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Truth Conditional Semantics and Meaning

E Lepore, Rutgers University, Piscataway, NJ, USA

From the early 20th century, beginning with the revolutions in logic begun by the German mathematician Gotlob Frege and the English philosopher Bertrand Russell, until the present, philosophers have speculated about the notion of meaning. A variety of such notions are in general use: natural meaning, as in 'smoke means fire' or 'those spots mean measles'; conventional meaning, as in 'a red traffic light means stop' or 'a skull and crossbones means danger'; intentional meaning, as in 'John means well,' or 'Frank means business.' Philosophical semanticists are preoccupied with a different notion of meaning, however: Linguistic meaning is involved in the utterances of 'the words "bachelor" and "unmarried man" are synonymous (have the same meaning)'; 'the word "bank" is ambiguous (has several meanings)'; 'the string of words 'colorless green ideas sleep furiously' is anomalous (has no meaning whatsoever)'; 'the sentence "All bachelors are unmarried" is analytic (true in virtue of its meaning alone)'; and more directly, 'what "La neve e' bianca" means is that snow is white.'

One problem surrounding linguistic meaning concerns its dual roles. The meaning of a word reaches out, as it were, into the world, but also retains an inwards relation to other words. The meaning of 'tomato' is related both to the world – tomatoes – and to other words it combines with, as in, 'Tomatoes are a fruit'; 'Are tomatoes a fruit?' 'Get me a tomato!' Whatever else meaning involves, these two diverse roles are essential. For if one knows the meaning of 'tomato,' one grasps how it applies to the world and also how to employ it in indefinitely many sentences – a phenomenon labeled the productivity (or creativity) of language.

Compositionality is invariably invoked to explain productivity: the meaning of a complex linguistic expression is a function of the meanings of its parts. Differences in meaning between 'A tomato is better than an apple' and 'An apple is better than a tomato'

are due solely to the manner in which the sentences are composed. In this regard linguistic meaning differs from other sorts of meaning. A red skull and crossbones doesn't mean *stop danger*; smoky spots don't signify *enflamed measles*; if John both means well and means business it doesn't follow he means good business.

Finite beings never have entertained nor will entertain or use more than finitely many sentences, but just as 'A tomato is better than an apple' and 'An apple is better than an orange' are sentences, so too is 'A tomato is better than an apple and an apple is better than an orange'; and just as 'The apple is rotten' is a sentence, so too is 'The apple that fell on the man is rotten,' 'The apple that fell on the man who sat under a tree is rotten,' and so on with no obvious end. Because our language includes devices of grammatical conjunction and relative clause construction, we are able to form new sentences from old ones. Whatever meanings are, they must fit together in accordance with the compositionality principle. The project becomes to settle on basic word meaning and to let sentence meaning be composed from simpler components.

Philosophers have tended to fix on one of the two main aspects of meaning to the detriment of other. A theory of meaning – a semantic theory – must explain how a word can perform both of its functions. So, for example, John Locke, the 17th century empiricist, concentrated on the inner aspects of meaning. For him meaning is mental; we use language to encode thought. Successful communication involves correctly decoding words heard into their corresponding associated ideas. So construed, the meaning of an expression is the idea associated with it in the mind of anyone who knows and understands the expression.

But focusing on inner aspects of meaning raises some issues. Suppose your idea of grass is associated in your mind with your idea of warm weather; would it follow that 'grass' has the idea of warm weather as part of its meaning, at least for you? This focus also ignores the public nature of meaning. We learn the meaning of words from others, and once conversant, we can determine whether others successfully understand us. If meaning is an associated idea, how does anyone learn it? Then there is the matter of compositionality. Suppose a speaker associates with the complex expression 'brown cow' the idea of fear; he is not, however, fearful of cows or brown things *per se*, only the brown cows. On an ideational semantics, the meaning of 'brown cow' is not predictable from the meanings of its parts.

In an effort to render meaning public, B. F. Skinner hypothesized that the correct semantics for a natural language is behavioristic: the meaning of an expression is the stimulus that evokes it or the response it evokes, or a combination of both, at the time it is uttered. The meaning of 'Fire!' might be as it were to run. But a fireman, or a pyromaniac, or an audience of a known liar or a play doesn't run when she hears 'Fire!' Does it seem plausible that such individuals mean something different by 'Fire!' than those who run do? Then too there is the persistent worry over compositionality. Suppose a speaker recoils when he hears 'brown cow' but not when he hears 'brown' or 'cow' alone. The terms' meaning then would be undetermined by the meanings of its parts. How then does a speaker learn its meaning and the meaning of indefinitely many other expressions that can host it?

