

Philosophy 240: Symbolic Logic

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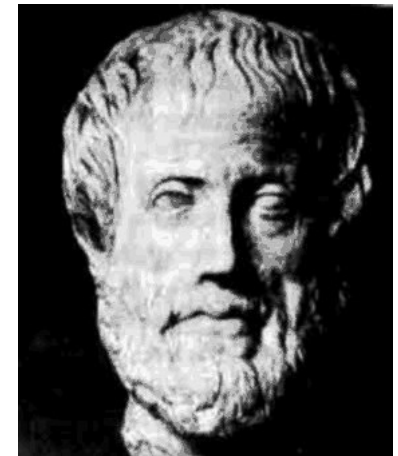
Philosophy Friday #6: Truth and Liars

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:
 - ▶ Non-technical overview of three 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

- If \sim correspondence and \sim coherence, then maybe truth isn't anything!
- Deflationism: there is no single explanation of truth in terms of a specific property, like correspondence or consistency.
 - ▶ Correspondence and coherence theories are both inflationary.
- For the deflationist, truth is mainly 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."
 - ▶ \forall
 - ▶ '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 T-Schema: Sufficient, or Merely Necessary?

- Deflationists: the T-schema is all there is to know about truth.
 - ▶ Minimalism
 - ▶ The T-schema is both necessary and sufficient for explaining truth.
- 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.
 - ▶ Coherence theorist: I have certain beliefs about cats, other beliefs about mats, some views about what it means for things to be on each other, and a perception which is consistent with the assertion that the cat is on the mat.
 - ▶ The T-schema is necessary but not sufficient.
- To decide among various theories, let's look more closely at the problems with theories of truth.
 - ▶ I.e. the paradoxes



The Central Problem with Truth

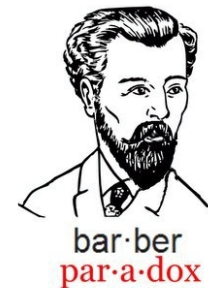
The Liar

- 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 truth and falsity predicates in our formal language.



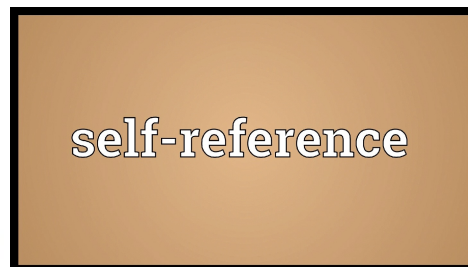
Russell's Barber

- A simple ban on truth seems not to solve the problem.
 - ▶ There are similar paradoxes which don't involve truth.
- Consider the barber in a town who shaves all the men who do not shave themselves.
 - ▶ Does he shave himself?
 - ▶ It looks a lot like the liar problem, but without truth.
- Russell's paradox for set theory:
 - ▶ the set of all sets that do not include themselves
- Banishing truth won't save us from these problems.
- Is there something else we can ban?



The Vicious Circle Principle

- Note the reliance on self-reference for the liar, the barber, and Russell's paradox.
 - ▶ L: L is false
 - ▶ The set of all sets which do not include themselves.
- 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).
 - ▶ Theory of types: sets can't be members of themselves



Grelling's Paradox

- Banning self-reference is useful, but maybe too strong.
- No paradox arises from the set of all sets which do include themselves.
- Some predicates apply to themselves, whereas others do not.
 - ▶ 'Polysyllabic' is polysyllabic.
 - Nothing wrong with the self-reference here.
 - ▶ 'Monosyllabic' is not monosyllabic.
 - Again, no problem.
- Call a predicate heterological if it does not apply to itself.
 - ▶ 'Monosyllabic' is heterological.
 - ▶ 'Polysyllabic' is not heterological; it's autological.
- Is 'heterological' heterological?
 - ▶ Uh-oh!

Tarski to the Rescue



- Tarski's theory of truth proscribes self-reference.
 - ▶ Like Russell's Theory of Types
- Segregates object languages from metalanguages
 - ▶ Object language: 'the cat is on the mat'
 - ▶ Metalanguage
 - It is true that the cat is on the mat.
 - 'The cat is on the mat' is true.
- Banishes semantic terms from the object language
 - ▶ So Tarski bans truth as well
- Allows semantic terms in the meta-language
 - ▶ They apply only to sentences of the object language.
 - ▶ The meta-linguistic theory of truth

The Meta-Linguistic Theory of Truth

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

Has Tarski Defined 'Truth'?

