Two Notions of Truthfulness

Semantic idea of truth

The idea of truth has a long, fairly dramatic history, even if it was assumed that it had appeared first in the formulation by Aristotle, who said that “it is true to say about what exists that it exists, or about what does not exist that it does not exist”. I am not going to dwell upon this. I would rather start at that blissful moment when it seemed that the problem of truth had been given a definite solution. This happens rarely to philosophical problems, and also on that occasion the joy appeared to be premature, yet the concept of truth for the formalised languages, developed by Tarski raised such hopes. Tarski published his first works on this issue over sixty years ago. Since that moment the history of the notion has split into different aspects.

Firstly, there are spectacular, fully deserved, successes in metamathematics. Tarski’s suggestions initiated logical semantics, and they have provided some cognitive devices which are efficaciously applied by the mathematicians studying the basic assumptions of their domain. I am not going to go deeper into this fork of the history of the notion of truth, and if I occasionally evoke the results of the logical semantics, then only for the sake of comparison when trying to understand why a device so efficient in metamathematics turns out to be a let-down when applied to studying empirical sciences.

Neither is it my intention to try to explain the efforts of the philosophers of language who are attempting to apply the devices of semantics to natural language, and thus cut the truly Gordian knot into which truth and meaning are tangled. Such investigations are of major significance from my standpoint, for I believe that the languages of the empirical sciences are closer to the natural language than to those artificial languages of formal sciences, even in the case of “mathematised” physics. However, I do not expect much good of a formulation in which the sense of
phrases is actually identified with their object reference and the sense-makers turn out to be the equivalents of truth-makers. The object references of phrases are obviously of major importance in analysing a language, yet in my opinion it is time we resumed the well-known, as I believe, idea of connotation.

What particularly occupies my mind is the fate of the notion of truth within the philosophy of the empirical sciences. Many philosophers of science, dealing with empirical sciences, especially those of the so-called logicist movement, presupposed that the semantic notion of truth can, basically, be applied to these sciences. Behind this was an assumption, adopted explicite or implicite, that a formalised axiomatic system—a good model for formal theories—is also acceptable for the empirical theories. It was agreed that the idealisation in this case must go quite far. However, it was thought that it wouldn’t be too far and that this could be helped by minor corrections that might even improve the adequacy of the model. Thus, attempts to define the idea of approximate truth were taken up, a theory of non-monotonous reasoning was developed, there were also attempts to avert the demand for the language of the examined theory to be elementary, etc. Work based upon these kinds of assumptions is still carried out. I, myself used to write, slightly carelessly, that certain statements, eg. empirical formulas, are “true in Tarski’s sense”.

Formulating a definition of truth for a certain formalised language $L$—that is defining when a statement $\alpha$ in this language is true—is possible when a number of conditions is fulfilled. There is no possibility of discussing them here, however there is no need, either—the problem is widely known. Let me just emphasise the fact that the prime prerequisite for the success of such an undertaking is the possibility of finding a metalanguage $ML$ in which

1. it is possible both to define and to interpret (translate into $ML$) all the statements of the $L$ language;

2. the interpretations (translations) in $ML$ of the statements from $L$ are determinable, that is their truthfulness or falseness is not problematic any more.

Neither of these conditions is trivial, but I will focus on the second one only. The convention $T$ states that:

A statement $\alpha$ of the language $L$ is true iff $I\alpha ML$

only if we know the logical value of its interpretation in $ML$ ($I\alpha ML$), we know whether the latter is true or false. Because, if we now questioned the truthfulness of the statement $I\alpha ML$ formulated in the $ML$ language we would need its metalanguage ($MML$)—that is a meta-metalanguage in relation to the initial language $L$ which would have to fulfill the above conditions 1 and 2. Particularly, the logical value of its statements could not arouse any doubts, because if there were any doubts we would have to be given a meta-meta-metalanguage… and, it seems, here we would be facing a nice infinite regress.
Therefore, if in accordance with the convention, we state that:

The statement “snow is white” is true iff snow is white,
then we need to know about snow.

