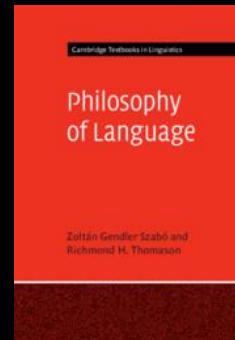# Philosophy of Language
Lecture 1: Compositionality and truth-conditionality

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CreteLing 2019
Monday, July 15

0. The class

Week 1: Philosophy of semantics
Week 2: Philosophy of pragmatics

We won't cover everything. We will skip the two historical chapters and the chapter on paradox and vagueness entirely.

0. Linguistics and philosophy

1. What is semantics?

Study of conventional meaning. We will focus on linguistic meaning – the meaning of linguistic expressions.

The conventional meaning of an expression is something competent speakers know – more or less – outside of the context in which it is used.

Most work in semantics is on the conventional meanings of expressions in functional categories. This work is tightly connected with syntax.

0. Linguistics and philosophy

2. What is pragmatics?

Study of contextual meaning. We will focus on linguistic meaning – the meaning carried by linguistic utterances in the context of their use.

The contextual meaning of an expression is something competent speakers know – more or less – provided they have proper access to the context.

Pragmatics thus understood is to be distinguished from hermeneutics – the general study of interpretation.

0. Linguistics and philosophy
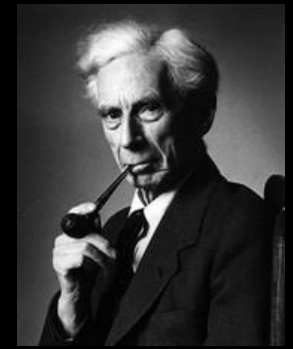### 3. What is philosophy?

From Wikipedia:

"Philosophy (from Greek φιλοσοφία, philosophia, literally 'love of wisdom') is the study of general and fundamental problems concerning matters such as existence, knowledge, values, reason, mind, and language."

… general …
… fundamental …
… problems …
… existence, knowledge, values, reason, mind, language …

0. Linguistics and philosophy
3. What is philosophy?

"… to a great extent, the uncertainty of philosophy is more apparent than real: those questions which are already capable of definite answers are placed in the sciences, while those only to which, at present, no definite answer can be given, remain to form the residue which is called philosophy."

Russell, *The Problems of Philosophy*, Ch. 15

1. Compositionality
0. The thesis

Compostionality (untamed version):

The meaning of a sentence is a function of the meanings of its parts and its structure.

sentence ↝ complex expression
parts ↝ constituents
x is a function of y ↝ there is a function from y to x

1. Compositionality

1. Prior knowledge

Query: We understand sentences we never heard before. How is that possible?

Answer: We know something antecedently that allows us to work out their meanings.
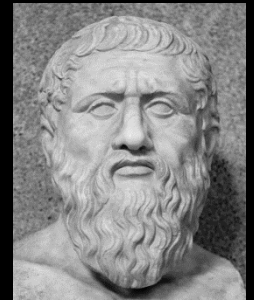
1. Compositionality
1. Prior knowledge

Query: We understand sentences we never heard before. How is that possible?

Answer: We know something antecedently that allows us to work out their meanings.

In the *Meno*, Plato wonders how inquiry is possible at all. Either we know something, or we don't. If we do then there is no need for search; if we don't then we don't know what to search for.

Plato's solution is that learning requires tacit knowledge: to be ignorant is to be temporarily unable to recall something already in our mind.

1. Compositionality
2. The minimal assumption

What is this tacit knowledge? To understand a new expression one must know its structure and the meanings of its constituents. The minimal assumption is that these are enough, and hence, that the meaning of the expression must be a function of these two factors.

Compositionality (first pass):

There is a function that maps the complete structure and the meanings of the ultimate constituents of any complex expression onto its meaning.

1. Compositionality

3. The argument from productivity

Since competent speakers can understand a complex expression e they never encountered before, it must be that they (perhaps tacitly) know something on the basis of which they can figure out, without any additional information, what e means. If this is so, something they already know must determine what e means. And this knowledge cannot plausibly be anything but knowledge of the complete structure of e and knowledge of the individual meanings of the ultimate constituents of e.

This is an argument to the best explanation.

1. Compositionality
4. Empirical claim

Suppose we stipulate that whenever it rains at the location of an utterance of the sentence Elephants are gray, the sentence shall mean on that occasion that it's always hot in Greece while retaining its usual meaning on all other occasions. Let's also stipulate that this is the only difference between English and our new language, Rain-English.

Rain English is not compositional: the meaning of Elephants are gray varies with the weather while its complete structure and the meanings of its ultimate constituents stay the same.

Rain English is learnable: you have already learned it!

1. Compositionality

5. What the argument fails to show

Semanticists often assume a stronger compositionality claim: that there is a function that maps the immediate structure and the meanings of the immediate constituents of any complex expression onto the meaning of that expression. This is unsupported by the usual argument for compositionality.

