

# Theories of propositions

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In this course we'll be concerned with various attempts to explain how propositions get to be the contents of various kinds of putative bearers of content — like sentences of natural languages and internal states of thinkers. We'll begin by talking about some reasons for thinking that there are such things as propositions, and some different views about their nature.

## 1 Commitment to propositions

The commitment of our ordinary talk to the existence of propositions is often illustrated by sentences like the following:

There are three things that John believes about Indiana.

Those two sentences mean the same thing.

There are many things which are true but which no one knows.

There are many necessary truths which are not a priori.

Another way to bring out the commitment of ordinary language to propositions is to note the apparent validity of inferences of the following sort involving sentences which include that-clauses:

John said that January is boring.

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There is something that John said.

The truth of these sentences, and the validity of these inferences, seem to indicate that there are entities which are believed, entities which are the meanings of sentences, entities which are true or false, and entities which are necessarily true. Further, our way of talking about these things indicates that there is just one kind of entity which plays all of these roles:

There are three things that John believes about Indiana, and they are all false.

There are many necessary truths which are not a priori, and my favorite sentence expresses one of them.

To get an A you must believe everything I say.

‘Proposition’ is introduced as a name for whatever it is that plays all of these roles:

- Bearers of truth and falsity.
- The objects of propositional attitudes, like belief.
- What is expressed by sentences (relative to contexts of utterance).

If propositions are genuinely to play these roles, then it is fairly clear that they cannot be identified with sentences or utterances. This raises the question: what sort of thing are they?

## 2 A Fregean theory of reference

One way to see the motivations for various contemporary answers to this question is to begin by sketching a Fregean theory of reference, and showing why this theory needs supplementation with a theory of propositions.

Frege’s theory of reference began as a theory of logic: it was an attempt to explain the truth-involving relations between sentences in terms of the structural features of sentences which explain their truth or falsity. The reference of an expression is, to a first approximation, its power to affect the truth-value of sentences in which it occurs.

The foundation of Frege’s theory of reference is the idea that the reference of a proper name is an object. The reference of a predicate is then something which combines with an object to yield a truth-value — so (though this was not quite Frege’s view) we can think of the reference of a predicate as a function from objects to truth-values. The reference of ‘is red’, for example, would be the function which delivers the value ‘true’ when given as argument an object which is red, and delivers the value ‘false’ when given as argument an object which is not red.

Given these two core ideas — that reference is power to affect truth value, and that the reference of a name is an object — what would you assign as the reference of a

relational predicate, like ‘loves’? How about an adverb, like ‘quickly’? How about a sentential connective, like ‘and’?

This is not a theory of propositions — it assigns nothing other than truth-values to sentences. But we can see how a theory of propositions might get started by asking how well a Fregean theory of reference fares as a complete theory of language. Here are some immediate problems. The first has to do with understanding and knowledge of meaning, while the latter two have to do with what determines the truth-values of certain non-atomic sentences.

1. The meaning of a sentence is what a speaker who understands that sentence knows. But it is possible to understand a sentence without knowing its truth value. So we need a theory which assigns meanings to sentences, in addition to truth-values.
2. As well as being true or false, sentences can be necessarily true or false, or contingent. If a sentence  $\lceil S \rceil$  is necessary, then the sentence  $\lceil \text{Necessarily, } S \rceil$  is true. But how could a Fregean theory of reference explain the truth or falsity of a sentence of the latter type? (What is the reference of a sentence?)
3. Similar problems are posed by propositional attitude ascriptions. How, using a Fregean theory of reference, can you explain the truth value of sentences of the form  $\lceil A \text{ believes that } S \rceil$ ?

These problems indicate that we need a theory which assigns something other than truth-values to sentences. But they can also be cast in such a way that they seem to show that we need to assign something other than a reference to subsentential expressions.

