine a person, say Jones, who likes language  $L_T$  equipped with three primitive terms „hot“, „rainy“ and „windy“. He holds the theory that it is neither hot, nor rainy, nor windy, i.e.  $J_T = \lambda w [^0\sim ^0\text{Hot}_w \text{ \& } ^0\sim ^0\text{Rainy}_w \text{ \& } ^0\sim ^0\text{Windy}_w]$ . Another person, say Smith, uses a different language  $L_M$  equipped with the primitive term „hot“ and two other primitive terms different from those of  $L_T$ , namely, „Minnesotan“ and „Arizonan“. He holds the belief that it is neither hot, nor Minnesotan, nor Arizonan; i.e.  $S_M = \lambda w [^0\sim ^0\text{Hot}_w \text{ \& } ^0\sim ^0\text{Minnesotan}_w \text{ \& } ^0\sim ^0\text{Arizonan}_w]$ . The question before us is which theory is closer to the truth. Following Raclavský's suggestion we have to suppose that Jones and Smith are able to agree on a common conceptual system, namely on the language  $L_T$ , with respect to which they will formulate the eventual verisimilitude appraisals of their theories. Thus, the (presupposed) truth is that it is hot, rainy and windy, i.e.  $T_T = \lambda w [^0\text{Hot}_w \text{ \& } ^0\text{Rainy}_w \text{ \& } ^0\text{Windy}_w]$ . And Smith has to convert his theory  $S_M$  to  $L_T$ . The result is  $S_T = \lambda w [^0\sim ^0\text{Hot}_w \text{ \& } ^0\text{Rainy}_w \text{ \& } ^0\text{Windy}_w]$ . Jones's theory was  $J_T = \lambda w [^0\sim ^0\text{Hot}_w \text{ \& } ^0\sim ^0\text{Rainy}_w \text{ \& } ^0\sim ^0\text{Windy}_w]$ . According to Raclavský's method we should conclude that Smith's theory is closer to the truth than Jones's is. Our job is done, it might be thought.

Not at all, I claim. For *the question is not whether our verisimilitude appraisal is exact in some numerical sense<sup>5</sup> but if it is correct at all; i.e. if it is true* (see section 2 above). How can we, then, control it? Raclavský gives us no advice except, perhaps, to trust our own framework. But trusting is not testing. So let us try to be a bit more objective and to assess the situation also from another perspective or framework, not only from that of Jones. After all, it is just Jones's own framework that discredited him in

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<sup>5</sup> Raclavský ascribes to  $J_T$  and  $S_T$  even numerical degrees. In this case the first should get the degree 1 while the second 0.33. (See Raclavský 2007, 341 for details. However, as D. Miller in his 2008, section 3(d) notices, Raclavský conflated there the degree of verisimilitude of a theory with its distance from the truth.)

favour of Smith. So what would the situation look like from Smith's perspective (framework)?

In Smith's framework  $L_M$  it is true that it is hot, Minnesotan and Arizonan, i.e.  $T_M = \lambda w [{}^0\text{Hot}_w \ \& \ {}^0\text{Minnesotan}_w \ \& \ {}^0\text{Arizonan}_w]$ . Smith's theory  $S_M$ , as we know already, is a contrary one, i.e.  $S_M = \lambda w [{}^0\sim {}^0\text{Hot}_w \ \& \ {}^0\sim {}^0\text{Minnesotan}_w \ \& \ {}^0\sim {}^0\text{Arizonan}_w]$ . Now we have to convert Jones's theory  $J_T$  to  $L_M$ . The result is  $J_M = \lambda w [{}^0\sim {}^0\text{Hot}_w \ \& \ {}^0\text{Minnesotan}_w \ \& \ {}^0\text{Arizonan}_w]$ . According to Raclavský's method we should conclude that Jones's theory is closer to the truth than Smith's is. And now the trouble begins. For, our original desire was to know which theory is closer to the truth. Now, one framework or language ( $L_T$ ) tells us that  $S_T$  is closer to the truth  $T_T$  than  $J_T$  is, while another framework ( $L_M$ ) tells us that  $J_M$  is closer to the truth  $T_M$  than  $S_M$  is. However,  $J_T$ ,  $S_T$  and  $T_T$  are just conversions of  $J_M$ ,  $S_M$  and  $T_M$  respectively. In this light it is hard to deny that  $J_T = J_M$ ,  $S_T = S_M$  and  $T_T = T_M$ . Perhaps they are not identical (because they express different constructions) but they are equivalent. (All these equivalences can be easily checked by truth table.) But then we have not determined which theory is closer to the truth, for the results of  $L_T$  and  $L_M$  when taken together (say, in a higher meta-framework  $L_X$ ) imply a contradiction, namely  $[Vs (J_T) < Vs (S_T)] \ \& \ [Vs (J_T) > Vs (S_T)]$ . In other words, the framework  $L_X$  says that each of the theories  $J_T$  and  $S_T$  is closer to the truth  $T_T$  than the other is.