Bertrand Russell, following J. S. Mill, pursued the intuition that linguistic items are signs of something other than themselves. He suggested that the meaning of an expression is what that expression applies to, thus removing meaning from the minds and bodies of its users and placing it squarely in the world. On a referential semantics, all that one learns when one learns the meaning of 'tomato' is that it applies to tomatoes, and to nothing else. The semantics is compositional: if 'red' applies to anything red and 'tomato' applies to any tomato, 'red tomato' applies to red tomatoes.

But what about words that apply to nothing, like the term 'unicorn'? What about the serious problem first pointed out by Frege, that two expressions may have the same referent without having the same meaning? For example, 'Samuel Clemens' and 'Mark Twain' name the same author, but they aren't synonyms. As Frege noted, one could believe that Mark Twain wrote *Tom Sawyer* yet disbelieve Samuel Clemens did, without being irrational. Some authors, e.g., J. S. Mill and S. Kripke, conclude that proper names lack meaning. After all, if one does not know the referent of a name, one does not reach for a dictionary but rather an encyclopedia. But the problem persists even for common nouns – paradigmatic meaningful expressions. The descriptions 'the 41st president' and 'the husband of Hillary Clinton' apply to the same person but are not synonymous. One can understand both without recognizing that they apply to the same individual. But if meaning is what one learns when one learns an expression and if meaning is reference, then we have a problem.

In the seminal semantic theory of Frege, inner and outer aspects of meaning are inextricably bound. Frege associates with each expression a referent. The referents of these parts contribute systematically to the truth or falsehood of sentences in which they occur. Thus the truth or falsehood of 'The 41st president is a Democrat' is determined by the referents of

its individual words and the way they are put together. Its overall significance is fixed by what the parts of the sentence 'stand for' in the world and by relations between those parts. It follows that if a word is replaced in a sentence with another having the same referent, its truth or falsehood will not change. So the outer condition is secured. But now worries about the inner aspects of meaning arise. If you believe that the 41st president is a Democrat, it doesn't follow you will believe that the husband of Hillary Clinton is one. So 'You believe that the 41st president is a Democrat' will be true, while 'You believe that the husband of Hillary Clinton is a Democrat' will be false. If meaning determines truth or falsity, meaning must involve more than reference.

Frege accounts for this problem with senses. The sense of an expression is, intuitively, not what is referred to by an expression but the way in which it is referred to. Each sense determines one reference, but to one reference there may correspond many senses. Central to his view is that senses are abstract objects and not ideas in people's minds as per Locke. The two belief sentences above can disagree in truth value because, although both are about Bill Clinton, they pick him out in distinct ways.

Frege doesn't address how we explain the reference of words. A natural albeit vague answer is in terms of the psychological capacities of users of a language: words mean what they do because of what speakers do with them. An example of this semantics is the logical positivism of the Vienna Circle in the 1920s and 1930s, according to which the meaning of a sentence is given by an account of what it would take to verify it.

The basic idea behind verificationism is that meaning must be a result of links between language and experience: some sentences have meaning because they are definable in terms of other sentences, but ultimately basic sentences, the observation sentences, have their meaning because of their direct connection with experience (in this case being reports of it rather than copies). The connections between the world and language come down to a connection between observation sentences, on the one hand, and experience, on the other. Speakers, then, refer to whatever objects they would identify as the referents, whether by description or by recognition. Although the circumstances under which 'triangular' and 'trilateral' apply are the same, speakers go about *verifying* those applications in different ways. This suggests that the meaning of an expression is determined by the verifiability of sentences containing it.

The case against verificationism was most ardently pressed by W. V. Quine in the 1950s. He followed the verificationists in linking meaning to experience, but he

argued that experience relates not to individual sentences but to whole theories. Since meaning must be empirically available, Quine poses the question: What empirical evidence determines what certain utterances mean? He contends that the only acceptable evidence is behavioral, based on the demands of the publicity of meaning, and therefore shuns Fregean senses. But behavioral evidence cannot, he argues, determine whether a person's words mean one thing or another; alternative incompatible 'translations' of the evidence are always available. And so Quine infers his famous doctrine that translation is indeterminate: no facts determine what words mean, i.e., there are no meanings.

