

How to Assess Theories of Meaning? Some Notes on the Methodology of Semantics¹

Lukáš Bielik

Comenius University in Bratislava

Abstract: The paper presents a two-level approach to an assessment of meaning theories. To begin with, language is distinguished from language-model and, analogously, meaning is discerned from a model of meaning. The first level of a theory assessment is presented as dealing with the relation of a model of meaning to intra-theoretical aims and assumptions of a theory with specific language-model. The second level of assessment concerns ontological, epistemological, logical and other assumptions underlying the respective language-model. Finally, several questions are set forth as methodological directives for elucidating hidden assumptions behind the theories of meaning.

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1 Language and Language-Models²

When we theorize about ordinary or natural language, or a kind of technical language, we find it useful to adopt the distinction between

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² The term “language-model” (and its derivations) is used in speaking about those theoretical aspects of language that result from applying scientific methods specified in the main text. Thus, “language-model” is used in a much wider sense than “model of language” which usually occurs in the set-theoretical sense.

a *language* and the theoretical *model* of it. The language, of course, is an object of theorizing, or of empirical inquiry, and can be approached differently by various theorists with different theoretical and pre-theoretical assumptions and goals. The language-model is a theoretical entity that results from applying certain scientific procedures to language, such as *idealisation*, *abstraction*, *projection*, *explication* etc. A theoretical model thus represents those aspects of the language that are selected by a theoretician via idealisation and abstraction, or it presents some of the hidden features of the language she has made explicit or evident using the projection or explication method.

What is meant by the four scientific procedures should be clear. Nevertheless, I add here a short comment on each of them: By *idealisation* we usually mean a procedure which takes an object (e.g., language), its properties and attributes, and either maximizes or minimizes values of certain features of it. For example, in approaching the language, we can maximize its atemporal qualities and minimize its changing features. The resulting language-model is a relatively stable complex entity represented, for some theoretical reasons, as an atemporal and unchanging system. Such a language-model is, of course, the product of idealisation.

Abstraction is extensively adopted in theorizing as well. It is a method which, positively expressed, selects or highlights some of the theoretically important attributes of an object of inquiry or, negatively expressed, eliminates theoretically marginal attributes of it.³ For example, when we apply the abstraction method to the original (e.g., natural) language, we may obtain a language-model in which language users are secondary or absolutely neglected.

On the other hand, *projection* and *explication* bring hidden or inexplicit features of language to the surface or reconstruct its theoretically relevant constituents. For example, projection selects some (logical or empirical) features of the language, such as the entailment relation or the compositionality principle, and makes them the gist of the language-model; or it picks out intentions or epistemic attitudes of a language user and put them into the centre of the meaning theory. More-

³ Both idealisation and abstraction are alike. However, while idealization works with two extreme values of measurable properties which (in many cases) are selected in advance, abstraction is in general used to select those properties which we examine with reference to our theoretical assumptions.

over, explication can be used to eliminate theoretically idle elements and replace them by much more effective and fruitful substitutes. For example, the synonymy relation between expressions of the original language – that is manifested, at a pre-theoretical level, by language users' behaviour, e.g., by their willingness to inter-substitute the expressions in linguistically or empirically similar situations – can be theoretically founded and explained in terms of an explicated concept of synonymy in some theory.

Thus, I suppose that every theory of linguistic meaning works with a specific language-model. We could, perhaps, make a basic distinction between theories of meaning that are mostly *semantic* and those that are mostly *pragmatic*. The notions of *semantic(s)* and *pragmatic(s)* are used here in Carnap's (1948, 8-11) sense. I do not claim, however, that if a language-model is semantic, then it is completely devoid of pragmatic features, and vice versa. Of course, there can be language-models that are exclusively semantic and there can be language-models that are almost entirely pragmatic. But most of them involve, in different proportions, both components of language.

In what follows I deal with semantic language-models according to which a theoretical representative of the language modelled is constructed mostly of semantic features. As there are language-models, there are also models of meaning – i.e., theoretical representatives of pre-theoretical meaning – which go together with language-models and reflect their theoretical assumptions about language.

The crucial questions I am concerned with in this paper are: How to assess theories of meaning (working within the framework of a semantic language-model)? What does it mean to say that one theory of meaning is better, or more adequate, than another one? What are the criteria of evaluation of (semantic) meaning theories?

