

The Semantic Conception of Truth and the Foundations of Semantics

Alfred Tarski

Presentation by: Austin Heath

The Objective: To give a precise definition of truth

“Our discussion will be centered around the notion of *truth*. The main problem is that of giving a *satisfactory definition* of this notion, i.e., a definition which is materially adequate and formally correct.”
(341)

Material Adequacy- The definition must conform to the way in which we naturally use the word.

“The desired definition does not aim to specify the meaning of a familiar word used to denote a novel notion; on the contrary, it aims to catch hold of the actual meaning of an old notion.”

Formal Correctness- The definition will be formalized under a group of rules which govern the language of the definition, and must conform to those rules.

“Thus, we must specify the words or concepts which we wish to use in defining the notion of truth; and we must also give the formal rules to which the definition should conform. Speaking more generally, we must describe the formal structure of the language in which the definition will be given.” (342)

Material Adequacy

*To say of **what is that it is not**, or of **what is not that it is**, is **false**, while to say of **what is that it is**, or of **what is not that it is not**, is **true**.*

Our formalized definition of truth will have to be based off of a kind of correspondence with the world in the context of declarative sentences.

And so, any definition of truth which doesn't require some correspondence to "an existing state of affairs" (343) will not be adequate. It must imply:

"The sentence 'snow is white' is true if, and only if, snow is white"

Material Adequacy

Or, more generally:

(T) *X is true if, and only if, p*

What are X and p?

X is the name of a sentence, and *p* is the actual sentence (of which X is its name)

Is this a suspicious distinction? Consider what happens when we lose the distinction:

Material Adequacy

Jesus wept. [Okay, just a declarative sentence]

Jesus wept is true. [??? - We could as just well saying “Jesus wept is furious”]

“Jesus wept” is true. [Oh. Just a declarative sentence about another declarative sentence]

The 35th verse of the 11th chapter of the Gospel of John is true. [Just another name for the same sentence, quotation-mark free!]

Material Adequacy

And so we have a jumping off point for our potential definitions of truth; in order for one to be adequate, we must be able to “use the term ‘*true*’ in such a way that all equivalences of the form (T) can be asserted”. (344)

But is this the only condition Tarski gives?

No, because Aristotle alone won't do. We need a formal definition of truth.

Material Adequacy

Application of the T-schema will get us the condition for truth of a instantiation. But we want a general definition of truth.

“The general definition has to be, in a certain sense, a logical conjunction of all these partial definitions.”

Tarski is interested in the extensions of truth semantics – the sentences in which we can apply the predicate “is true”. Hmm...

Semantic Concept of Truth

“Semantics is a discipline which, speaking loosely, deals with certain relations between expressions of a language and the objects... 'referred to' by those expressions” (345)

In particular, formal semantics- the interpretation of formal languages, which are both *exactly specified* and *formalized*.

But what about the old semantic paradoxes?

Semantic Concept of Truth

Antimony of the Liar:

(S): “This sentence is not true”

So:

'S' is true if, and only if, S is not true.

Serious contradiction here. Our formal system explodes: we can derive anything from a contradiction.

Semantic Concept of Truth

Three assumptions underlying the paradox at hand:

(I) The language of the antinomy is *semantically closed*

(II) The regular laws of formal logic hold

(III) We can formulate an empirical premise which points at the problem sentence (“*This sentence is false*”, or “*The sentence printed in this paper...*”

Now, forget about (III)...

Semantic Concept of Truth

- |Abandoning our laws of logic: Unacceptable! - To Tarski, at least...
- |And so we will abandon *semantically closed* languages.
- |What does it mean to be *semantically closed*?

Semantic Concept of Truth

“...The language in which the antinomy is constructed contains, in addition to its expressions, also the names of these expressions, as well as semantic terms such as the term '*true*' referring to sentences of this language; we have also assumed that all sentences which determine the adequate usage of this term can be asserted in the language.” (348)

Semantic Concept of Truth

What does abandoning closed semantics entail?

It means we can't talk about truth being a predicate *in a language* that applies to propositions *within that language*.

Now we get object language and meta-language!

Semantic Concept of Truth

Object language: The language of the sentences we want to call either true or false

Meta-language: The language in which we talk about the sentences of the first language

The sentence “snow is white” is true if, and only if, snow is white

Semantic Concept of Truth

- | We have the sentence; “snow is white” in both languages- the **meta-language** will have all the sentences of the **object language**.
- | The reverse isn't true- we can't say everything in the **object language** that we can in the **meta-language**
- | “the condition for the meta-language to be 'essentially richer' than the object language is that it contain variables of a higher logical type than those of the object-language

Semantic Concept of Truth

These roles are relative to one another – as long as no language contains the truth predicate for its own sentences, we can keep on going:

Semantic Concept of Truth

|Green: New meta-language (meta-meta-language)

|Blue: Old meta-language (New object language)

|Red: Old object language

|The sentence “the sentence ‘snow is white’ is *true* if, and only if, snow is white” is *true* if, and only if, the sentence “¹snow is white” is *true* if, and only if, snow² is white.¹

Some Questions

What is the relationship between *true*₁ and *true*₂ ?

Is this picture of truth inflationist, or deflationist?

A bit of explanation...

Euthyphro

...

SOCRATES:... But just at present I would rather hear from you a more precise answer, which you have not as yet given, my friend, to the question, What is 'piety'? When asked, you only replied, Doing as you do, charging your father with murder.

EUTHYPHRO: And what I said was true, Socrates.

SOCRATES: No doubt, Euthyphro; but you would admit that there are many other pious acts?

EUTHYPHRO: There are.

SOCRATES: *Remember that I did not ask you to give me two or three examples of piety, but to explain the general idea which makes all pious things to be pious.* Do you not recollect that there was one idea which made the impious impious, and the pious pious?

EUTHYPHRO: I remember.

SOCRATES: Tell me what is the nature of this idea, and then I shall have a standard to which I may look, and by which I may measure actions, whether yours or those of any one else, and then I shall be able to say that such and such an action is pious, such another impious.