Philosophy 240: Symbolic Logic

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Philosophy Friday #5: Truth and Liars

Philosophers and Truth

- Sex!

- Lots of technical work

- Semantic paradoxes

- Questions about the nature of truth and our ability to know what is true

- Today:
  - General overview of three non-technical theories of truth
    - Is truth is a property?
    - If so, what kind of property?
  - Semantic paradoxes, and their importance.
  - Tarski's solution

The Best Thing Anyone Ever Wrote About Truth

- 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, and of what is not that it is not, is true (Aristotle, *Metaphysics*, 1011b25).

- Correspondence theory of truth
  - ▸ Truth is a relation between words and worlds.
  - ▸ The truth of a sentence consists in its agreement with, or correspondence to, reality.
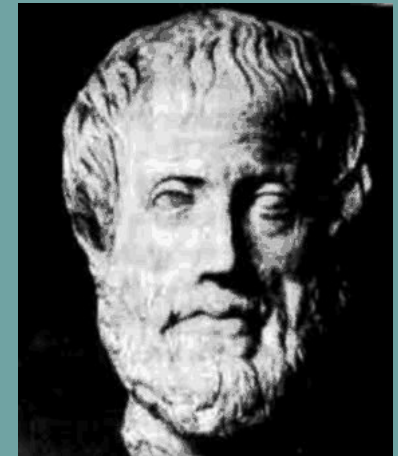
A Worry About Correspondence Truth

- We have no extra-linguistic way to apprehend reality.
- We have no access to the world as it is in itself.
- This is an epistemic problem.

Coherence Theory

The truth of a sentence consists in its consistency with other beliefs we hold.

- Different people apprehend the world in different ways, depending on their experiences, expectations, and background beliefs.

- The coherentist despairs of any method of resolving these inconsistencies among people and their beliefs.

- 'God is omniscient.'
  - ‣ If I believe in a traditional, monotheistic God, it is true for me.
  - ‣ If you do not, it is false for you.

- Coherence theories thus collapse into relativism.

Deflationary
(or Minimalist or Redundancy) Theories

there is no essence to truth

- There is no single reduction of truth to a specific property, like correspondence or consistency.
  - ▸ Correspondence and coherence theories are both inflationary.
- For the deflationist, truth is a device for simplifying long conjunctions.
  - ▸ If you said a lot of smart things at the party, I could list them all.
  - ▸ Or, I could just say, "Everything you said last night was true."
  - ▸ 'Truth' is a redundant term.

The T-Schema

- Inflationists and deflationists agree that a minimal condition for truth is the T-schema.
  - p is true iff x

- Instances of the T-schema:
  - 'The cat is on the mat' is true iff the cat is on the mat.
  - '2+2=4' is true iff 2+2=4
  - 'Barack Obama is president' is true iff the husband of Michelle Obama and father of Sasha Obama and Malia Obama is head of the executive branch of the United States of America.
  - 'El gato está en el alfombrilla' is true iff the cat is on the mat.

- Inflationists and deflationists disagree about whether the T-schema is all there is to know about truth.
  - The inflationist believes that there are explanations of the concept of truth inherent in the truth conditions on the right side of the T-schema.
  - The deflationist believes that the T-schema is all there is to know about truth, and that there is no single kind of explanation of why all sentences are true.

The T-Schema:
Sufficient, or Merely Necessary?

- Inflationists: there are explanations of truth inherent in the truth conditions on the right side of the T-schema.
  - ▸ Correspondence theorist: 'the cat is on the mat' is true because there is a cat, which corresponds to 'the cat', and there is a mat, which corresponds to 'the mat', and there is a relation, being on, which the cat and the mat satisfy, or in which they stand.

