

Semantic Compositionality, Predicates and Properties

Introduction

I present a difficulty for any view of language committed to all the following ideas:

(A) language is semantically compositional and compositionality essentially involves a correspondence between syntactic rules and semantic rules;

(B) predicates have semantic values; these values are (or are constituents of) truth-makers;

(C) what properties there are is not to be determined solely by semantic inquiry—there are no linguistic short-cuts in ontology.

(A)-(C) are somewhat vague. In adding precision, one will inevitably introduce additional ideas and constraints. But when (A)-(C) are interpreted according to some of these constraints a difficulty arises. I will show how, and discuss some strategies for solving it. I believe none of them is appealing.

About (A)

In the truth-conditional approach to semantics, compositionality takes the form of a tight connection between the forms of the sentences and the semantic rules that compose the definition of truth. The parallelism between syntactic and semantic rules is expressed by formulating each semantic rule as a conditional, where the antecedent says: ‘if the sentence is of the following form, ...’ thus making reference to a syntactic structure, while the consequent introduces the semantic rule to use in evaluating the sentence.

This involves a commitment: sameness of form implies sameness of semantic rule. All sentences of the same form, e.g., all conditionals, are to be evaluated by the same rule. It is this commitment I will be focusing on.

About (B)

I address the position that the values of predicates are among the grounds (e.g., as constituents of states of affairs) for the truth or lack of truth of statements made by using sentences in which the corresponding predicates occur (to simplify I'll talk of sentences, instead of statements).¹

My concern is not with the details of truth-making theory but with the general idea that the values of predicates will have a role to play in an account of truth-making, more precisely, that the values are to be among the entities whose existence (co-)guarantees the truth of the sentence. I restrict my attention to an interpretation of **(B)** according to which the values are universals.

About (C)

(C) expresses the view that, at best, semantic considerations are only auxiliary to the enterprise of articulating actual ontology. This attitude supports the further claim that there is no a priori reason to believe that predicates and properties match up.

The attitude can be sharpened into more precise views. For example, D. M. Armstrong embraces it in the form of *a posteriori realism* and is quite explicit in drawing from this the conclusion that predicates and properties cannot be expected to stand in a one-to-one correspondence.

The problem

A truth-conditional semantics involves a division of labor between axioms specifying the reference conditions of atomic expression and axioms specifying the semantic rules for evaluating sentences.

We need the latter because assigning Tom to 'Tom' and the property of being fat to

¹ I will also simplify the discussion by focusing only on monadic predicates and on properties (as opposed to relations).

'is fat' is not sufficient to yield the truth-conditions of 'Tom is fat'. We need a semantic rule saying that if a sentence is of the form

is

then it is true iff something is the case. The rule must mention the semantic values of the singular term and the predicate, and it must specify circumstances involving them such that when they obtain the sentence is true. A natural way to do it is by saying:

is is true iff [[]] instantiates/has [[]]

This introduces an ontological notion (instantiating/having/possessing) that is absent in more familiar formulations, e.g.:

is is true iff the object denoted by the name satisfies the predicate

Here, appeal to satisfaction is all we need in virtue of the fact that in theories containing this type of rule the axioms for the predicates, let us say for 'is fat', are stated thus:

An object satisfies 'is fat' ('is fat' is true of an object) iff the object is fat.

This, however, is not the way in which we ought to deal with 'is fat' after assuming that predicates have semantic values (properties). The axiom for 'is fat' simply assigns the property of fatness to it:

'is fat' denotes/expresses fatness²

Thus we need something like the rule I formulated above. The rule is analogous to the

² Nothing hinges on the choice between 'denotes' (or 'names') and 'expresses'. In both cases all that is meant is that fatness is the semantic value of 'is fat'. See [Larson and Segal 1995], chapter 4, for a presentation of an approach of this kind (PC^{PROP}).

rule we would employ if we decided that the semantic value of ‘is fat’ is the set of fat people:

x is true iff $x \in \{ \}$ $\{ \}$.

The nature of the predicate’s value is a constraint on the rule.

My argument is simple. According to **(A)** compositionality requires that a certain form of sentence be paired with one and only one semantic rule. By **(B)** we are induced to pair the subject-predicate form with a rule like

x is true iff $x \in \{ \}$ instantiates/has $\{ \}$

(let us call it the property rule) thus presupposing the semantic value of every predicate to be a property and its instantiation the key to the truth of the sentence. But if we adopt the attitude expressed by **(C)**, i.e., the rejection of linguistic short-cuts in ontology, we cannot be confident that this is going to make sense always, because it may very well be the case that not all predicates are plausibly taken to have a property as their value. To some of them it may be best to assign a set. That is, a set may be available as a value while no property is. In other words, the rule is ontologically committed in a way that we, forgoing short-cuts, find irresponsible and cannot endorse. A different rule, perhaps one stated in terms of set membership, would raise the same kind of difficulty. We could eschew the commitment by admitting a plurality of rules, but rule-to-rule compositionality requires that we choose only one rule.

Sensible objections

Perhaps we can reformulate the rule generally enough to avoid constrictive commitments but not so generally as to make the statement of truth-conditions too generic. This is a possible reformulation:

is true iff $[[\]]$ fulfills/meets the condition imposed by $[[\]]$

(the 'fulfillment rule').

Or perhaps we can adopt a disjunctive rule, something like

is true iff either $[[\]]$ instantiates $[[\]]$ or $[[\]]$ belongs to $[[\]]$ or ...

(the 'disjunctive rule').

Against the fulfillment rule

Suppose we were given a sentence, Tom is $[[\]]$, plus an interpretation of the language, the fulfillment rule, and knowledge of all the facts about Tom. We would not be in a position to evaluate the sentence. All the information given does not entail a specification of what condition Tom must meet in order for the sentence to be true. Notice:

- i) the property itself does not impose the condition;
- ii) there are a variety of conditions we could associate with a property; e.g., that of *having $[[\]]$ until 3001 and not having it afterwards*;
- iii) the default assumption that the condition is simply instantiating the property is not embedded anywhere in the theory.

Thus the fulfillment rule by itself is insufficient. I consider two ways to solve this problem and argue that one allows us to keep compositionality only within a theory that offers generic truth conditions, while the other leads to an extravagant syntax.

Against the disjunctive rule

Suppose we resort to the idea of a disjunctive rule:

is true iff X or Y or Z or ...

This gives us a disjunctive parallelism between syntax and semantics because it entails that either the subject-predicate structure is associated with one type of truth-condition (true iff X) or it is associated with another (true iff Y) or it is associated with another (true iff Z).

I argue that the upshot of this is an “impure” parallelism: the theory will have to distinguish between types of semantic values, and a semantic rule will be associated with a given sentence on the basis of both the form of the sentence and the type of value of its predicate. Thus we cannot set up a parallelism which on one side mentions only syntactic notions and on the other side mentions only semantic notions.

Logical form

If, e.g., *is square* and *is lucky* are associated with different semantic rules we can restore a perfect parallelism between forms and rules by assigning the two sentences different logical forms. A discussion of this strategy is beyond the scope of this paper. Two considerations about it ought to be mentioned, however: a) the move is clearly ad hoc and b) there is no independent syntactic motivation for postulating a difference between the logical forms of sentences of the above form.

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