We followed Raclavský's demand to convert theories to a common basis, and we tried to be a bit more objective, but we did not succeed in determining which theory is closer to the truth, Jones's or Smith's? The only thing we've managed is that we can claim *either* in  $L_T$  a)  $Vs (S_T) > Vs (J_T)$  or in  $L_M$  b)  $Vs (J_M) > Vs (S_M)$ , *but not both*. However, *it is hardly desirable to claim either a) or b)* if in  $L_X$  the equivalences  $J_T = J_M$ ,  $S_T = S_M$  and  $T_T = T_M$  hold. It resembles a situation when there is only one clever judge (using  $L_X$  and therefore suspending judgment regarding  $J_T$ 's and  $S_T$ 's verisimilitude) and two stupid ones (the first concluding, in  $L_T$ , that  $S_T$  is closer to the truth; the second concluding, in  $L_M$ , that  $J_M$  is closer to the truth).<sup>6</sup> Thus, from an objective viewpoint, if we use Tichý's counting method

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<sup>6</sup> Notice that Miller, in his (1974, 176), did not suggest the conclusion that his counterargument to Tichý's weather example shows that it is now Jones who is closer to the truth. On the contrary, he warned us against making any such conclusion, stressing that Tichý's counting method is language dependent and thus an incorrect one. It is regrettable that Raclavský still presents Miller in the role of one of the stupid judges described above.

reinforced by Raclavský's hyperintensional demand, we cannot reach any acceptable result regarding the closeness to the truth of the theories  $J_T$ ,  $J_M$ ,  $S_T$  and  $S_M$ .

#### 4 Translation, conversion and objectivity

I know that I have just repeated what was stressed already in my paper (2007b), but I think that it needed to be repeated because Raclavský completely ignored this difficulty, by saying (roughly) that before we compute the verisimilitude of competing theories we have to convert them to a common basis. As we have just seen, although this demand is intuitively appealing, it does not solve the problem of determining (objectively) which theory is closer to the truth. On the contrary, *if we are open minded, it leaves us jammed in contradiction.*

Although I can imagine what Raclavský's reply will be, namely, that  $L_T$  and  $L_M$  are not translatable and that, therefore, we cannot (or, perhaps, are not allowed to) merge them into  $L_X$ , I am not willing to accept it as a serious rejoinder. For it rests upon the following dogma „(a\*): Sentence  $V_1$  of one language is translatable into sentence  $V_2$  of another language only if both sentences express the very same propositional construction” (Raclavský 2007, 348) where „[a] construction expressed by an expression is conceived as its *meaning*” (Raclavský 2007, 336 – 337). Surely such theories as, for example,  $S_T$  and  $S_M$  are expressions of different constructions, namely,  $\lambda w [^0\sim ^0\text{Hot}_w \ ^0\& \ ^0\text{Rainy}_w \ ^0\& \ ^0\text{Windy}_w]$  and  $\lambda w [^0\sim ^0\text{Hot}_w \ ^0\& \ ^0\sim ^0\text{Minnesotan}_w \ ^0\& \ ^0\sim ^0\text{Arizonan}_w]$ . But to conclude, therefore, that they are *not* translatable (because they have, as we are told, different meanings) amounts to a mystery *how we are able, then, to convert them into each other as we, in fact, did above?* If this conversion is thanks to the introduction of a new and richer meta-language  $L_X$ , then I cannot see why we should not be allowed to make use of  $L_X$  and translate various sentences from  $L_T$  to  $L_M$  (or in the opposite direction) within  $L_X$ . The objection that conversion is not translation would be unsatisfactory for the conversion suggested by Raclavský of, say,  $S_T$  to  $S_M$  shares just the features typical of translation, namely the symmetry of meta-language definitions (such as  $m \equiv_{df} h \leftrightarrow r$  and  $r \equiv_{df} h \leftrightarrow m$ , for example) and equivalence of the inter-translated formulas (e.g.  $S_T$  and  $S_M$ ). How can we deny, then, that  $S_T$  and  $S_M$  are translatable and, at the same time (as Raclavský does), admit that they are equivalent? And how can we deny that they have the same assertive force or meaning, if they are equivalent? If it is only because they

express different constructions, Raclavský's modification of the way in which meaning is „individuated”<sup>7</sup> is immediately suspected.