I have to concede that I am far from providing complex and definitive answers to these questions. What I am going to do is simply to put forward some methodological notes about what should be taken into account when considering the problem of comparison and assessment of meaning theories.

2 Theories of Meaning and Models of Meaning

The first thing I want to point out here is that many, indeed most, theories of meaning do not explicitly state what is their underlying lan-

guage-model, that is, what theoretical aspects of language they analyse, what principles they take as constitutive for language, etc. They are also often silent about the relation of a model of meaning to the modelled meaning of expressions. Some of the theories seem to rely on the strong assumption that *the model of meaning is the same as the meaning*. Others seem to adopt a more moderate position according to which *the model of meaning represents fundamental aspects of meaning* (of some category of expressions, e.g. definite descriptions). Still other theories are even weaker; they assume that *their model of meaning represents only some aspects of meaning*. It should be evident that the theoreticians as well as their theories make such assumptions at least implicitly, despite the fact they rarely do so in terms of our *model-modelled* distinctions. Nevertheless, these assumptions can be reconstructed from these theories or may be set forth as our hypotheses about their theoretical assumptions.⁴

Therefore, our working hypothesis is that we can specify the relations of a language to the language-model as well as those of the meaning to its model as follows: The language-model represents those features of language that are the products of idealization, abstraction, projection or explication.⁵ The model of meaning represents, or it is supposed to represent, those features of the meaning that correspond (in some degree) to the assumptions of the appropriate language-model. Put differently, the model of meaning primarily reflects those idealised,

⁴ The classification of theories of meaning according to the character of the relation between the model of meaning and meaning (of natural language expressions) is in fact a nontrivial and difficult interpretative business. It rests on the evaluation of different implicit or explicit claims made by the theories. Nevertheless, some examples may be offered: I suppose the theorists such as Tichý (1986; 1988) or Duží – Jespersen – Materna (2010) take it that the model of meaning elaborated by them is almost the same as meaning (in the semantic language-model). In developing his theory of meaning, Tichý proposes the concept of construction as a theoretical explicans of meaning. He claims: “To *understand* the expression ‘9 - 2’ is clearly to know which particular construction it expresses” (Tichý 1986, 515). On the other hand, Carnap’s model of meaning developed for his language-model S_1 (see Carnap 1947) seems to be (according to his theoretical aims) a relatively weak representation of the natural language meaning.

⁵ Of course, the application of the proper methods as well as of other methodological devices is guided by many theoretical aims and assumptions underlying the theory of meaning in question.

abstracted, projected or explicated aspects of meaning that are determined by the language-model or other. The model of meaning, therefore, depends on the language-model in the sense that the assumptions of latter determine which features of meaning are to be included in the model of meaning.

Take an example: If the model of a natural language assumes that language is a set of functions from expressions to meanings (for now, put aside the question what are meanings), the model of meaning has to ignore those aspects of meaning that are dependent on the language user, e.g., what she really meant by saying something or what kind of communication (speech) act she performed by saying those words, etc. Or, if the language-model is aimed at representing a language conceived synchronically, the meanings are probably modelled as *invariant entities*, or more precisely, the connection of meanings with linguistic entities are assumed as invariant, etc.

I do not claim the model of meaning and its testing against appropriate linguistic situations do not influence retrospectively the language-model itself.⁶ Rather, there seems to be a lot of implicit assumptions behind the theories of meaning that are rooted in much more general assumptions about language. If these assumptions are made explicit, the hidden language-model underlying the meaning theory can be highlighted.

Let me stop here for a short comment: This picture of the relationship between language-model and the model of meaning seems to be so trivial that there can be doubts about any methodological usefulness of the distinction. In what follows, I try to show the opposite.

However, before accomplishing this task, let us focus on methodological notes made by some semantic theorists. They mention, in a more or less direct way, certain principles that can be used to evaluate theories of meaning (of a given category of expressions).

Let us start with one of the fathers of analytic philosophy and modern logic, Bertrand Russell. In his famous article *On Denoting* (1905),

⁶ However, put in Lakatosian terms, the theoretical assumptions underlying the language-model can be construed as the hard-core of the meaning theory (research program). Contradictory cases for the model of meaning do not falsify it automatically. They can be evaluated, for example, as unsatisfying the idealised assumptions of the language-model and, thus, the theory of meaning is protected against theoretically shallow falsification. For Lakatos' methodology see Lakatos (1978).

