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The Semantics Controversy at the 1935 Paris Congress

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Résumé : Les débats qui ont eu lieu, lors du Congrès de philosophie scientifique de 1935, sur la sémantique et sa portée philosophique présentent un grand intérêt historique pour deux raisons. Tout d'abord, on s'accorde à y reconnaître un des événements majeurs du congrès. En second lieu, et de façon plus substantielle, ils ont joué un rôle décisif dans le développement de la sémantique comme discipline philosophique. C'est Carnap qui en a pris l'initiative en invitant Tarski à donner deux conférences. Ce sont eux qui, avec Kokoszyńska, deviendront les porte-parole de la sémantique. Neurath, qui a préparé le résumé de la discussion, avait plusieurs objections contre la sémantique à la Tarski. En particulier, il craignait que la sémantique n'introduise la métaphysique (au sens que les Viennois donnaient au mot) dans la philosophie. La suite a montré que les partisans de la sémantique ont gagné.

Abstract: The debates on semantics and its philosophical significance that took place at the 1935 Paris Congress for Scientific Philosophy are of particular historical interest for two reasons. Firstly, they are generally recognized as one of the major events to have taken place at the Congress. Secondly, and more substantially, they were to play a decisive role in the future of semantics as a field of philosophy. The discussions were initiated by Carnap, who invited Tarski to deliver two lectures in Paris. The two of them, along with Kokoszyńska, were to act as the principal champions of semantics. Neurath, who wrote the summary of the discussion, raised several objections against Tarskian semantics. In particular, he feared that semantics would introduce metaphysics (in the Vienna Circle's sense) into philosophy. As subsequent developments would prove, it would be the defenders of semantics who would win the argument.

Alberto Coffa has written that

Semantics, not metaphysics, was their [members of the semantic tradition—J.W.] *prima philosophia*. In particular, they thought, the key to the a priori lay in an appreciation of the nature and role of concepts, propositions, and senses. [Coffa 1991, 2]

According to Coffa, Wittgenstein, Tarski, Carnap, Schlick, Popper, and Reichenbach were typical representatives of the semantic tradition between 1925 and 1935. This tradition also counts Bolzano, Frege, and Russell among its forerunners. Yet Coffa offers no univocal definition of semantics, or even a description of it, telling us only that

[t]he semantic tradition may be defined by its problem, its enemy, its goal and its strategy. Its problem was the a priori, its enemy Kant's pure intuition; its purpose, to develop a conception of the a priori in which pure intuition played no role; its strategy, to base that theory on a development of semantics. [Coffa 1991, 22]

This perspective can be summarized as follows, then: Kant was a reference point for the semantic tradition and for the development of semantics.

I disagree with Coffa in two important respects. Firstly, I do not know any philosopher who would readily say that semantics was *prima philosophia*. On the other hand, semantics and semantic analysis have played and continue to play an extremely important role in contemporary philosophy (that of the last 120 years, say), particularly in the analytic tradition. Secondly, although Kantianism certainly played the role of the principal enemy for many philosophers in the semantic tradition, I do not think that the problem of the a priori was quite as dominant as Coffa suggests. Admittedly it was important, for instance, for Carnap and Reichenbach, who, although they started out as Neo-Kantians at the beginning of their philosophical careers, subsequently became radical rebels against their earlier philosophical heritage. On the other hand, Tarski, the main hero of the semantic revolution in logic, was almost entirely indifferent to the issue of the a priori, at least in Kant's formulation of it. Such problems as sense, reference, descriptions, semantic categories, the relation between syntax and semantics, oblique contexts, compositionality, meaning and its theories, formal language, ordinary language, modalities, and many others typically considered to be a part of semantics since Frege and Russell, go very far beyond the Kantian conceptual schema, or are even entirely unrelated to the Königsberg philosopher.

