

What is Truth?

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“What is truth?” Pilate asked the Master, but he didn’t even wait for an answer, because he didn’t believe in the truth. It was wrong of him.¹

You should know that the Father collects human sentences in three bags. In the right-hand bag are true, declarative sentences; in the left-hand bag are false sentences; while unclear or misleading sentences are in the middle bag. All the sentences are written on pieces of paper, and each piece of paper is marked with a name, carefully, in strict order, so that no sentence is left without a name, there are no two sentences with the same name, and each sentence occurs only once. The Father does not allow the angels to sit around with their feet dangling from the clouds. Rather than being idle, their task is to take the confusing sentences out of the middle bag and to attempt to add explanatory notes that give them a clear, solid meaning. If they succeed, the corrected sentence is repeated before the Father, who places it in the right- or left-hand bag.

Once upon a time, Lucifer wanted to annoy the Father, so he smuggled the following sentence before the angels:

(λ) This sentence, named λ , which you are now reading, will confuse you: you won’t be able to grasp it, because it’s not true, or its truth is ambiguous, or perhaps it doesn’t even have a truth value at all.

¹A shorter version of this text appeared earlier in a Hungarian-language philosophical blog: https://namitgondolsz.blog.hu/2015/02/21/isten_es_az_ordogi_mondat

The angels read the note and understood what it meant, because it was perfectly clear what this sentence was about. The devil's sentence was about itself. It didn't state the number of letters it contained, or the language it was written in, but said something about its truth. It said something strange and unusual, which was apparently simple and comprehensible—and perhaps it really was simple. The only question was, which bag should it go in? The angels sometimes made their suggestions discreetly, on the back of the piece of paper, but in this case they began arguing with each other, quarrelling so loudly that they woke the Father, who was napping on his throne. He scolded them: “Don't quarrel, just bring me the sentence and I'll decide. If what the sentence says is really clear and understandable, it must be either true or false, there's no third possibility.” Or so he thought. The truth of a sentence depends on the facts, and the fact is that the truth of the sentence is not clear, so it is as it says. But if the reality is as the sentence says, then the sentence is true, thus sentence λ is true. So we'll put it in the right-hand bag. Or will we? If the sentence λ is true, then it is as it says. But what it says is that it is not true, or that its truth is not certain, while the right-hand bag contains only incontestable truths such as “Snow is white.” This sentence isn't like that, so it can't be put in the right-hand bag. It will have to go in the left-hand bag, together with the false sentences, because there is some sense in the sentence, it's just a little tricky. Thus it isn't true that the sentence you're reading is confusing, that you can't grasp it because it isn't true or its truth is ambiguous, or it may not have a truth value. The Father had almost started looking at the next sentence when he heard Lucifer chuckle. He thought again. If the sentence is false, then it has a clear truth value that is certainly not true. However, if it is not true, then how is it possible that what the sentence says corresponds to the facts: not true, or its truth is ambiguous . . . Its truth value is not uncertain, but the other alternative is fulfilled—that is, that the sentence is not true. In which case, the entire sentence must be true and not false. We have introduced a contradiction, but now everything is clear, the sentence is neither true nor false, but is a complete absence of reason, chaos, and that is a certainty. But no! This is what the sentence says, so it is telling the truth and is therefore true. However, this has already been explored once, we're back where we came from, we've got ourselves caught in a vicious circle. But then the Father looked up from his throne and smiled quietly.

What had happened was that a certain soul by the name of Alfred Tarski had arrived for the celestial brunch and was speaking quietly to Cantor and Russell, explaining that it was not right for the Father to have only three bags. An infinite number of floors should be built above his throne, with an endless number of bags. Georg, you bring the raw materials for the infinite number of floors; and Bertrand, you build the infinite levels. And it was so. When the Father realised that the bags on the first floor contained sentences about the sentences on the ground floor, and the bags on the second floor contained sentences about those on the first floor, he gently tossed Lucifer's sentence up one floor into a bag. When he saw this, Lucifer turned away miserably. But why did the evil one concede defeat? Was Lucifer's sentence true or not? Can a convincing answer be found regarding the nature of truth? Let me explain briefly.

Language L_1 is an object language relative to language L_2 . Language L_2 is a meta-language in relation to language L_1 . The connection between an object language and a meta-language is a relation. For each object language there is a higher-level meta-language. The lowest-level object language, which is only about properties of the physical world, contains no semantic predicates. This language is denoted by L_0 .