It seems that Raclavský's approach produces many problems and yet does not solve the problem of language dependence. The problem is not that we cannot accept the results of  $L_X$  (for they are contradictory) but that the application of Raclavský's approach *does not enable us to distinguish objectively between true and false results of  $L_X$* . In other words, every distinction of „true” and „false” results (i.e. verisimilitude appraisals) is determined by „the basis” *we choose*, thus, it is clearly not objective. For *if we choose* the conceptual system of language  $L_T$  (i.e.  $CS_T$ ) to be „the basis” of comparing  $J_T$ 's and  $S_T$ 's verisimilitudes, we shall conclude that  $V_s(J_T) < V_s(S_T)$ . And *if we choose*  $CS_M$  of language  $L_M$  to be „the basis”, we shall conclude that  $V_s(J_M) > V_s(S_M)$ . However, the state of affairs whose descriptions are to be compared is still the same. Thus, although it is natural for verisimilitude appraisals to be *partly* dependent on the (object) language for which they are formulated (see section 5 below for details) such complete dependence as in Raclavský's theory is unacceptable.

But what if Raclavský were to reply that *both* judgments,  $V_s(S_T) > V_s(J_T)$  in  $L_T$  and  $V_s(J_M) > V_s(S_M)$  in  $L_M$ , are objectively correct? Indeed, such a reading is allowed by his footnote 31 on page 350, where he says that

all concepts as well as conceptual systems are given. This implies that *relativization* of possible worlds and theories *to conceptual systems* – and then of their verisimilitude – *is strictly objective*. The choice of conceptual system with respect to which we count verisimilitude is, of course, a pragmatic matter; this does not mean, however, that counted values of verisimilitude are not objective.

Am I wrong or is Raclavský saying here that *any* „relativization” of theories' verisimilitudes to *any* „conceptual system” is objective? For, as we have seen in section 1 above, we are not able to say which conceptual system (and thus which „relativization”) is the cogent one. But then, it follows that it does not matter which conceptual system you prefer, for you will be as right (or as wrong) as if you preferred another conceptual

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<sup>7</sup> Raclavský says that „seeing that there are many quite different sentences (of one language) which denote one and the same proposition, the meanings of these sentences must be individuated in a more fine-grained way than by propositions ...; meanings of sentences should be ... construed as propositional constructions” (Raclavský 2007, 348).

system, even a contradictory one! For the slogan appears to be „Every relativization is objective.“

Maybe Raclavský would repudiate this slogan, but then he has to be able to distinguish between an objective and a non-objective „relativization“. In this way we stumble again upon the crucial question „How can we control (objectively) our verisimilitude appraisals?“ Until there is a proper answer to this question, it is hard not to conclude that Raclavský’s relativism is not only conceptual, but also epistemological (see also section 5 below). For whether verisimilitude appraisals stem from  $L_T$  or from  $L_M$ , both are equally good and objective. If this is the case, then every perceptive reader should abandon Raclavský’s approach. For it is one of the greatest errors to conclude on the basis of our inability to know the truth that all attempts to state the truth are equally objective. They cannot be. If there is  $L_T$  claiming  $V_s(S_T) > V_s(J_T)$  and  $L_M$  claiming  $V_s(J_M) > V_s(S_M)$  and if  $S_T = S_M$  and  $J_T = J_M$ , then at least one of these claims must be wrong, if not both. This is what elementary logic tells us. Consequently, if (hyper)intensional logic tells us otherwise, we should reject it (because of its violation of the law of non-contradiction).

## **5 Dependence of verisimilitude on the language**

Now we are ready to consider the second crucial question: „To what extent is verisimilitude a language dependent idea?“ Here is a quotation from (Miller 2006, 215 – 216).