There is no doubt that the debates on semantics held at the 1935 Paris Congress (the First Congress for Scientific Philosophy) stand out as one of the most important events in the contemporary history of semantics. In order to present what took place in these debates, it is useful to outline the development of the field [here I follow Woleński 1999]. It was M. J. E. Bréal who first employed the word *sémantique* [see Bréal 1897], derived from a Greek word *semanticos* [having meaning]. Quine says (unfortunately without

citing any exact reference) that Peirce used the word “semantic” in his studies on modes of denotation of expressions [see Quine 1990, 68]. For Bréal, semantics constituted a branch of general linguistics that studied changes in the lexical meaning of words, whereas Peirce was more interested in philosophical aspects of the study of semantics in relation to meaning and reference—an issue that would be sharpened by Frege when he put forward his famous distinction between *Sinn* [sense, meaning] and *Bedeutung* [reference, denotation, nominatum]. However, German linguists as well as many German-speaking philosophers continue to use the second word as synonymous with meaning.

Frege’s distinction brought about a duality in the understanding of semantics since, on one account, this field comprises the study of meaning *sensu largo*—that is, including referential uses of expressions—whereas another approach tends to restrict semantics to dealing with reference only. This difference was summarized by Quine in the following terms:

[T]he problems of what is loosely called semantics become separated into two provinces so fundamentally distinct as to not deserve a joint application at all. They may be called the *theory of meaning* and the *theory of reference*. “Semantics” would be a good name for the theory of meaning, were it not for the fact that some of the best works in so-called semantics, notably Tarski’s, belong to the theory of reference. The main concepts in the theory of meaning, apart from meaning itself, are *synonymy* [the sameness of meaning], *significance* [or possession of meaning], and *analyticity* [or truth by virtue of meaning]. Another is *entailment*, or analyticity of the conditional. The main concepts in the theory of reference are *naming*, *truth*, *denotation* (or truth-of), and *extension*. Another is the notion of *values* of variables. [Quine 1953, 130]

Incidentally, the above passage confirms my earlier remark that not everything in semantics goes back to Königsberg. Tarski himself anticipated Quine’s characterization. He wrote:

The word “semantics” is used here in a narrower sense than usual. We shall understand by semantics the totality of considerations concerning those concepts which, roughly speaking, express some connections between the expressions of a language and the objects and states of affairs referred to by these expressions. As typical examples of semantic concepts we can mention the concepts of denotation, satisfaction and definition [...]. The concept of truth—and this is not commonly recognized—is to be included here, at least in classical interpretation, according to which “true” signifies the same as “corresponding with reality”. [Tarski 1936a, 401, page reference to English translation; this paper is based on Tarski’s lecture delivered at the Paris Congress]

However, it should be noted that, for Tarski, there was not a complete separation of meaning and reference, even in formalized languages. He always emphasized that semantic concepts (in the sense outlined in the above quoted passage) reside in definite interpretations given in a suitable metalanguage. Although Tarski never attempted to define what meaning is, he assumed that the expressions of languages investigated in logical semantics always had a clear and intuitive meaning. I used the adjective “logical” in the last sentence quite consciously: in fact, semantics as taught in Poland was (and still is) counted as a branch of logic *sensu largo* (alongside formal logic and the methodology of sciences), and covers issues of meaning as well as reference. On this view, there is no compelling reason to exclude the theory of meaning from logical semantics. Clearly, problems concerning meaning as a semantic category are much more difficult than questions pertaining to reference, but they are part of a separate agenda.

Still, two preliminary remarks are in order here, concerning the label “the linguistic turn” and the concept of meaning. Roughly speaking, this appellation refers to metaphilosophical views in which language is considered to be the sole or at least the main object of the philosophical enterprise. This was the leading idea of the Vienna Circle and of ordinary language philosophy. But how is the linguistic turn related to the semantic tradition? The answer is that every instance of the former belongs to the latter, but the reverse is not the case. For instance, Bolzano (semantics mediates between us and meanings *an sich*), Frege (semantics links senses with references), Russell (semantics corrects commonsense grammar), Kotarbiński (semantics is a mirror of ontology), Ajdukiewicz (semantics is a key for epistemology), and Quine (semantics exhibits ontology) belong to the semantic tradition, but a purely linguistic interpretation of their philosophy would be a serious oversimplification. There are also more controversial cases. Early Wittgenstein provides perhaps the most important example of interpretative difficulties related to the place of language as the object of philosophizing. Although he said that every philosophy is a critique of language (leaving aside the qualification “not in Mauthner’s sense”), his *Tractatus* is frequently regarded as a treatise on ontology. Clearly, the linguistic turn in philosophy consists in the analysis of the meaning of expressions.