Lucifer's sentence, called λ , is a part of the language L_1 . The Father evaluates this sentence using the language of the seraphs, a higher-level metalanguage called L_2 . In these higher-level languages we apply the True_2 and False_2 metalanguage semantic predicates, the extensions of which make up sentences with the name of the object language (L_1), thus Lucifer's sentence λ is a member of this language. The index sign of the metalanguage predicates refers to the language level. At L_1 metalanguage level, λ is neither True_1 nor False_1 . Thus in the language L_2 —applying the language of set theory—the Father claims that $\lambda \notin \text{True}_1$ and $\lambda \notin \text{False}_1$. The name of the last sentence in the higher-level language L_2 is β ($\beta = '\lambda \notin \text{True}_1 \text{ and } \lambda \notin \text{False}_1'$). According to the definition of True_2 in L_2 , the Father's sentence β is True_2 , which is convincing because the Father always tells the truth. This can be summarised in Table 1.

Language	Sentence	Truth predicate
L_0	The snow is white.	
L_1	$\lambda =$ ‘ λ sentence will confuse you, you won’t be able to grasp it, because it’s not true, or its truth is ambiguous, or maybe it doesn’t even have a truth value at all.’ $\alpha =$ ‘The snow is white.’	$\lambda \notin L_0$ so it has no Truth ₁ value. $\alpha \in L_0$ so it has Truth ₁ value, and α -is-Truth ₁
L_2	$\beta =$ ‘Lucifer’s sentence is neither True ₁ nor False ₁ .’	β -is-True ₂
L_3	$\gamma =$ ‘It is True ₂ that Lucifer’s sentence is neither True ₁ sem nem False ₁ .’	γ -is-True ₃
...

Table 1: Language levels

Following Tarski, according to the convention (T): if p is a sentence at language level n , and the name of the sentence p is x (at language level $n+1$), and p' is the translation of p at level L_{n+1} , then (at language level $n+1$) x is True _{$n+1$} if and only if p' . In other words, x is True _{$n+1$} at the $n+1$ level when the sentence x accurately corresponds to the facts.

For the theorem to hold, the reverse must also be valid: if we assert p , and x is the name of p , then x is true. The definition of truth in formal languages must be both formally correct and materially adequate; in other words, it must entail all equivalences of the form (T).

Imre Ruzsa observed that Tarski’s concept can also be formulated in a way where truth bearers are propositions rather than sentences. The truth theories of Kripke, Barwise, Belnap, and others do not contradict Tarski’s theory but serve as alternatives to it. In Tarski’s framework, the relationship between language and reality can be described at the meta-language level.

Exercises

Consider the following sentences. Which are true, which are false, and which are paradoxical? Here, a “paradoxical” sentence refers to an unstable, alternating, or neither true nor false logical statement. A sentence is deemed “not well-formed” if its truth value depends on its own truth value, making it logically incoherent.

- (1) This sentence is nonsense; it has no meaning.
- (2) This sentence is paradoxical.
- (3) This sentence is not well-formed.
- (4) This sentence is not true or it is an English sentence.
- (5) This sentence is not true or it is a French sentence.
- (6) This sentence is not true or it is not a well-formed sentence.
- (7) This sentence is not true or it is a well-formed sentence.

According to Frege, the sentence “The present king of France is bald” lacks a truth value. An open question is whether the property of being paradoxical is distinct from merely having a truth-value gap. Another issue is whether a logically confused or partially ill-formed sentence can still be true. For example, consider the sentence “vgii f fifif i or snow is white.” While “snow is white” is a straightforwardly true statement, the initial meaningless segment (“vgii f fifif i”) raises the question of whether it affects the truth value of the whole sentence. If part of a sentence is nonsensical, how can we be certain that the remainder is meaningful rather than also being defective in some way? The presence of a meaningless component might cast doubt on the overall interpretability of the sentence.

If statement (6) is True_1 , then it is not paradoxical, though some True_1 sentences may still be ill-formed. Otherwise, (6) constitutes a paradox, as it is neither True_1 nor False_1).

Which of the seven statements above qualifies as an instance of the strengthened Liar paradox?

Analysis

Sentence (1) asserts its own meaninglessness. If it were truly meaningless, it could not meaningfully state its own lack of meaning. This results in an implicit contradiction, making (1) paradoxical.

Sentence (2) claims that it is paradoxical. If true, it must be paradoxical, but if paradoxical, then its truth is unstable, reinforcing its paradoxical nature.

Sentence (3) states that it is not well-formed. However, for this statement to be evaluated at all, it must be well-formed, so it is false.

Sentence (4) asserts that it is either not true or is an English sentence. Since it is written in English, the second clause is true, making the entire statement true.

Sentence (5) follows the same structure as (4) but refers to being a French sentence, which is false. Thus, the truth of (5) depends on whether it is not true, making it similar to the classical liar paradox and potentially paradoxical.

Sentence (6) introduces a self-referential structure related to well-formedness. If true, then it must either not be true or not well-formed, leading to instability and potential paradox.

Sentence (7) states that it is either not true or well-formed. Since the second clause appears trivially true (as we assume the sentence has structure), the sentence as a whole is true.

The solutions: <https://sht.andrasek.hu/what-is-truth-exercises.xlsx>