Consider, for example, the predicates ‘cordate’ and ‘renate’, which are assigned the same reference in a Fregean theory. Then we can raise analogues of the three problems above:

- i. Since a speaker who understands an expression knows its meaning, if two expressions have the same meaning, a speaker who understands both will know this. But a speaker can understand both ‘cordate’ and ‘renate’ without knowing that they apply to the same things. So a theory of meaning should, unlike a Fregean theory of reference, assign different entities corresponding to ‘cordate’ and ‘renate.’
- ii. According to an unsupplemented Fregean theory of reference, ‘cordate’ and ‘renate’ make the same contribution to the truth value of sentences in which they occur. So if two sentences differ only with respect to substitution of one of these terms for the other, they should have the same truth-value. But ‘Necessarily, all cordates are cordates’ seems to be true, while ‘Necessarily, all cordates are renates’ seems to be false.
- iii. Similar problems are posed by propositional attitude ascriptions. ‘Every student in this class believed that all cordates are cordates’ could be true, even

though ‘Every student in this class believed that all cordates are renates’ is false.

It seems clear that solving these problems will involve assigning some kind of semantic value other than truth-values to sentences, and some kind of semantic value other than their reference to subsentential expressions.

### 3 Three theories of propositions

#### 3.1 Sets of possible worlds

One response to these problems is to locate the incompleteness of a Fregean theory of reference in the fact that this theory focuses exclusively on the reference of expressions with respect to the actual world. The meaning of an expression, on this view, comprises not just the expression’s reference in the actual world, but also what the expression would have referred to, had the actual world been different.

This is the guiding idea of possible worlds semantics. If we use *extension* as a label for the reference of an expression — so that the extensions of names are objects, and the extensions of simple predicates are functions from objects to truth-values — we can introduce *intension* as a label for an expression’s reference across possible worlds. So, for example:

- The intension of a name is a function from possible worlds to objects.
- The intension of a predicate is a function from possible worlds to functions from objects to truth-values.
- The intension of a sentence is a function from possible worlds to truth-values.
- What would you give as the intension of a quantifier like ‘Nobody’? (See Lewis, ‘General semantics’, §VII)

(‘Intension’ is often used as a synonym for ‘meaning.’ But, strictly, it is a function from possible worlds to extensions; it is a matter of substantive debate whether meanings are intensions.)

Let’s see how this theory fares with the three problems for Fregean theories of reference sketched above.

1. It appears to help with the problem of saying what speakers know when they understand a sentence. For, even if a speaker who understands a sentence needn’t know its truth-value, she arguably must know what its truth-value would have been had the world been this or that way. And this is in some way to grasp the relevant function from worlds to truth-values.

2. It also helps with explaining the truth value of sentences of the form  $\ulcorner$ Necessarily,  $S\urcorner$ . We could, for example, treat ‘Necessarily’ as a function from functions from worlds to truth values to functions from worlds to truth values — i.e., as a function from sentence intensions to sentence intensions. (Which such function would it be?)

3. It also provides some help with attitude ascriptions. Perhaps we can say that an ascription  $\ulcorner A$  believes that  $S\urcorner$  says that  $A$  bears the belief relation to the intension of ‘ $S$ ’. (So ‘believes’ might be a function from ordered pairs of objects and sentence intensions to sentence intensions.)

But this view leads to a problem, which many see as the fundamental problem with possible worlds semantics. Let’s make two assumptions explicit:

*The naive relational theory of attitude ascriptions:*  $\ulcorner A$  believes that  $S\urcorner$  is true iff  $A$  bears the belief relation to the meaning of  $S$ . (We’re ignoring context-sensitivity for now.)

*The distribution of belief over conjunction:* if  $\ulcorner A$  believes that  $S$  and  $T\urcorner$  is true, then so is  $\ulcorner A$  believes that  $S\urcorner$  and  $\ulcorner A$  believes that  $T\urcorner$ .

We can then argue as follows. Let ‘ $S$ ’ be some sentence, and let ‘ $T$ ’ be a necessary consequence of ‘ $S$ ’. Then the intension of the conjunction of ‘ $S$ ’ and ‘ $T$ ’ will be the same as the intension of ‘ $S$ .’ But then, from the view that meanings are intensions and the naive relational theory of attitude ascriptions, it follows that if  $\ulcorner A$  believes that  $S\urcorner$  is true, so is  $\ulcorner A$  believes that  $S$  and  $T\urcorner$ . But, by the distribution of belief over conjunction, it follows that if  $\ulcorner A$  believes that  $S$  and  $T\urcorner$  is true, so is  $\ulcorner A$  believes that  $T\urcorner$ . So every agent believes all of the necessary consequences of everything that he believes.