Since I mentioned ordinary language philosophy, the question arises of how meaning is understood in this school. Let us agree that meaning is manifested in the ways in which words and complexes of words are used. An important contribution of ordinary language philosophers was to point out that formal logic has almost nothing to do with the meanings of those linguistic items relevant for doing philosophy. Even if we were to speak of the logic of ordinary language, it would be something different from logic in Frege’s or Russell’s sense. This position results in lending further ambiguity to the word “semantics,” because in addition to the duality of sense and reference pointed out by Quine, semantics can also be treated as the study of meaning as use. My remarks from this point on, however, concern semantics as related

to formal logic. This means that the tradition of semantics associated with ordinary language philosophy will be entirely neglected.

To pick up again from my earlier remarks, many thinkers of the past, from Plato onward, have recognized the significance of language for philosophy; but the typical view was that the analysis of words and expressions was a preparatory work for philosophy. The semantic tradition (in Coffa's sense) would gradually alter this position. Perhaps the following words of Russell's may be regarded as characteristic of the new attitude:

The study of grammar in my opinion is capable of throwing far more light on philosophical questions than is commonly supposed by philosophers. [Russell 1903, 42]

By "grammar" Russell understood what is nowadays regarded as philosophical and/or logical semantics. Russell's view became classic in analytic philosophy (see [Coffa 1991] for further historical information; Beaney provides the most extensive history of the analytic movement and of what Coffa called the semantic tradition [Beaney 2013]). Let me just mention here that a Russellian view was accepted by Polish analytic philosophy (the Lvov-Warsaw School, established by Twardowski at the end of the nineteenth century), in particular by Ajdukiewicz, Kotarbiński, Leśniewski, and Łukasiewicz. Tarski, therefore, as a member of this school (Kotarbiński, Leśniewski and Łukasiewicz were his teachers), developed within a decidedly pro-semantic environment.

Philosophers belonging to the Vienna Circle and related communities, particularly the Berlin group ("logical empiricism" and "logical positivism" are non-geographical denominations) occupied a distinguished position among friends of semantics (*sensu largo*) in philosophy. Leaving aside a number of details and potential matters of interpretation, they were influenced by traditional positivism with its strong anti-metaphysical attitude, Frege's and Russell's logical theories, Wittgenstein's dicta that, firstly, philosophy consists in the analysis of language and, and that, secondly, it is meaningless as such, and Hilbert's formalism, which considered mathematics as a formalized game of symbols. Logical empiricism in the 1920s (more of a prehistory of this movement in fact, at least up until 1929 when its famous manifesto was published) and the early 1930s had a conception of truly scientific philosophy as a logical syntax of language combined with physicalism as the general theory of reality. Schlick, Neurath, and Carnap had fundamental reservations about semantics both as the theory of meaning (since sense cannot be accounted for in physicalist terms) and as the theory of reference (since we cannot compare language and reality without falling into metaphysical speculation; the same verdict as was passed against the correspondence account of truth). Consequently, according to early logical positivism (up to the mid-1930s), semantics, apart from syntax, had to be rejected since it inevitably leads to meaningless pseudo-problems. According to this view, syntax is fairly exceptional, because it deals with expressions understood as concrete shapes, and is therefore tolerated by physicalism.

The fear of semantic paradoxes such as the Liar antinomy was another reason for the reluctant attitude toward semantics and its applications in formal logic. Even though logicians (such as Hilbert or Gödel) employed semantic concepts including satisfaction, truth, or model, they did so informally, using them as heuristic devices (they were, for instance, very important in Gödel's discovery of the incompleteness of arithmetic), and insisted that informal semantic considerations should be replaced by purely syntactic ones. Perhaps the claim that the concept of proof might replace the notion of truth provides a good illustration of how differently semantics and syntax were valued. As Church noted in his introductory textbook to mathematical logic:

In concluding this Introduction let us observe that much of what we have been saying has been concerned with the relation between linguistic expressions and their meaning, and therefore belongs to semantics. [...] From time to time in the following chapters we shall interrupt the rigorous treatment of a logistic system in order to make an informal semantical aside. [Church 1956, 67]

These words may even seem somewhat shocking if we take into account their date (about thirty years after logicians and philosophers converted to the semantic faith).

