

THROUGH A GLASS DARKLY: A FINAL REJOINER TO RACLAVSKÝ

David Miller - Miloš Taliga

This rejoinder to Raclavský (2008) should be read in conjunction with the criticisms in Taliga (2008) and Miller (2008) of Raclavský's (2007) defence of Tichý's theory of verisimilitude.

1 The theory of partial ordering can be axiomatized with *strict inequality* $<$ as a primitive term and *asymmetry* and *transitivity* as special axioms. It can be axiomatized also with *weak inequality* \leq as a primitive term and *reflexivity*, *antisymmetry*, and *transitivity* as special axioms. It is common knowledge that these two axiomatizations are interchangeable, and that nothing of the least importance hangs on which of the relational predicates $<$ and \leq is taken as primitive.

2 Raclavský (2008, 377f.), following Tichý (1978, 192f.), and Oddie (1986, § 6.1), maintains that (as in other cases more pertinent to the verisimilitude debate) there are at least two ways in which the primitives $<$ and \leq may be related. On Tichý's and Oddie's *object-linguistic reading* (Raclavský's B-reading) sentences involving $<$ and those involving \leq belong to a single language in which one of $<$ and \leq is primitive, the other defined. Tichý's method of defining verisimilitude is applied only to sentences phrased in primitive vocabulary. On Tichý's and Oddie's *metalinguistic reading* (Raclavský's A-reading) sentences involving $<$ and those involving \leq belong to distinct languages, one containing $<$ as primitive and the other containing \leq as primitive. No translation is possible between these two languages, which are based on different logical spaces.

3 Raclavský (2008, 381f – 382) charges that 'for the whole 30 years' since 1978, 'Miller and his ally Taliga' have conflated the two readings, and have continued to assert that, according to Tichý's theory, intertranslatable sentences can have different degrees of verisimilitude. The justice of Raclavský's accusation should be evaluated in the light of two facts: (a) from the start, Tichý conceded that the B-reading was never intended (1978, note 4); (b) at the time of writing, Taliga is 30 years old. It may also be remarked that on several occasions since 1974 Miller has cited works, in particular Kanger (1968), that explain how theories based

on different primitive vocabularies may be equivalent (or intertranslatable in the ordinary sense of the term). As far as it is known, neither Tichý, nor Oddie, nor Raclavský, has ever discussed these works.

4 We may allow that, in the unnatural sense accorded to translatability by Tichý and his followers, the two theories of partial ordering given in paragraph 1 resist mutual translation. No algebraist would tolerate the suggestion that they are not, for mathematical purposes, the same theory. Oddie (1986, § 6.3) admits that they are 'correlated', and that verisimilitude, as Tichý defines it, is 'not correlation invariant', and Raclavský seems even to take pride in the fact that 'verisimilitude' is inevitably relative to conceptual systems' (2007, 350, emphasis suppressed). It is therefore quite useless for comparing theories, such as almost all those to be found in modern science, that admit formulations involving different primitives.

5 That scientific theories can be expressed indifferently in different vocabularies makes it clear that neither the A-reading nor the B-reading gets things right. In a typical scientific language there are many pairs of terms, such as $<$ and \leq , or 'north' and 'south', or cartesian and polar coordinates (Miller 2006, § 5.2), that are undefined but could, if necessary, be defined in terms of each other. Neither 'north' nor 'south' is more 'basic' or more 'primitive' than the other, unless we choose to make it so. More than Quine's arguments are required to show that there exist no such synonyms and antonyms.

6 To develop an adequate semantics for a natural language we may be obliged to make an artificial selection of primitive terms; in Quine's words, to *regiment* the language. The choice of primitives resembles closely the choice of a coordinate system in geometry, and nothing of any significance should be permitted to depend on it. In defining *truth* (via *satisfaction*) Tarski too had to regiment or *formalize* the language under consideration (and to introduce further artifices in order to forestall the semantic paradoxes). Raclavský, who fails to distinguish *formalized languages* from *formal languages* (2008, 372f.), is calamitously mistaken about Tarski's achievement.

7 A definition (of the kind proposed by Tarski 1930/1936) in English of truth for a regimented fragment of Czech implies that the sentence 'Sníh je bílý' is true if & only if snow is white. Most people who know both languages will agree that these final three words translate adequately into English the quoted Czech sentence, and it can be only

Raclavský (we hope) who is 'left ... in the dark about how meanings of all words from which the sentence is composed participate on the sentence's being true' (2008, 373). The equivalence follows from a model-theoretic definition of truth (of the kind proposed by Tarski & Vaught 1957) only, of course, when the correct extensions are assigned to the primitives 'sníh' and 'bílý'.

8 Raclavský (2008, 369) opens with the indignant complaint that we both make an effort to disperse the smokescreen of transparent intentional logic with which he, like Tichý and Oddie before him, attempts to disguise the unfitness of the theory of verisimilitude they defend. It should be remembered, however, that the problem of verisimilitude is a problem about real scientific theories, not a problem of semantics. Obfuscating rhetoric aside, no answer has been given by Raclavský to the fundamental question raised by both of us: the question of how the dependence of verisimilitude (as defined by Tichý) on conceptual systems is squared with the truism that one scientific theory may be based equivalently on many such systems. Raclavský pretends to answer this question in (2008, 380f.), but the answer merely reiterates the dependence, and does nothing to palliate its insupportable consequences.

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