Tarski’s definition tells us (via Convention T) that the truth value of a sentence is determined by two things: its assertive force (‘meaning’), and the way world is. There is no third factor. The same dependences hold also for verisimilitude. It is a language dependent idea only in the sense that the verisimilitude of a sentence depends in part on what the sentence asserts. Anyone who denies that  $\neg h \wedge r \wedge w$  and  $\neg h \wedge \neg m \wedge \neg a$  have the same verisimilitude must therefore deny that they have the same assertive force.

Pretty much the same is said by Donald Davidson in his (2001b, 139):

What Convention T ... reveal[s] is that the truth of an utterance depends on just two things: what the words as spoken mean, and how the world is arranged. There is no further relativism to a conceptual scheme, a way of viewing things, or a perspective. Two interpreters, as unlike in culture, language, and point of view as you please, can disagree over whether an utterance is true, but only if they differ on how things are in the world they share, or what the utterance means.

Obviously, these claims may be widened. Thus, for example, two interpreters  $I_1$  and  $I_2$  *may regard* a sentence  $X$  at one time as being more truthlike than another sentence  $Y$  (e.g. when  $I_1$  interprets  $X$  as  $\lambda w [^0\sim ^0\text{Hot}_w \ ^0\& ^0\text{Rainy}_w \ ^0\& ^0\text{Windy}_w]$ ,  $Y$  as  $\lambda w [^0\sim ^0\text{Hot}_w \ ^0\& ^0\sim ^0\text{Rainy}_w \ ^0\& ^0\sim ^0\text{Windy}_w]$ , and the truth as  $\lambda w [^0\text{Hot}_w \ ^0\& ^0\text{Rainy}_w \ ^0\& ^0\text{Windy}_w]$ ) and at another time as being less truthlike (e.g. when  $I_2$  interprets  $X$  as  $\lambda w [^0\sim ^0\text{Hot}_w \ ^0\& ^0\sim ^0\text{Minnesotan}_w \ ^0\& ^0\sim ^0\text{Arizonan}_w]$ ,  $Y$  as  $\lambda w [^0\sim ^0\text{Hot}_w \ ^0\& ^0\text{Minnesotan}_w \ ^0\& ^0\text{Arizonan}_w]$ , and the truth as  $\lambda w [^0\text{Hot}_w \ ^0\& ^0\text{Minnesotan}_w \ ^0\& ^0\text{Arizonan}_w]$ ). The point is, however, that *the sentence  $X$  is not at one time more truthlike and the next time less truthlike than  $Y$ . For, if it were so, the truthlikeness of  $X$  and thus the truth of the comparative hypothesis  $\forall s (X) > \forall s (Y)$  would be dependent solely on the interpretations of their meanings as made by  $I_1$  or  $I_2$ , and in no way on the way the world is.*

As we have seen above, Raclavský indeed denies that  $\neg h \wedge r \wedge w$  ( $= S_T = \lambda w [^0\sim ^0\text{Hot}_w \ ^0\& ^0\text{Rainy}_w \ ^0\& ^0\text{Windy}_w]$ ) and  $\neg h \wedge \neg m \wedge \neg a$  ( $= S_M = \lambda w [^0\sim ^0\text{Hot}_w \ ^0\& ^0\sim ^0\text{Minnesotan}_w \ ^0\& ^0\sim ^0\text{Arizonan}_w]$ ) have the same verisimilitude and thus the same assertive force or meaning. His main reason is that theories  $S_T$  and  $S_M$  express different constructions, but construction is meaning and the degree of verisimilitude of a theory is computed relative to its meaning. Hence follows Raclavský's conclusion that „verisimilitude is inevitably relative to conceptual systems” (Raclavský 2007, 350, emphasis suppressed). I have just argued that perhaps it is relative to conceptual systems, but it is not completely dependent on them. If Raclavský's whole attack on Miller is caused by Raclavský's confusion between „being relative” and „being dependent”, it is regrettable. For, any verisimilitude claim or truth claim is, of course, relative to (or partly dependent on) the language or conceptual system in which it is formulated. Let us call this *conceptual relativism*. It is admitted by the first factor implied by Tarski's T-scheme and mentioned by Miller and Davidson<sup>8</sup> in the quotations above. However, verisimilitude or truth claims are not