- Deflationists: the T-schema is all there is to know about truth

- Tarski introduced the T-schema in his treatment of the semantic paradoxes.
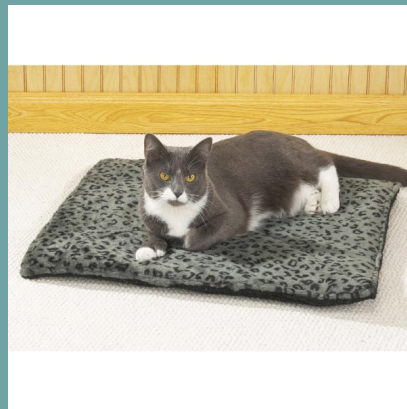
The Central Problem with Truth
The Liar

- L: L is false

- Our natural language contains the words 'true' and 'false', as predicates.

- If we include those predicates in our formal language, we can construct the liar sentence.

- If we can construct the liar sentence, we can formulate an explicit contradiction.

- Contradictions explode; everything would be derivable.

- But, we know that not every sentence is true.

- So, we can not include a truth and falsity predicates in our formal language.

Russell's Barber

- Consider the barber in a town who shaves all the men who do not shave themselves.
  - ‣ Does he shave himself?

- Russell's paradox for set theory:
  - ‣ the set of all sets that do not include themselves

- Note the reliance on self-reference.

- Russell relied on a vicious circle principle to eliminate self-referential definitions.
  - ‣ "Whatever involves *all* of a collection must not be one of that collection"; or, conversely: "If, provided a certain collection had a total, it would have members only definable in terms of that total, then the said collection has no total" (Whitehead and Russell, *Principia Mathematica*, Chapter II, p 37).

Grelling's Paradox

- Some predicates apply to themselves, whereas others do not.
  - ‣ 'Polysyllabic' is polysyllabic.
  - ‣ 'Monosyllabic' is not monosyllabic.
- Call a predicate heterological if it does not apply to itself.
  - ‣ 'Monosyllabic' is heterological.
  - ‣ 'Polysyllabic' is not heterological; it's autological.
- Is 'heterological' heterological?
- Grelling's paradox is semantic, but does not involve 'truth' or 'falsity' explicitly.
- Grelling's paradox is about meaning.

Two Solutions to the Paradoxes

S1. Introduce a third truth value for paradoxical sentences.

S2. Banish semantic terms from formal languages.

The Strengthened Liar
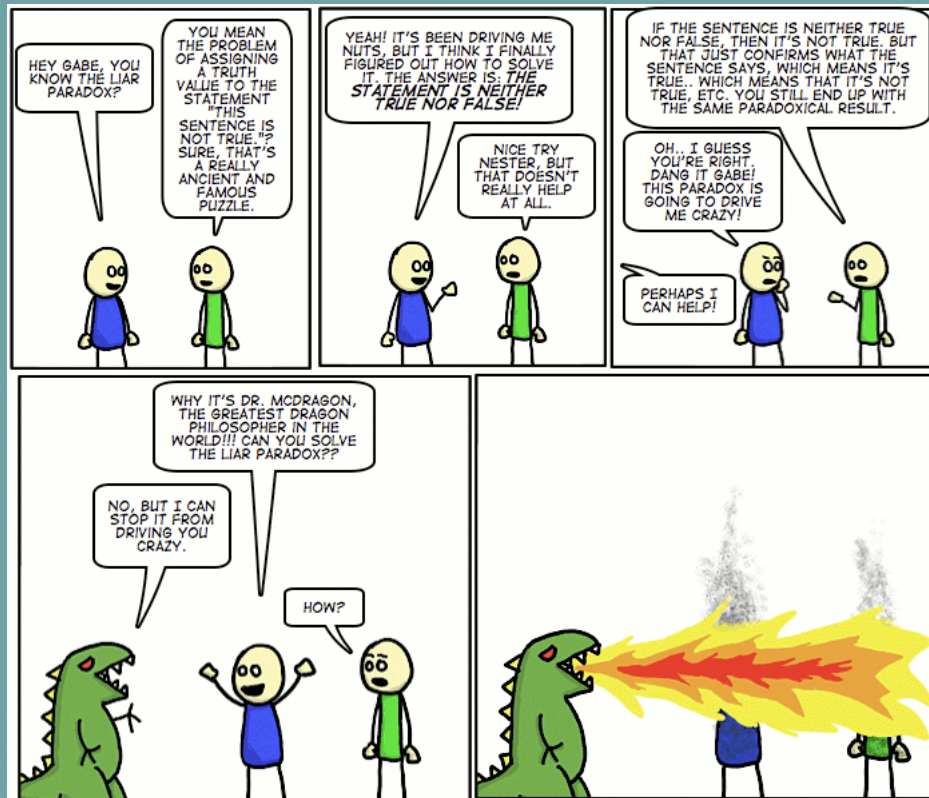
- Adding a third truth value will not solve the problem of the strengthened liar.
  - SL: This sentence is not true.