The 1935 Paris Congress was to become a very important event in changing the above-described reluctant attitude to semantics, at least in the case of most logical empiricists. However, the path toward this change began a few years earlier, namely when Tarski visited Vienna in 1930 and Carnap came to Warsaw in the same year. According to Carnap's recollections:

Even before the publication of Tarski's article [on truth—J.W.] I had realized, chiefly in conversations with Tarski and Gödel, that there must be a mode, different from the syntactical one, in which to speak about language. Since it is obviously admissible to speak about facts, and, on the other hand, notwithstanding Wittgenstein, about expressions of a language, it cannot be inadmissible to do both in the same language [...]. In the metalanguage of semantics, it is possible to make statements about the relation of designation and about truth. [...]. When Tarski told me for the first time that he had constructed a definition of truth, I assumed that he had in mind a syntactical definition of logical truth or provability. I was surprised when he said that he meant truth in the customary sense, including contingent factual truth. [Carnap 1963, 60]

It should be observed, however, that Tarski succeeded in the formal construction of a truth-definition, whereas Gödel's remarks were a matter of an "informal aside" made in order to use Church's narrative. Yet it became evident to Carnap that semantic ideas, albeit informal, were behind Gödel's celebrated incompleteness results.

Owing to Tarski's contact with the Vienna Circle and other Viennese philosophers (see [Coffa 1991, 280–282]; [Burdman-Feferman & Feferman 2004, 94–108]), his semantic ideas, and more specifically his theory of truth, became more and more positively and even enthusiastically welcomed, not only by Carnap but also by Popper. A German translation of [Tarski 1933] appeared in 1936 [Tarski 1936a]. Preparations for the translation of this important work began in 1934 [see Woleński s.d., for details]. Since Carnap and Popper acted as consultants for the final text, they knew the details of Tarski's constructions. Moreover, Tarski visited Vienna in the years 1933–1935 and informed his Viennese colleagues (whom he also met in Prague in 1934) of his ideas and his results. Although they were not accessible to Western readers in written form, and were available only in Polish, their circulation was sufficient to boost interest in semantics. Carnap himself became more and more convinced that semantics in the narrow sense presented something of considerable philosophical interest. In particular, he maintained that semantics could help in elaborating a more liberal version of logical empiricism, to replace the original position which Carnap considered too radical a philosophy, for instance, to cope with difficulties with the problem of testability (neither verifiability nor falsifiability fulfilled the required criteria for empirical conformability).

With preparations for the 1935 Paris Congress reaching their final stages, Carnap proposed that Tarski deliver a talk about semantics:

When I met Tarski again in Vienna in the spring of 1935, I urged him to deliver a paper on semantics and on his definition of truth at the International Congress for Scientific Philosophy to be held in Paris in September. I told him that all those interested in scientific philosophy and the analysis of language would welcome this new instrument with enthusiasm and would be eager to apply it in their own philosophical work. But Tarski was very skeptical. He thought that most philosophers, even those working in modern logic, would be not only indifferent, but hostile to the explication of the concept of truth. I promised to emphasize the importance of semantics [...]. [Carnap 1963, 61]

Tarski agreed to Carnap's proposal and delivered two talks, one dedicated to general semantic issues [Tarski 1936a], the other on the concept of logical consequence [Tarski 1936b]. One point in Tarski's presentation of semantics in his first talk deserves special attention. His discussions with Carnap prior to the Paris Congress must certainly have touched on the problem of how anticipated objections from the proponents of physicalism could be answered. Tarski distinguished two ways in which to introduce the concept of truth: axiomatically, and by definition. He remarked that, although the former is possible, the latter is better from the physicalist point of view.