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<sup>8</sup> I should stress, however, that Davidson was fighting also against conceptual relativism in his famous (2001a). The problem is that Davidson understands conceptual relativism as closely tied to epistemological relativism; for at the beginning of his (2001a, 183) he describes as follows what he later rejects: „Conceptual schemes, we are told, are ways of organizing experience ... Reality itself is relative to a scheme: what counts as real in one system may not in another” and this is what I call by name „epistemological relativism”. It would be interesting to apply Davidson's argument against Raclavský's approach, but this idea must await another occasion.

completely dependent on their frameworks or conceptual systems, because there is also the second factor, namely the way the world is. If you eliminate it, you get so called *epistemological relativism*, according to which there are many „relative truths“, often mutually incompatible, for the truth (or falsehood) of any sentence depends completely on the conceptual system it is formulated within.

What I propose is to admit conceptual relativism, while rejecting epistemological relativism. It does not mean that we can share a view of the world free of interpretation, language or framework and in this way pronounce objective verisimilitude or truth claims. *It means only that these claims, if they are to be objective at all, must depend also on the world.* Consequently, we must be able to control them in an objective way, a way that will not depend only on the chosen „basic“ framework or „conceptual system“ as in Raclavský's case. Again, this does not mean that we can justify, either conclusively or partly, any verisimilitude or truth claims, thus making them objective. For, we can be sceptics (i.e. non-justificationists) searching for truth with a clear conscience, and non-relativists at the same time. „[R]elativism is the offspring of scepticism, which is correct, and the equation *rationality = justification*, which is incorrect“ (Miller 2006, 153).

I think that these remarks provide a nice illustration of the verbal differences between those realists and relativists who share, in fact, the same thing, namely, *dogmatism*. For, dogmatic realists think that there can be either a justified viewpoint of the world or, indeed, one so immaculate that it has to be preferred by any rational person. Dogmatic relativists, on the other hand, claim that since we can share no immaculate view of the world there are many truths, each one determined just by its framework and each one as good as any other. Both these parties are wrong and it is sad to find that the first party is often held up as the champion of science and „scientific realism“. In fact their weapons are as futile as those of the second party. One may wonder which option is suitable for Raclavský's approach.

## Conclusion

Nobody denies that verisimilitude appraisals can change. Indeed, it is very natural for them to change, for example, if we find a counterexample showing that our original appraisal was incorrect; or if we focus on different properties in relation to which competing theories are held to be simi-

lar or dissimilar. What must be stressed, however, is that „[t]he incontestable fact that objects similar with respect to one property may be dissimilar with respect to logically independent properties – people of like age may be unlike in hair colour, height, wealth, and so on – cannot provide any encouragement for the fiction that similarity with respect to some properties is compatible with dissimilarity with respect to properties with which they are interdefinable” (Miller 2006, 231). In other words, verisimilitude appraisals can change but not simply because of the mere translation of the theories being compared into another language or conceptual scheme, as Raclavský admits. To deny this means to deny the elementary logical truism mentioned by Miller in his (1994, 209) and quoted by me in my (2007b, 198). Unfortunately, Raclavský does not pay any attention at all to this truism. That is why I have decided to repeat here some of the main features of Miller’s argument, which is not as absurd as Raclavský maintains (2007, 342) but is a simple consequence of elementary logic.

The reason why I have entitled this reply „Why Verisimilitude Should Not Be Dependent on Conceptual Systems”, and not „Why Verisimilitude Is Not Dependent on Conceptual Systems”, is that there are many systems in which verisimilitude appraisals *are* dependent on conceptual systems. Raclavský’s system is one example, but there are many others: Niiniluoto’s, Tuomela’s, Oddie’s, Schurz & Weingartner’s and so on. (For a detailed discussion see Miller 2006, Chapter 11.) In my (2007b) I tried to illustrate their shortcomings by a typical example: by Tichý’s theory, whose language dependence I analysed there. Here I have used another example and shown conceptual dependence of Raclavský’s verisimilitude appraisals. Although Raclavský agrees neither with Miller’s nor with my conclusions, he provides, as far as I can see, no refutation of any of them. On the other hand, he tries to „immunize” Tichý’s and his own system by a „hyperintensional interpretation” (Raclavský 2007, 349). In my opinion this interpretation leads nowhere, for if anything counts, then it is a serious criticism challenging you not to repeat old mistakes. Only in this way can we hope to progress a bit further towards the truth, i.e. to an adequate solution of the problem of verisimilitude.

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