This should strike you as bad. We can further bring out the badness in two ways: (1) Necessary truths are necessary consequences of everything. So, anyone who has any beliefs at all believes all necessary truths. (2) Every proposition is a necessary consequence of a necessary falsehood. So, if anyone believed a necessary falsehood, they would believe every proposition. But no one believes every proposition. So no one believes any necessary falsehoods. (For more detail on this argument, see Soames, ‘Direct reference, propositional attitudes, and semantic content.’)

#### Stalnaker’s way out

Stalnaker’s rejection of the naive relational theory, and some problems with it. (See Stalnaker, *Inquiry* for presentation and defense of the view; for criticisms see §4.3 of my ‘Is mental content prior to linguistic meaning?’)

#### Structured intensions

Lewis recognizes a version of this problem in §V of ‘General semantics’, where he notes that we are inclined to make distinctions in meaning which do not correspond to any difference in sentence intension. He suggests that these intuitions can be accommodated in his framework by thinking of meanings as ‘structured intensions’.

On this view, the meaning of a sentence is not just a function from worlds to truth-values, but rather a structured object which has as its constituents the intensions of the semantically simple units which make up the sentence. (Think of the structure as what is contributed by the syntax of the sentence.)

We could use this view to solve the above problem if we took propositional attitude ascriptions to relate agents to the structured intension of the complement sentence, rather than its intension simpliciter.

To take this way out is to significantly change the possible worlds theory. One basic question about propositions is whether they are structured things which have constituents. Many have worried that the relevant sense of ‘constituent’ is obscure. But for our purposes the relevant point is that the suggested way of making the required distinction between meanings pushes the possible worlds theorist from a view of propositions as unstructured to one on which they are structured, and have constituents.

The other two views of propositions which we’ll discuss are also in the ‘structured propositions’ camp.

### *3.2 Structured Russellian propositions*

Russell’s view of propositions has some claim to being the pre-theoretic view of propositions, if there is such a thing. A natural thought about a simple sentence, like ‘Kermit is green’, is that it predicates a property, greenness, of an object, Kermit. One way of thinking about this is that the proposition expressed by this sentence is a complex of the object, Kermit, and the property of being green. This is a Russellian proposition: a structured proposition the constituents of which are objects, properties, and relations.

It is important to distinguish Russellianism, which is a general thesis about the sorts of things that are the constituents of propositions, from various more specific views which many contemporary Russellians share. For example, many contemporary Russellians think that the meanings of ordinary simple proper names are the objects for which they stand — but this view about the correct treatment of proper names in English is not entailed by a view of propositions as Russellian. (Russell, for example, did not hold this view of ordinary proper names — he thought of them as disguised definite descriptions.)

(How would you handle quantifiers on this view? Are their contents objects or properties? How about sentential connectives?)

This view has all the resources of the ‘structured intensions’ view sketched above, since Russellian contents will determine intensions. E.g.: if the meaning of a name is the object for which it stands, then the intension of the name will be a constant function from worlds to that object (leaving aside difficult questions about how we treat these names with respect to worlds at which the object in question does not exist). If the meaning of a predicate is a universal, its intension will be a function

from worlds to the sets of individuals who instantiate the universal at that world.

Depending on one's view of properties, it might also provide finer distinctions than the structured intensions view — if there are necessarily co-extensional but distinct simple properties.

Russellianism is now probably the most widely held view about the nature of propositions.

There are at least three, metaphysics-based reasons for being skeptical about Russellian propositions:

- One is skepticism about universals — though for a nominalist like Lewis it seems that Russellianism would collapse into the structured intensions view, if properties are identified with sets of possibilities.
- Another reason for worrying about versions of Russellianism that let objects serve as the contents of names arises if you're inclined toward presentism and/or actualism. If Socrates no longer exists, then it looks, implausibly, like 'Socrates' no longer has a meaning. (For an introduction to these problems and a bibliography, see the Stanford Encyclopedia entry on 'Singular propositions.' For a development of the argument by a critic of singular propositions, see Al's paper 'On existentialism.')
- A problem based on the similarity between Russellian propositions and facts. (Russell held the 'Russellian' view of propositions, like many of his views, for a relatively short while. He held it at the time of *The Principles of Mathematics* (1903), but had given it up by the time of his 1910 collection, *Philosophical Essays*, in favor of his 'multiple relation theory of judgement', which is an attempt to do without propositions at all. See his 'On the nature of truth and falsehood', in that volume, for a development of the present objection to Russellian propositions.)