- He provides 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

Tarski, Inflationism, Deflationism

- Tarski's theory centers around the T-schema.
- Is it inflationary?
 - ▶ Correspondence or coherence
- Or is it deflationary?
- Hartry Field argues that Tarski is not a deflationist.
 - ▶ To capture truth, it is not enough just to list true and false sentences.
 - ▶ 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

Two Strategies for Dealing with the Paradoxes

S1. Banish semantic terms

- ▶ Utterly (Too heavy-handed?)
- ▶ Introduce a variety of languages (Tarski)

S2. Introduce a third truth value for paradoxical sentences.

- ▶ True
- ▶ False
- ▶ Neither true nor false

Kleene Semantics (K3)

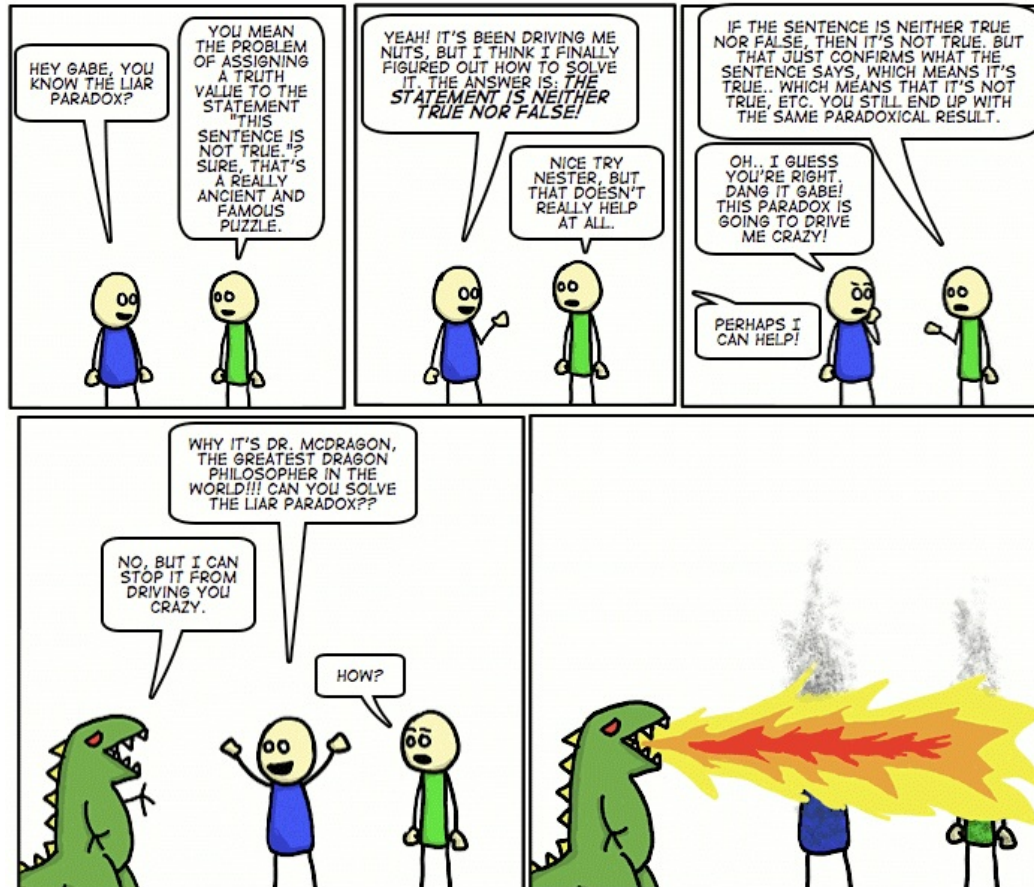
P	$\sim P$
1	0
\imath	\imath
0	1

P	\cdot	Q
1	1	1
1	\imath	\imath
1	0	0
\imath	\imath	1
\imath	\imath	\imath
\imath	0	0
0	0	1
0	0	\imath
0	0	0

P	\vee	Q
1	1	1
1	1	\imath
1	1	0
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\imath	\imath	0
0	1	1
0	\imath	\imath
0	0	0

P	\supset	Q
1	1	1
1	\imath	\imath
1	0	0
\imath	1	1
\imath	\imath	\imath
\imath	\imath	0
0	1	1
0	1	\imath
0	1	0

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.

Your Papers

- Only one more Philosophy Friday
 - There are more topics in the text
- Paper proposals are due November 16
 - Not too far off!
- Next week:
 - More on derivations
 - Test #4
 - Both translation and derivation