- If SL is true, then since it says that it is not true, it must be either false or indeterminate.

- If SL is false or indeterminate, then what SL says holds of itself.

- The paradox recurs.

So Much for S1

- Adding a third truth value will not solve the problem of the strengthened liar.

- Systems of three-valued logic have other flaws.
  - ‣ They either lose logical truths and valid inferences (on B and K_3);
  - ‣ Or they ascribe truth to conditional sentences with indeterminate antecedents and consequences (on L_3).

- Let's look at S2.

Tarski to the Rescue

- Tarski's theory of truth proscribes self-reference, like Russell's Theory of Types.

- Segregates object language from metalanguage

- Banishes semantic terms from the object language
  - ‣ never allow 'true' and 'false' to apply to sentences which contain semantic terms

- Allows semantic terms in the meta-language
  - ‣ they apply only to sentences of the object language

The Meta-Linguistic Theory of Truth

- We can construct theories of truth for the object language in the meta-language.

- To determine which sentences of an object language are true and which are false, we have to examine the truth conditions as given on the right hand side of instances of the T-schema.

- Instances of the T-schema are sentences of the meta-language which we can use to characterize truth for the object language.
  - ‘The cat is on the mat’ is true iff the cat is on the mat.
  - ‘2+2=4’ is true iff 2+2=4
  - ‘Barack Obama is president’ is true iff the husband of Michelle Obama and father of Sasha Obama and Malia Obama is head of the executive branch of the United States of America.

- When I want to use a sentence including ‘true’, I implicitly ascend to a meta-language to do so.
  - Everything you said last night was true.
  - All consequences of true sentences are true.

Tarski the Inflationist

- Hartry Field shows that Tarski is not a deflationist.

- To capture truth, it is not enough just to list the true and false sentences of a language.

- In order to use the T-schema as a definition of truth, we need to supplement it with an account of why we choose certain sentences to be true and not others.

- **'El gato está en el alfombrilla' is true iff the cat is on the mat.**
    - ‣ We can understand the truth conditions without understanding the Spanish sentence on the left.
    - ‣ We want to analyze the component parts of the Spanish expressions, and how they interact to form true or false sentences.
    - ‣ The T-schema, by itself, does not provide that kind of explanation.

- Tarski's construction only reduces 'truth' to other semantic notions
    - ‣ reference
    - ‣ meaning

Has Tarski Defined 'Truth'?

- He has provided a formal construction in an artificial language.

- Does it capture our ordinary notion?

- "It seems to me obvious that the only rational approach to [questions about the correct notion of truth] would be the following: We should reconcile ourselves with the fact that we are confronted, not with one concept, but with several different concepts which are denoted by one word; we should try to make these concepts as clear as possible (by means of definition, or of an axiomatic procedure, or in some other way); to avoid further confusions, we should agree to use different terms for different concepts; and then we may proceed to a quiet and systematic study of all concepts involved, which will exhibit their main properties and mutual relations" (355).

- "We may accept the semantic conception of truth without giving up any epistemological attitude we may have had; we may remain naive realists, critical realists or idealists, empiricists or metaphysicians - whatever we were before. The semantic conception is completely neutral toward all these issues" (362).

- There remain epistemic worries about our access to truth.

- Can we assess a words-worlds connection?
  - ▸ Philosophy 203