Russell expresses a guiding methodological principle which should be taken into account when assessing a (semantic) theory. He claims:

A [logical] theory may be tested by its capacity for dealing with puzzles, and it is a wholesome plan, in thinking about logic, to stock the mind with as many puzzles as possible, since these serve much the same purpose as is served by experiments in physical science. (Russell 1905, 484n.)

Russell then proceeds by specifying three particular logico-semantic puzzles which represent together the basic test both for his theory of meaning (of definite descriptions) and for alternative theories by Frege or Meinong. The first puzzle deals with the fact that it is permissible to substitute an expression with a co-referring (co-denoting) one within the contexts of propositional attitude ascriptions. The second one concerns the law of the excluded middle; it has to be guaranteed that either the sentence "The King of France is bald" or its negation is true without implying the existence of the king of France. The last puzzle has to do with existence and its predication (see Russell 1905, 485). Russell takes the puzzles as straightforward tests of the adequacy of his theory and of the inadequacy of some alternative theories.

Of course, other theorists also believe that (semantic) theories of meaning should be tested by paradigmatic puzzles and linguistic situations. Alonzo Church puts similar conditions on the evaluation of semantic theories:

We must demand of such a theory that it have a place for all observably informative kinds of communication – including such notoriously troublesome cases as belief statements, modal statements, conditions contrary to fact – or at least that it provide a (theoretically) workable substitute for them. And solutions must be available for puzzles about meaning which may arise, such as the so-called "paradox of analysis". (Church 2001, 61)

And later, he adds:

The variety of entities (whether abstract or concrete) which a theory assumes is indeed one among other criteria by which it may be judged. If multiplication of entities is found beyond the needs of the workability, simplicity, and generality of the theory, then the [Occam's – L.B.] razor shall be applied. (Church 2001, 63)

So, Russell and Church share similar methodological requirements placed on semantic theories even though their theories (significantly) differ: Whereas Russell's theory is one-dimensional (there is only one level of meaning of expressions), Church's theory, which is a modification of Frege's (see Frege 1948 or 1956), is obviously two-dimensional (there are two levels of meaning: the level of *senses* and the level of *denotations*). Given this fact, an important question arises: How is it possible that two theorists with relatively similar methodological assumptions come with two different theories?⁷ In section 3, I try to lay down what I suppose to be a natural answer. Before doing that, I want to take a short look also at the desiderata George Bealer imposes on his Theory of Properties, Relations, and Propositions (thereafter: PRP-theory; see Bealer 1982).

Bealer considers three fundamental categories of elements as tests for his PRP-theory (and which apply to also other theories of meaning):

- a) There are puzzles – *classical semantic or logical ones* – that have emerged in disputes about the meaning of linguistic expressions. Bealer mentions the problem of “substitutivity failures involving co-extensive expressions in modal and intentional contexts”, “the paradox of analysis”, “the logical paradoxes”, “the semantical and intentional paradoxes”, “Frege's puzzle, i.e., how can ‘a=b’ be true, yet different in meaning from ‘a=a’”, and some others.
- b) According to Bealer, the theory should exhibit some *programmatically* features. In the case of the PRP-theory, we may have doubts about the origin of these requirements; they should both be clarified and justified. Bealer requires, for example, the theory have “sound and complete logics for modal matters and for intentional matters”, make “no ontological commitment to non-actual possibilia”, be

⁷ This question is an analogue of a much more general question (a kind of the underdetermination of theories by evidence problem): How to decide between theories that can predict or explain the same kind of linguistic behaviour despite their wide differences? An illustrative demonstration of this situation in semantic discussions is given in Zouhar (2010, 45-47). Zouhar further uses the so-called ideal speaker in deciding which aspects of modelled linguistic situations are semantic and which are not. The notion of ideal speaker is, nevertheless, influenced by a specific language-model which is, of course, not shared unanimously by semanticists.

“syntactically first-order”, have “a Russellian semantics”, be “consistent with Carnap’s thesis of extensionality”.

- c) There are *fields of application* of the theory. Bealer enumerates five of them: an analysis of number; a definition of truth for propositions; a definition of necessity; a definition of analyticity; and an analysis of intentionality (cf., Bealer 1982, 13-15).

These fragmentary notes suffice to show that Bealer intends to apply his PRP-theory in particular fields of philosophy. However, this is hardly a generally accepted aim of semantic theories.