Semanticists also often assume that competent speakers in fact understand complex expressions by ascertaining their structure and the meanings of their constituents. But the usual argument for compositionality only shows that they can, in principle, understand them in this way.

1. Compositionality

6. Meaningless morphemes and idiomatic phrases

Some simple constituents (e.g. agreement morphemes) are arguably meaningless. Let's construe compostionality as not requiring that every constituent has a meaning.

Some complex constituents (e.g. idiomatic phrases) cannot be understood by those who have never heard them before. Let's construe compositionality as ignoring them.

Compositionality (second pass):

There is a function that maps the complete structure and the meanings of the meaningful ultimate constituents of any complex non-idiomatic expression onto its meaning.

1. Compositionality
7. Context

Conventional meaning does not depend on context. But what if we want to state compositionality in a way applicable to contextual meaning?

It is more than 30 ^{o}C here, but not here

This seems like a contradiction, but it could be true if the speaker steps out of an overheated room after she utters the first occurrence of here but before she utters the second.

Compositionality (third pass):

There is a function that maps the complete structure and the meanings of the meaningful ultimate constituents of any complex non-idiomatic expression in their respective contexts onto its meaning in its context.

1. Compositionality
8. Explanation

Can semantics explain linguistic meaning? Most philosophers and many linguists think not. On their view, semantics tells us what expressions of a language mean but remains silent on why they mean what they do.
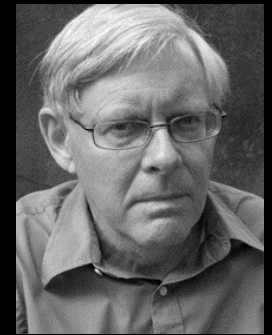
1. Compositionality
8. Explanation

Can semantics explain linguistic meaning? Most philosophers and many linguists think not. On their view, semantics tells us what expressions of a language mean but remains silent on why they mean what they do. Some, however, disagree:

"A descriptive-semantic theory assigns semantic values to the expressions of the language, and explains how the semantic values of the complex expressions are a function of the semantic values of their parts."

Stalnaker, 'Reference and Necessity'

Explanatory compositionality:

Non-idiomatic complex expressions have their meanings in virtue of the meanings of their meaningful ultimate constituents and in virtue of their complete structure.

2. Truth-conditionality
0. The thesis

Truth-conditionality (untamed version):

The truth-conditions of a sentence are a function of its meaning.

sentence ⤳ declarative sentence
x is a function of y ⤳ there is a function from y to x
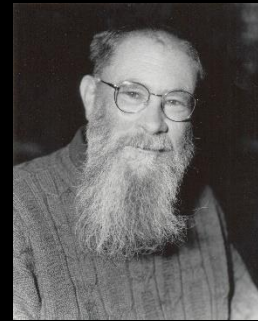
But what exactly are truth-conditions?

2. Truth-conditionality

1. The threat of triviality

The truth-value of a sentence depends on its meaning and a variety of other factors.

2. Truth-conditionality
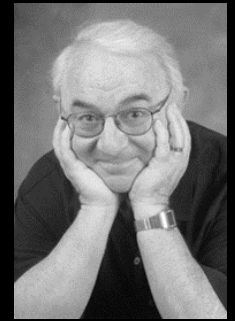## 1. The threat of triviality

The truth-value of a sentence depends on its meaning and a variety of other factors.

On one a fairly standard definition (employed, for example, by David Lewis), truth-conditions are a function from all those factors to truth-values. If so, Truth-conditionality is trivially true – truth-conditions depend on nothing but the meaning of the sentence.

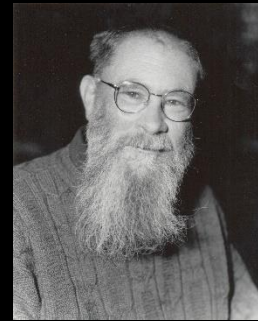# 2. Truth-conditionality
1. The threat of triviality

The truth-value of a sentence depends on its meaning and a variety of other factors.

On one a fairly standard definition (employed, for example, by David Lewis), truth-conditions are a function from all those factors to truth-values. If so, Truth-conditionality is trivially true – truth-conditions depend on nothing but the meaning of the sentence.

On another fairly standard definition (employed, for example, by David Kaplan), truth-conditions are a function that maps all those factors minus the ones fixed by context to truth-values. If so, Truth-conditionality is trivially false – truth-conditions depend on something (i.e. context) besides the meaning of the sentence.

2. Truth-conditionality

2. Conditions of what?

The cat is on the mat

First try: The truth-conditions of this sentence are the conditions of the world under which the sentence is true.

But the world is too big: it fixes the meaning of the sentence and the context of utterance.

Second try: The truth-conditions of this sentence are the conditions of its subject-matter under which the sentence is true.