Carnap continues his recollections as follows:

At the Congress it became clear from the reactions to the papers delivered by Tarski [[Tarski 1936a]—J.W.] and myself [[Carnap 1936]—J.W.] Tarski's skeptical predictions had been right. To my surprise, there was vehement opposition even on the side of our philosophical friends. Therefore we arranged an additional session for the discussion of this controversy outside the official program of the Congress. There we had long and heated debates between Tarski, Mrs. Lutman-Kokoszyńska, and myself on one side, and our opponents Neurath, Arne Næss, and others on the other. [Carnap 1963, 60]

One point in these recollections finds no support in the available sources, namely “the discussion [...] outside the official program”. It seems that some discussions between Carnap, Neurath, Næss, Tarski, and Kokoszyńska took place in 1937, but in various places and on various occasions. Carnap prepared “Vorbemerkungen zur Diskussion mit Neurath [Preparatory Remarks to a Discussion with Neurath]”, dated July 1937 (unpublished, the typed text is deposited in the University of Pittsburgh Libraries, Special Collection Department, signature 080-32-07). Neurath also prepared related notes for the discussion with Carnap [see Mancosu 2008]. Unfortunately, nothing definite can be said about the discussion between the two philosophers based on these materials. Perhaps the plan was to hold it at the Ninth International Congress of Philosophy in Paris (the Descartes Congress) in 1937. Yet Neurath, in a letter to Carnap on September 6, 1937 (I am indebted to Rainer Hegselmann for providing me a copy; see [Hegselmann 1985] for a description of the Neurath–Carnap correspondence) mentions that he had a discussion with Næss and Tarski on the concept of truth, probably in Paris. Kokoszyńska also participated in the Descartes Congress, delivering a talk [see Kokoszyńska 1937] on the unity of science, which Neurath commented on [see Neurath 1937], making some brief and summary remarks on truth and semantics. Independently of whether or not the discussion in question occurred, Carnap's description of the friends and enemies of semantics is basically correct.

Returning to the 1935 Paris Congress, Tarski's two papers mentioned above were joined by a contribution from Kokoszyńska, which also pertained to problems of semantics [Kokoszyńska 1936a], see also [Kokoszyńska 1936b]. Reports on the Congress were written by Neurath, see [Neurath 1935], [Zawirski 1935], see also [Mancosu 2008] in which he discusses the papers by Tarski and Kokoszyńska twice, and also summarizes the related discussions [Neurath 1935, 389–390, 393–400]. Neurath's first remarks concern semantics in relation to the unity of science. First of all, he reports on a controversy between Carnap and Reichenbach. The former recommended the so-called material mode of speech (with the semantic factor, one can say) as indispensable for science; but Reichenbach replied that this mode of speaking leads to pseudo-problems. Then, Neurath notes, both Polish philosophers insisted that science also deals with relations between linguistic signs and objects and hence that semantics is

justified from the point of view of scientific practice. Neurath himself opposed this view and defended radical physicalism as the proper linguistic environment for science. Neurath's more extensive remarks concern the semantic concept of truth defended by Tarski and Kokoszyńska. Their papers were discussed by several commentators (I list them in the order that they appear in [Neurath 1935]): Grelling asked for the solution of the logical paradoxes, Ajdukiewicz and Carnap remarked on the concept of meaning involved in the definition of truth, Ayer defended the so-called redundancy concept of truth and argued that it suffices for science, Bernays stressed the importance of metalanguage and metalogic (a point also touched on by Carnap), Popper and Chevalley hoped that semantics would not produce a bad metaphysics, Neurath and Hempel contrasted the semantic definition of truth with the coherence theory of truth, and both defended the latter by recalling Schlick's argument that we cannot compare sentences with reality. In his reply, Tarski distinguished several issues, logical and philosophical, concerning semantics, and pointed out that the problem of its relation to physicalism is only one among many. The discussion was summarized by Rougier, who pointed out that the extremely formal approach to language characteristic of the Vienna Circle would have to change owing to the influence of semantics.