Confronted with the skepticism about meaning produced by the indeterminacy of translation (and the later Wittgenstein's work as well), Donald Davidson in the 1960s and 1970s made a significant effort to resuscitate meaning. Sharing Quine's sympathies with an outer criterion, Davidson attempted to account for meaning not in terms of behavior but on the basis of truth, which by then had come to seem more logically tractable than meaning due to the formal work of the Polish logician Alfred Tarski. In the 1930s Tarski defined truth for formal languages in terms of the relation of satisfaction holding between the parts of sentences and sequences of objects. Truth is thereby determined systematically by the satisfaction of sentential parts; Tarski could show how to formally derive, from axioms and rules, semantic theorems that specify conditions under which any sentence of the language is true.

Frege and Davidson agree about compositionality being non-negotiable, but Davidson spurns the troublesome notion of sense and instead employs a Tarskian theory of truth to 'serve' as a theory of meaning. In outline, his idea is that a semantic theory for a language should entail for any sentence a theorem that 'gives its meaning' while respecting compositionality. But how can we devise a semantics with these consequences? Davidson's insight was to replace 'means that' in a sentence like '"La neve e' bianca" means that snow is white' with 'is true if and only if.' Tarski had already shown how to prove such theorems. By exploiting Tarski's theory of truth as a semantic theory, Davidson rendered substantive the rough but venerable idea that to give the meaning of a sentence is to give its truth conditions.

But how can a truth conditional semantics explain away the phenomena for which Frege invoked senses in order to explain in the first place? The sentences 'The 41st president is a Democrat' and 'The husband of Hillary Clinton is a Democrat' share truth conditions; both are true just in case Bill Clinton is a Democrat. But they don't mean the same. In response, Davidson suggested that in order to devise an

adequate truth theory for any given speaker who uses these sentences, we must apply the constraints of radical interpretation, particularly, the 'principle of charity' – assume that on the whole speakers are truthful. Interpretation proceeds as follows: collect sentences a speaker 'holds true,' and devise a truth theory with theorems specifying the circumstances under which these sentences were held true as a consequence. According to Davidson, any such theory will prove a sentence like '"The 41st president is a Democrat" is true if and only if the 41st president is a Democrat,' but not '"The 41st president is a Democrat" is true if and only if the husband of Hillary Clinton is a Democrat', thus solving Frege's problem.

Most semanticists in the 1980s and 1990s doubted whether a truth theory could specify the meaning of any given sentence. Many recommended adding to a truth conditional approach a conceptual role (also cognitive role, computational role, and inferential role) semantics. To understand how and why, consider the following thought experiment: suppose each of two otherwise psychologically indistinguishable speakers says, 'I am 30 years old.' The references of their utterances of 'I' differ. This shows that if the meaning of 'I' is what each speaker who uses the word grasps, then meaning does not determine reference. For if meaning determines reference, then these speakers do not grasp the same meaning and therefore they must assign distinct meanings to 'I.'

Hilary Putnam and David Kaplan independently explain this phenomenon by distinguishing the character (or stereotype) of an expression from its referent in a context of use. The character of 'I' maps any context of use onto its user. This character is grasped by anyone who understands the sentence. The utterance's content is its truth condition. When each speaker says, 'I am 30 years old,' what they know may be the same – they have the same understanding – but what each says has different truth conditions.

So far two expressions can share the same character (or stereotype or whatever corresponds to what we know in virtue of which we understand) and yet these expressions can differ in reference and truth conditions, since, as we saw above, conversely, sentences with the same truth conditions, our Bill Clinton sentences, can differ on the understanding component of meaning. What are we to make of someone who understands both sentences, yet asserts the first while denying the second? We know Frege's solution appeals to senses, and we touched upon Davidson's effort with radical interpretation. The conceptual role semanticist argues, instead, that these two descriptions have distinct computational roles for the speaker.

In sum, there are two distinct ways of semantically individuating a speaker's words: according to truth conditions **and** according to computational roles. According to the way of truth conditions, the speaker believes that Bill Clinton is a Democrat and also believes he is not a Democrat. But his rationality is not impugned, since truth conditions do not exhaust understanding. According to computational role, the corresponding beliefs expressed by utterances of these sentences are distinct, since the descriptions have distinct computational roles. When his beliefs are individuated in terms of computational roles, he does not have contradictory beliefs.