2. Truth-conditionality

3. Fixing the thesis

Truth-conditionality (improved version):

The truth-value of a sentence is a function of its subject-matter, its meaning, and the context of its utterance.

2. Truth-conditionality
4. Underdetermination

Many philosophers insist that this improved version of Truth-conditionality is substantively false – they claim that subject-matter, meaning, and context underdetermine truth-conditions.

Ali went to the gym   [into vs. near]
Bill didn't have fish for dinner   [eat vs. order]
Camila destroyed her shoes   [blemished vs. ruined]
Daphne owns a dangerous dog   [attacks vs. infects]
Eliana is a philosopher   [employment vs. temperament]

Some (but not all) of these examples fall under the heading of polysemy.

2. Truth-conditionality
5. Relativism

Licorice is tasty

According to relativists, whether this claim is true depends on who assesses it: if licorice tastes good to you then the claim is true as assessed by you, if it does not taste good to me then the claim is false as assessed by me. When you say that licorice is tasty and I say that you are wrong we disagree. Yet neither of us is in error, since that claim is true by your lights and false by mine. Our disagreement is faultless.

Thus, according to relativists, the truth of this sentence depends not only on its subject-matter, its meaning, and the context of its utterance – it also depends on the context of assessment.
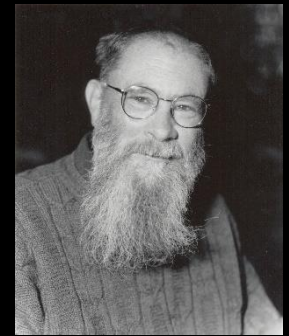
3. Semantic values

1. Modeling meaning

"In order to say what a meaning is, we may first ask what a meaning does, and then find something that does that. A meaning for a sentence is something that determines the conditions under which the sentence is true or false. It determines the truth-value of the sentence in various possible states of affairs, at various times, at various places, for various speakers, and so on ... What sort of things determine how something depends on something else? Functions, of course; functions in the most general set-theoretic sense, in which the domain of arguments and the range of values may consist of entities of any sort whatever, and in which it is not required that the function be specifiable by any simple rule."

David Lewis, 'General Semantics'

3. Semantic values

2. Extensional semantics

The simplest model for meaning will (i) identify sentence meanings with truth-conditions and (ii) reduce the contextual factors on which truth-value depends to nil. This means that the semantic values of sentences are truth-values. We can then take the semantic values of proper names (PN) to be their bearers and the semantic values of common nouns (CN) the set of things of which they can be truthfully predicated.

$[\![\text{Lea}]\!] = \text{Lea}$
$[\![\text{orthodontist}]\!] = \{x : x \text{ is an orthodontist}\}$
$[\![[_{VP} \text{is a(n) } CN]]\!] = [\![CN]\!]$
$[\![PN \ VP]\!] = \text{true if } [\![PN]\!] \in [\![VP]\!], \text{false otherwise}$

3. Semantic values

3. The substitution argument

Suppose all and only orthodontists are insomniacs. Then, if we use extensional semantics, ⟦orthodontist⟧=⟦insomniac⟧. But if on some exoplanet in a far-away galaxy, or at some forgotten time in ancient past, or in some bizarre possible world there happens to be an orthodontist who sleeps well then substituting insomniac for one of the occurrences of orthodontist in the following sentences changes them from false to true.

Somewhere, there is a orthodontist who is not a orthodontist
Once, there was a orthodontist who was not a orthodontist
Possibly, there might be a orthodontist who is not a orthodontist

These are violations of compositionality, so we need semantic values richer than extensions.

3. Semantic values
4. Metaphysical presuppositions

Objection: Many would complain that if there is a orthodontist who is not an insomniac, no matter how far away, orthodontist and insomniac cannot have the same extension. Some would also say that the extensions must differ if there was a time when there was a orthodontist who was not an insomniac. And a few—notably, David Lewis—would insist that the mere fact that there could be a orthodontist who is not an insomniac is enough to rule out the extensional equivalence of orthodontist and insomniac.

Reply: This all depends on your metaphysics – what you take to be real. Suppose you belong to the current metaphysical majority: you think spatially or temporally distant orthodontists are real, but modally distant ones are not. Then sentences containing somewhere or once are straightforward for you, but the ones containing possibly still pose a compositionality problem. You will switch to a semantics where semantic values are intensions (functions from possible worlds to extensions).

4. Summary

- Compositionality and truth-conditionality are the two basic principles of contemporary semantics. Neither is uncontroversial.

- What is supported by the usual argument for compositionality – the productivity argument – is much weaker than what is usually assumed in semantics.

- Truth-conditionality is either trivially true or trivially false unless it appeals to the notion of subject-matter.

- What semantic values we assign is determined in part by compositionality and truth-functionality. The choice also depends on metaphysical assumptions.

the end (for now)