The debate at the Congress suggests that Carnap's appraisal of the event should be somewhat tempered. The discussion was rich and many-sided. Although Neurath was an opponent, he said that most voices agreed with the defenders of semantics. I quote the original text:

Die Darstellungen TARSKIS und LUTMAN-KOKOSZYŃSKA fanden in grossem Ausmass Zustimmung. [Neurath 1981, 666]

Ayer, who also was very skeptical about the significance of the semantic definition of truth in science, wrote, many years later, that Tarski's paper (he had in mind [Tarski 1935]) was the highlight of the Congress [see Ayer 1977, 118].

Ayer's evaluation agrees with that of Zawirski, who observed:

It was found on the next day, that the culmination of the Congress was not the lectures on many-valued logic and probability, but the papers dealing with semantics, among which the most outstanding was the paper by Tarski, which was generally admitted to be the most important event of the Congress. It dealt with the idea of truth as the fundamental idea of semantics. To the lecture of Tarski was linked the directly following lecture of Mrs. Lutman-Kokoszyńska who told the Vienna Circle what Tarski failed to add. [Zawirski 1935, 106–109; page reference to English translation]

There are several other sources that document the controversy over semantics and the semantic definition of truth, with Tarski, Carnap, and Neurath as the principal *dramatis personae*. The Neurath Archives in Haarlem and Konstanz hold (inter alia) the correspondence between Neurath and Carnap, Neurath

and Tarski, and Neurath and Kokoszyńska (see [Hofmann-Grüneberg 1988] and [Mancosu 2008] for further information). On the basis of the published sources (see the several papers collected in [Neurath 1981] and the already cited works of Carnap, Tarski, and Kokoszyńska, and [Tarski 1944]), we can reconstruct the main points of the debate as follows:

1. Neurath

- (i) The use of the concept of truth should respect the logic of science;
- (ii) We compare sentences with sentences, not sentences with something else;
- (iii) The conception of truth as based on comparing sentences is dangerous for empiricism and introduces metaphysics (related to point (i) above);
- (iv) The semantic theory of truth treats truth as absolute and this view is untenable;
- (v) The projected *Encyclopedia of Unified Science* should avoid the concept of truth as correspondence; in other words, semantics goes against the unity of science;
- (vi) Semantic concepts are redundant;
- (vii) We need philosophical pluralism;
- (viii) Tarski and Kokoszyńska continue the traditional account of the concept of truth present in Brentano and following scholasticism.

2. Carnap–Tarski–Kokoszyńska:

- (i) The semantic definition of truth is admissible and even correct (Tarski and Kokoszyńska added that it properly elaborates Aristotle's approach);
- (ii) Truth cannot be replaced by syntactic concepts;
- (iii) Semantic concepts are useful in the logic of science;
- (iv) Truth and confirmation must be distinguished [Carnap 1936];
- (v) The semantic understanding of truth agrees with the meaning of "true" in ordinary parlance;
- (vi) Various dangers of semantics pointed out by Neurath as fatal for empiricism, physicalism, and the unity of science are exaggerated.

Letters from Neurath to various philosophers show that he did not change his skepticism toward semantics, but became the sole opponent of semantics.

Could we say, paraphrasing Girolamo Saccheri, that Tarski *ab omni naevi vindicates*? Not at all. Firstly, it seems that Neurath's criticism influenced Tarski and Kokoszyńska to some extent, because the former changed his language and ceased to say that the semantic definition of truth revives the

idea of a correspondence between bearers of truth and reality [see Tarski 1944], whereas the latter refined her approach to the concept of absolute truth [Kokoszyńska 1948, 1951]. And from a more general perspective, a new opposition to the semantic definition of truth, based on anti-realistic semantics, was to appear in the 1960s. In any case, the controversy between realistic semantics (à la Tarski) and anti-realistic semantics (à la Dummett, for example) is a game in the same family. Consequently, it seems that, at least from the present-day philosophical perspective, there is no way to return to the anti-semantic attitude. Yet anti-realistic semantics returns to some of Neurath's criticisms of Tarski and revives the verificationist theory of meaning. This unexpected, if partial, victory of the erstwhile principal opponent of semantics offers some fine evidence that *repetitio est mater philosophorum*.

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