Anyway, Bealer’s methodological principles include, besides the logico-semantic puzzles (point a), also general theoretical (point b) and practical (point c) requirements. In what follows, I do not want to analyse and evaluate his methodological desiderata for (semantic) theories. Instead, I am going to focus on a wider, and already stated, question: How is it possible that methodologically similar views on testing of (semantic) theories lead to widely different theoretical outcomes?

3 Criteria of assessment

Returning to Russell’s theory of meaning, it is natural to ask, which criteria he invokes in assessing his semantic theory. However, given Russell’s theory of definite descriptions, we can ask (at least) two different sets of methodological questions: First, how well does Russell’s theory of (meaning of) definite descriptions fit to his language-model? Or, differently put, does Russell’s theory explain what it aims to according to its theoretical assumptions and goals? Are Russell’s conclusions consistent with his theoretical premises? The second question deals with more general aspects of evaluation. We can ask how general is the underlying language-model behind Russell’s considerations? Or, are the assumptions determining his (or anyone else’s) language-model testable, i.e., empirical, or untestable, i.e., a priori or conventional? Or, what are the capacities of his language-model in modelling the natural language? Or, generally speaking, is his underlying language-model more general and better in explaining and predicting linguistic phenomena of a given kind than another language-model?

That is, it is one thing to say that Russell’s theory of definite descriptions successfully explains the problems embodied in the above puzzles and that his model of meaning fits appropriately to the language-model assumed by his theory of meaning; it is, however, another

thing to say how general and explanatory Russell's language-model is. What I wish to say is that there is a wider range of questions concerning the character and methodological fruitfulness of the assumptions about language than Russell primarily considers. Let us give some examples: Does it suffice to take language as a complex entity consisting of linguistic expressions plus meanings, or is it more structured? Is Russell's approach to language atomic or holistic? Are the postulates about language empirically testable or analytically true? Is meaning a kind of abstract or concrete entity? Is meaning a simple or compound entity? No doubt, these questions point to a more general assessment of language-models than the first set of questions does. Anyway, let us proceed further.

In section 2, I have claimed that our model-modelled distinction may be methodologically fruitful. Now I am going to elucidate in what sense it can be useful. Let us start with generalizing Russell's case to the cases of assessing any theory: The assessment of meaning theories can be, thus, specified in two general steps:

1. How does the model of meaning correspond to the language-model of the meaning theory? In other words, how does the model of meaning fit to the intra-theoretical criteria of the theory of meaning?
2. How strong and general commitments does the theory's language-model make in order to represent the fundamental and constitutive aspects of language? Does the model of language depict all aspects that are relevant for meaning constituting and acquiring or for language mastering? Many theories of meaning may or do differ in their presuppositions about language. We can therefore ask how general the theory is. How well does the language-model explain and predict linguistic behaviour? Is a language-model in question more comprehensive than any else?

The first set of questions concerns the relation between a meaning model and a language-model; the second set of questions is about the measure of correspondence between language and language-model.⁸

⁸ Some of the theories of meaning, whether semantic or pragmatic, may commit to an extreme position, according to which language-model is identical with language or, in other words, the distinction between them is deemed superfluous. The same may hold for the model of meaning and meaning distinction. On the other hand, there are theories that deliberately distinguish between language-model and modelled language; this seems to

One particular theory of meaning may fare well with respect to the first question, but it may fare moderately or be limited in scope when considering the second question.

This two-level assessment is, of course, applicable not only to a single theory, but to more theories as well. Any two theories of meaning may be compared from our two viewpoints: The first one concerns the *intra-theoretical* level of how well one theory, say T_1 , fulfils its own theoretical aims and commitments in comparison to those of another theory, say T_2 . T_1 may aim to explain, for example, the semantic character of just one category of expressions, say definite descriptions, while T_2 is designed to explain (the meaning of) more categories of expressions, e.g., definite descriptions, proper names, nouns, indexicals, etc. If T_1 explains successfully more moderate theoretical aims and T_2 fails to explain all of the features it aims to, then T_1 is better than T_2 from the point of view of the intra-theoretical level. Nevertheless, when we come to more general principles of language the theories accept or assume, the ontological or epistemological assumptions of T_1 , unlike those of T_2 , may be found more controversial, or less general, or less explanatory/predictive, or falsified by relevant linguistic evidence. In that case we can assess, *inter-theoretically*, T_2 to be better than T_1 . The subjects of evaluation are here the respective language-models underlying the theories; at this level, therefore, we discuss and evaluate generality, explanatoriness, predictiveness, ontological commitments, epistemological assumptions and logical properties of particular language-models and meaning.