There are also objections to Russellianism that come more squarely from considerations in the philosophy of language and philosophy of mind. These typically come from proponents of Fregean views of content.

### 3.3 Structured Fregean propositions

The source of Fregean opposition can be seen by returning to the arguments that Frege gave for adding a level of sense to his theory of reference.

There are really three related arguments here, all of which purport to show that the Russellian lumps together propositions which are really distinct.

Argument from cognitive significance/Frege's criterion

1. If two sentences differ only by the substitution of synonyms, they have the same content.
  2. If two sentences have the same content, anyone who understands both will believe that one is true iff they believe that the other one is. (Frege's criterion of difference)
  3. If Russellianism is true, then 'Superman is Superman' and 'Superman is Clark Kent' differ only by the substitution of synonyms.
  4. If Russellianism is true, then anyone who understands each and believes that 'Superman is Superman' is true must also believe that 'Superman is Clark Kent' is true(1,2,3)
  5. Lois understands each, but believes that 'Superman is Superman' is true and does not believe that 'Superman is Clark Kent' is true.
- 
- C. Russellianism is not true. (4,5)

Argument from substitution failures

1. If two sentences differ only by the substitution of synonyms, they have the same content.
  2. If two sentences have the same content, they must have the same truth value.
  3. If Russellianism is true, then 'Lois believes that Superman flies' and 'Lois believes that Clark Kent flies' differ only by the substitution of synonyms.
  4. If Russellianism is true, then 'Lois believes that Superman flies' and 'Lois believes that Clark Kent flies' must have the same truth value. (1,2,3)
  5. 'Lois believes that Superman flies' and 'Lois believes that Clark Kent flies' do not have the same truth value.
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- C. Russellianism is not true. (4,5)

Argument from the transparency of meaning

1. To understand an expression is to know its meaning.
  2. If two expressions have the same meaning, then anyone who understands both will be in a position to know this.
  3. Often, we can understand two expressions without knowing whether they have the same Russellian content.
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- C. Russellian content is not meaning.

So what does the Fregean say about propositions? Fregeans agree that propositions are structured, but think that the constituents of propositions are not objects and properties, but modes of presentation of objects and properties. (This is more neo-Fregean than Fregean; Frege would have said something more like 'modes of presentation of objects and concepts'.) These modes of presentation are called 'senses',



as are the complexes built out of them. Frege also called the latter ‘thoughts.’

(Terminological note: as with ‘intension’, ‘sense’ is sometimes used as a synonym for ‘meaning’ or ‘content.’ But it is clearer to reserve ‘sense’ as a name for meaning, as construed by Fregeans. It should be a substantive question whether there are such things as senses, or whether meanings are Fregean senses.)

So what are senses? Here’s Frege’s explanation:

“The reference of a proper name is the object itself which we designate by its means; the idea, which we have in that case, is wholly subjective; in between lies the sense, which is indeed no longer subjective like the idea, but is yet not the object itself. The following analogy will perhaps clarify these relationships. Somebody observes the Moon through a telescope. I compare the Moon itself to the reference; it is the object of the observation, mediated by the real image projected by the object glass in the interior of the telescope, and by the retinal image of the observer. The former I compare to the sense, the latter is like the idea or experience. The optical image in the telescope is indeed one-sided and dependent upon the standpoint of observation; but it is still objective, inasmuch as it can be used by several observers. At any rate it could be arranged for several to use it simultaneously. But each one would have his own retinal image.” (‘On sense and reference,’ 30)

A standard Russellian complaint about senses is that they are obscure; we’re told what they’re supposed to do, but not enough about what they are.

A second, and in my view underappreciated, Russellian complaint is that they do not do the job for which they are enlisted. Salmon’s catsup/ketchup argument.