If we are interested in the validity of the statement, “Schizophrenia is a genetic disease”, we must know a lot about schizophrenia. It is easy to agree that the statement “Gluons transmit weak interaction” is true if and only if the gluons do transmit weak interaction, but who knows how it really works, this whole gluons things. “Logic is searching for the truth on the language tree”, said Quine; it could be added that he will not find it there because truth is the concordance of an opinion with reality, such as when we say about “what exists” that “it exists” or about “what does not exist” that it “does not exist”. The semantic idea of truth leaves us half-way; it seems to say nothing about what exists.

The situation in mathematics is different. The abovementioned issue is explained as follows. It is assumed that every mathematical theory—at least “in principle”—can be reduced to set theory in the sense that its notions can be defined, and thereby the formulas (statements) can be interpreted, in the language of set theory. Set theory is the basic core of the metalanguage in any formal theory. To put it in a simpler way, we could say that those statements of a given mathematical theory are true whose interpretation (translation) makes them into statements of set theory. Set theory has a distinguished status, it is in a sense the most rudimentary theory, “the most general ontology” of mathematical reality. The convention T can be read out here as follows:

A statement $\alpha$ of the language $L$ is true if and only if its translation into the language of set theory is a statement of that theory.

There is no danger of infinite regress in this case, because proving theorems is a completely different procedure than proving truthfulness. The question, “Is $\alpha$ true?” has been reduced to “Is the interpretation of $\alpha$ in the set theory a statement of set theory?”—and these are two different questions.

The reason why this method cannot be successful in reference to the theories of the empirical sciences is fundamental; it results from the difference between “mathematical reality” and the reality studied by the empirical sciences. A properly defined set theory object exists in “mathematical reality” (whatever we think about it), and the notions of set theory—“the ontology” of this reality—are an adequate device for investigating it. This is the theory which tells us “what exists” and “what does not exist”, and its verdict is ultimate. The empirical sciences do not have such an “ontology” at their disposal. Set theory is clearly insufficient here. Logicians and philosophers probably mention snow in their works more often than glaciologists, but it is the latter who give us some information about it, and it would be useful to find out whether what they say is true. By stating that “Snow is white” is a statement of glaciology, the issue is not concluded. This theory does not “form” the reality that it is studying—which could be rightly suspected in the case
of the formal theories—but it describes reality. Therefore, the question whether this description is in agreement with reality, i.e. whether it is true, remains valid.

The return of non-classical ideas

I am not sure how many philosophers have been discouraged by similar reflections from using the classical idea of truth. However, it is a fact that we are witnessing again the full bloom of “non-classical” concepts. And thus, for example Dummett [1] reduces the truthfulness of a statement to the conditions of its right verifiability. This concept is modified by Putnam, who understands truth as idealised, rational acceptability¹. Finally, Rorty [6] recalls the old pragmatic definition, and announces that what is good for us to believe is true.

Such solutions do not seem adequate to me. Even if we forget the difficulties with defining “idealised rationality” or “what is good for us to believe” or who is the “us” being the “standard of truthfulness”, these concepts are projecting definitions of the notion of truth. They also seem to be based upon the naturalistic error similar to the one that Moore [4] pointed out in the pragmatic definitions of the idea of “good”. Since such questions as “Is what is beneficial to us (good for us to believe) true?”, “Is the rationally acceptable true?” seem fairly natural and sensible, and the application of these projecting definitions turns them into a tautological question “Is the true true?” Moreover, I think that the ethical-pragmatic thesis saying that the best for us to believe is truth is sound and that justified assessment of the rationality of acting on the basis of checking whether accepted opinions are true.

However, the return to non-classical concepts is most often motivated by the anti-representationist attitude, the belief that it is impossible to decide whether opinions are in accord with reality, because we do not have any access to the latter. Knowledge about reality as it really is, that is about reality itself, requires a God’s eye point-of-view.

I do agree with most arguments presented by anti-representationists in their polemics against “metaphysical realism”. If representing is a relation of the (iso)homomorphism type between what is represented and what does the representing, and representationism or metaphysical realism is a philosophical standpoint according to which such a relation occurs between cognition and (objective)² reality in itself, then it is actually an impossibility unless there is a super-human standpoint.