While the idea of a conceptual role for an expression has been around in philosophy for some time, what they are and what form a theory of conceptual role is supposed to take is much less clear than the form of a truth theory. For conceptual role semantics to explain how your word 'tomato' and mine can be synonymous, our words must share conceptual roles, but this is extremely unlikely. As long as there is the slightest difference between us with respect to inferences we are prepared to draw from our word 'tomato,' their conceptual roles differ. But then it is difficult to see how sense could be made of communication. If we assign different meanings to 'tomato' because our conceptual rules are distinct, there is nothing in common to be communicated. If we assign the same meaning (and so, assign the same conceptual roles), there is no need for communication. Compositionality is no easier to understand with conceptual role semantics: the inferential roles of complexes need not be determined by the inferential roles of its components – take 'brown cow' again.

For Davidson, belief and meaning are interdependent. One of the lessons he draws is that nothing can genuinely have beliefs unless it also has a public language. Many philosophers have recoiled, both because they think it is undeniable that certain nonlinguistic creatures – such as dogs and apes – have beliefs, and because they hope meaning can be explained in terms of beliefs and other mental states. One such influential semantics is H. P. Grice's, who suggested that the meanings of sentences can be reduced to a speaker's intention to induce a belief in the hearer by means of their mutual recognition of that intention.

Grice's analysis of meaning consists of various parts. It begins with a notion of speaker meaning: A speaker S means something by an utterance if and only if S intends the utterance to produce an effect in an audience A by means of A's recognition of this intention. So, e.g., I discover a person so constituted that, when I tell him that whenever I groan in a certain way I wanted him to wink; thereafter, whenever he recognizes the groan (and with it my intention), he winks. Grice's underlying idea is that I did something

('made a groan') with intentions. First, I intended to produce the utterance (the groan); second, I intended my audience to recognize the utterance; third, I intended that they should recognize my intention to produce the utterance; and fourth, I intended that they should recognize that I intended them to form some new belief (or do some action, etc.). In these circumstances, according to Grice, my groan means to wink. The place of conventional meaning in Grice's conception of language appears to be that it constitutes a feature of words that speakers might exploit in realizing the intentions referred to in the analysis of speakers' meaning.

Although Grice's program is not as popular as it once was, the general idea of reducing meaning to the psychological states of speakers is now widely accepted (*contra* Quine, Davidson, Wittgenstein, and their followers). In this sense Griceans have returned to the 17th century's emphasis on inner over outer aspects of meaning. How much, in the end, semantic properties can be attributed to features of the human mind remains a deep problem for continued study.

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Truth: Primary Bearers

S Goldberg, University of Kentucky, Lexington, KY, USA

Introduction

What are the kinds of thing that are capable of being true or false – of bearing a truth-value? This issue in metaphysics connects with central issues in the philosophy of language. As noted in Haack (1978: 79), it has been regarded as bearing on such topics as the semantic paradoxes, the motivation for many-valued logics, and the viability of Russell's theory of descriptions.

To judge by our loose talk, various kinds of thing are capable of bearing truth-value. The obvious candidates are sentences, statements, propositions, and beliefs. Suppose Sally asserts the English sentence (1):

(1) George W. Bush was president of the United States in 2003.

We might describe her as having made a true statement, as having (assertorically) uttered a true sentence, as having expressed a true proposition, or as having given voice to a true belief. But supposing that we regard truth and falsity as properties, might it not be the case that 'in the final analysis' only one candidate has these properties nonderivatively?

Consider for example the hypothesis that the truth or falsity of a belief derives from the truth or falsity of the proposition that is believed. This hypothesis can be supported by appeal to the standard analysis of the propositional attitudes. On this analysis, what is shared by, for example, the belief that Jones is in Manhattan and the desire that Jones is in Manhattan is the propositional content *that Jones is in Manhattan*. Now, if the truth of a belief derives from the truth of the proposition believed, we have a natural explanation of the phenomenon whereby the same state of affairs – in this case, Jones's presence in Manhattan – bears equally on the truth of the belief as on the satisfaction of the desire. The explanation would be that the semantic evaluation of the attitudes – their evaluation along the dimensions of truth, or satisfaction, or what have you – is in the first instance an evaluation of their propositional contents. In this way we see how we might support the hypothesis that beliefs have their truth-values derivatively.

The hypothesis that there is a primary bearer of truth-value is the hypothesis that one type of entity bears its truth-value nonderivatively. Which of the three remaining candidates – sentence, proposition, statement – fits this job description?