Notice that when comparing two semantic theories sharing *the common language-model* the assessment situation is the most straightforward. The two theories may be assessed according to their *explanatory* and *predictive* power, that is, they may differ in that one theory may explain in greater detail, or to a larger extent, some typical or puzzling communication situations or problems connected with them. Generalizing this case, the theory T_1 is *more adequate with respect to a given language-model* than the theory T_2 , provided T_1 explains and predicts more linguistic phenomena than T_2 and its explanations or predictions are consistent with a given language-model or with some broader theo-

be the case of Carnap's method of intension and extension from his (1947); the language-model is here much simpler than the natural language and is deprived of the ambiguity and vagueness of natural language.

retical assumptions about the language.⁹ By explanatory and predictive features I assume here also the level of applicability of the theory to other fields of problems (as Bealer separately required in his 1982).

However, what happens when the theories analysed differ both in their language-model and in other theoretical assumptions? As we have already seen, in confronting two such theories, we have to firstly, consider, their success with respect to their theoretical aims (that is, how well do they fit to their language-models) and, secondly, assess theoretical assumptions of their models. This case was already covered by the above (abstract) example of comparing T_1 and T_2 .

Now, let us return to the example of comparing Russell's theory of meaning with Church's. The question why they differ significantly despite the fact they hold (almost) the same methodological criteria of assessment has now a clear answer. They do not share a common language-model; they differ in ontological and epistemological principles prescribed by particular features of their models of meaning. They both fare well in fulfilling their own theoretical aims, but their models have different groundings and can be thus evaluated differently according to their (hypothetically reconstructed) assumptions.¹⁰

As I mentioned in section 1, my aims here are far from providing complex methodological directives for the assessment of meaning theories. Nevertheless, I put forward some of the questions and principles I take to be useful when assessing language-models and respective assumptions about language and meaning. Mostly, they result from our considerations and can be conceived as directives for clarifying hidden or implicit assumptions behind theories of meaning. The following list can be further enriched:

0. Is the theory of meaning intra-theoretically consistent?
1. Is the language-model an empirical or an analytical theory (a set of assumptions) of a given language? Is the language modelled an empirical phenomenon or an abstract complex entity?

⁹ However, this is not a definition of the comparison of adequacy of two or more theories. Anyway, I suppose this characterization provides a fundamental condition for every methodological conception of the assessment of meaning theories.

¹⁰ I am fully aware that I should back up this statement by a detailed analysis of Russell's and Church's theoretical assumptions about language. However, I postpone this discussion to another occasion.

2. Is the model of meaning claimed to be identical with the meaning (according to a given theory) or is there a more moderate relation between them?
- 3a. If the theory of meaning works with an empirical language-model or an empirical model of meaning, the question is: Does the theory involve empirically testable claims about the language and meaning? Are these assumptions true?
- 3b. If the theory of meaning works with an a priori language-model or an a priori model of meaning, the question is: How can these a priori theoretical assumptions be justified? What would it mean for a theory to be false? How can we know it?
4. What is the range of application of the meaning theory? What types or categories of expression are its explanatory and predictive targets?
5. Given the limitations of theoretical aims, is the (more moderate) language-model or the model of meaning consistent and coherent with other language-models?
6. How well does the theory of meaning fare with explaining traditional puzzles and theoretical questions concerning different linguistic situations and phenomena?
7. Are the theoretical entities postulated necessary for explaining and predicting linguistic behaviour?
8. Is there any theoretical explanation of how do we acquire meaning or what access do we have to the semantic entities our theory postulates?

I believe these and many other questions may help to elucidate the structure of theories of meaning; this is the first step in evaluating (semantic) theories of meaning. My goal in this paper has been moderate: I tried to show that the evaluation of meaning theories can become a much more complex business when a two-level assessment distinction is adopted.

*Department of Logic and Philosophy of Sciences
Faculty of Philosophy
Comenius University
Šafárikovo nám. 6
814 99 Bratislava
Slovak Republic
bielik@fphil.uniba.sk*

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