Still, I am not convinced that rejecting the standpoint of metaphysical realism results in giving up the classical understanding of truth as the agreement of opinion with reality. Indeed, we, as human beings or merely as objects, are submerged in

¹ “[T]ruth as idealized rational acceptability” ([5], p. 41)
² Where “objective” should be understood here not only as opposite to the term “subjective” (which is usually associated with an individual and its acts, not only cognitive but also emotive and volitional ones), but also as opposite to intersubjective.
reality itself, yet we are in contact—as learning and acting objects—with reality for us, the reality trimmed to suit us. This is much more intelligible and no God’s eye is necessary to decide whether the money is really hidden behind the picture, whether yesterday’s paper is really lying on the window-sill, or whether a ring is made of pure gold. Yet judging such home truths does not consist in climbing the language tree but, rather, requires certain actions; checking whether certain states do take place, manipulating objects. And here we arrive at the second notion of truth.

Attributive truthfulness

This is the idea of truth found in such expressions as “true friend”, “false money”, “genuine diamond”, but also in phrases “this is really a planet”, “light rays that pass near the Sun really bend”, etc. The works on this subject differentiate the latter type of truthful statements and call them, after Agazzi, non-statement expression, as opposed to statement use, e.g. in “A statement α is true” or after White—attributive and the former notion—predicative, or finally—after Austin—adjusting and, respectively, descriptive. Let us stick to the definitions of attributive and predicative notions of truth.

Attributive notion of truth refers to objects or states and not to opinions about them. This is clearly a deflative idea—it does not describe any feature of the objects which it refers to. An object can be yellow, glittering, it can be a good conductor of electricity, have a melting point, a specific gravity, but it cannot be “true”. If, however, we say that this is “real gold”, we are trying to say that it possesses a certain, determined, expected set of features. This idea takes us beyond language, into the sphere of acting, investigating, watching and experimenting. Thus, if we read the “immortal” T-schema statement as:

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\text{The statement “Snow is white” is true if and only if the snow is really white}
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then we climb down the language tree, because deciding whether the feature of whiteness is an attribute of snow requires taking up certain actions. In this way we avoid the danger of infinite regress.

It is my feeling that the convention T involves these two notions of truthfulness: the predicative one—stating the truthfulness of sentence α, and the attributive one—stating that a state of things really is as expressed in the interpretation of statement α in the metalanguage. We do not obtain by this a definition of truth, but we can state about concrete expressions that they are true (in the predicative sense) when the metalanguage ascribes to them states of things which are true in the attributive sense.

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3 Problems connected with these two ideas of truth are discussed by Jerzy Szymura [7], [8]; this is also where references to sourcebooks can be found.
The proposal presented here requires developing and further studies, and also the idea of attributive truthfulness needs more investigation. Let us just observe that the question of whether an object α is really the X requires knowing what the constitutive features of “being X” are. Stating that something is “a real X” requires being familiar with methods which let us assert the presence of these features.

Therefore, employing the notion of attributive truthfulness, we must move within a recognised area, within the domains where, as Hacking [2] calls it, final truth of the matter is possible. Such a domain is definitely the reality of common experience, “trimmed” to suit creatures who are initially physical objects placed somewhere on the scales of values, complexities, energy; then organisms adequately equipped biologically, reacting selectively to the stimuli from the environment; and finally social creatures, authors of a language, culture, science, meanings and values. In this (historically changeable) reality of common experience final truth of the matter is possible; those home truths can be established.

But the reality described by science is not merely an extension of this “domesticated” reality. We do not know, for example, what it means to be “a real quark”. We have even forgotten in a way what it means to be “a real atom” if, according to Weizsäcker, they are not the smallest amounts of something existing in space, but the smallest in the sense of information, and consequently he assumes a working hypothesis that “the atom” of contemporary physics is two-dimensional Hilbert space undergoing the so-called SU2 symmetries ([9], pp. 150, 151). Despite this, however, it would be a cliche to state that science refers to the reality of direct experience and the very reality is the ultimate arbiter deciding the correctness of theoretical structures. We can assess empirical theories as true, however not in such a way that we decide about the truthfulness of every single theorem, but by constructing within their framework models of phenomena and by using them reaching the areas where final truth of the matter is possible. Outlining “the architecture” of science, I pointed out two such areas: the domain of empirical and the domain of closed theories (in Heisenberg’s understanding [3]). However, developing this theme would go beyond the framework of the present article.

Bibliography


4 I wrote about this a couple of times, but it is only now that the first of these articles, entitled *The Perspectives of the Philosophy of Science*, is going to be published in *Filozofia Nauki*, 2/3 (1996), 5–16.


