Structured Propositions and the Problem of Truth

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Sincere speakers use declarative sentences to say what they think. A sentence is true or false just in case what it is used to say is true or false. So, the investigation of language and thought requires a metaphysics of the objects of thought, known as *propositions*. According to a common picture, this investigation divides into two questions:

> "(i) What are propositions?,
>
> and, given an answer to this question,
>
> (ii) What makes those things apt to be true or false?"(Speaks 2013: 329)

The first question is often answered by saying that a proposition is a complex of objects and properties or of their representations. One natural follow up—known as the problem of unity—concerns how these diverse ingredients come together to form the proposition.[1] Recently, the second question has been taken as a crucial stumbling block for any traditional conception of propositions. This question has been treated as a renewed form of the unity problem: why are some complexes apt to be true or false while others are not? The difficulty has been taken to be so severe as to motivate a variety of conceptions of propositions as identical to or constituted by mental acts.[2]

But there is another approach to the investigation of propositions, according to which there is no problem about truth once the objects of thought are specified. Although anticipated by Frege (1918), this approach is most prominently associated with Ramsey:

> [I]f we have analysed judgment we have solved the problem of truth; [. . .] the truth or falsity of this depends only on what proposition it is that is judged[.] (1927: 158)

According to Ramsey, there is no further problem of truth because the ascription of truth to a proposition has the same content as the proposition itself.

> Truth and falsity are ascribed primarily to propositions. The proposition to which they are ascribed may be either explicitly given or described. Suppose first that it is explicitly given; then it is evident that "it is true that Caesar was murdered" means no more than that Caesar was murdered[.] (Ramsey 1927: 157)

So Ramsey thinks that S and $\ulcorner$that S is true$\urcorner$ express the same proposition. Following Künne (2003), call this the *redundancy thesis*. If the redundancy thesis is true, then to demand an explanation of what makes this proposition true just is to demand an explanation of what makes it the case the Caesar was murdered.[3]

[1] One might think of (Keller 2014) as developing these traditional worries.

[2] The problem was pressed by (2005). Broadly act based conceptions have recently been developed in Moltmann (2003), King (2007), Soames (2010), Hanks (2011), and in the contributions of King and Soames to (King et al. 2014). For criticism see Speaks's contribution to (King et al. 2014) and [AUTHOR PAPER 1].

[3] On Ramsey's own view, the objects of thought are the diverse entities that the thought is about. So Ramsey's own view is an implementation of Russell's multiple relation theory of judgment. But this aspect of his view is motivated by the original problem of the unity of the proposition and is separable from his account of truth.

But Ramsey has been charged with adopting a fully loaded *redundancy theory* of truth, according to which 'is true' is not even a genuine predicate, that "it does not play any logical role; it has no descriptive content of its own and so does not contribute to the content of what is said" (Soames 1999: 232). This leads to worries about how 'is true' functions in sentences where a proposition is not explicitly given, but merely described: ⌜something is true⌝ or ⌜everything she said is true⌝. Ramsey concedes that we cannot eliminate the predicate 'is true' from these constructions in English.

> [When] the proposition is described and not given explicitly, [...] we get statements from which we cannot in ordinary language eliminate the words "true" and "false." Thus if I say "he is always right" I mean that the propositions he asserts are always true, and there does not seem to be any way of expressing this without using the word "true." But suppose we put it thus "For all p, if he asserts p, p is true," then we see that the propositional function p is true is simply the same as p, as e.g. its value "Caesar was murdered is true," is the same as "Caesar was murdered." (Ramsey 1927: 158)

Standard interpretations attempt to understand Ramsey offering a *paraphrase* of these sentences into a language which allows propositional quantification.[4] But the grammaticality and interpretability of those constructions is questionable.

However, I propose to take seriously Ramsey's idea that 'is true' expresses a propositional function whose value is the same as the input proposition. That is,

$$[\![\texttt{is true}]\!] = \lambda p\ .\ p$$

I suggest that we take the proposition expressed by a sentence in a context to be its semantic value. Moreover, I suggest—contra leading proponents of structured propositions—that sentences are *functionally compositional*:[5] that the semantic value of a sentence is the result of applying the function denoted by one component to the argument denoted by the other component. Given this semantic framework (sketched below), S and ⌜that S is true⌝ express the same proposition.

$$[\![\texttt{that } \phi \texttt{ is true}]\!] = [\![\texttt{is true}]\!]([\![\phi]\!]) = \lambda p\ .\ p\ ([\![\phi]\!]) = [\![\phi]\!]$$

Moreover, this view delivers a very natural explanation of quantified contexts. If we follow the standard propositionalist account and take the quantifier 'something' ($\exists$) to take a propositional function as argument and yield a proposition predicating being sometimes true ($SOME$) of a propositional function, then there is no obstacle to combining the existential quantifier with the meaning of 'is true'.[6]

$$[\![\exists]\!] = \lambda g \in D_{(e,p)}\ \langle SOME, \langle g \rangle \rangle$$

$$[\![\texttt{something is true}]\!] = [\![\exists]\!]([\![\texttt{is true}]\!]) = [\![\exists]\!](\lambda p\ .\ p) = \langle SOME, \langle \lambda p\ .\ p \rangle \rangle$$

The ensuing account naturally accounts for the semantics of 'is true' in cases when it is applied to explicitly stated propositions and also to cases in which the proposition is merely described. As a result, it deflates many of the renewed worries about the unity of the proposition.

[4] The coherence of these interpretations is defended at length in (Grover 1972, 1976), (Grover et al. 1975), and (Künne 2003).

[5] I take the term from (Cresswell 2002). As King and Stanley (2005: 134) observe, standard advocates of structured propositions—(Soames 1987), (Salmon 1986: Appendix C), (King 2007: Appendix)—posit "no significant composition of semantic contents" in the mapping from a sentence to the structured proposition it expresses in context. In [AUTHOR PAPER 2], I argue that this result is undesirable, since it threatens to undermine almost the whole of contemporary formal semantics. The semantics, as sketched below, also reveals that this semantic approach is unnecessary.

[6] The following calls for two technical comments. First, the following assumes that some types (in particular individual e and proposition p) are non-exclusive. Something can be both an individual and a proposition. Second, the truth predicate—as characterized above—denotes a partial function from entities of type e to entities of type p (but a total function on entities of type p). It may take some mild finessing of types to allow it to combined with the existential quantifier: either let the existential quantifier take propositional functions whose domain is a subset of e or by allowing the propositional function expressed by 'is true' to map an individual that is not a proposition to, say, the (false) proposition that the individual is a proposition.

Semantics

CONTENTS:

Terms:

Variables: $[\![x_i]\!]^\sigma = \sigma_i$

Constants: If α is a constant, $[\![\alpha]\!]^\sigma = I(\alpha)$

Predicates:

Basic: If π is a basic n-ary predicate, $[\![\pi]\!]^\sigma = \lambda o_1, \ldots o_n \in D \ \langle I(\pi), \langle o_1, \ldots, o_n \rangle\rangle$

Complex Predicates: If ϕ is a sentence and α is a variable, then $[\![\widehat{\alpha}\phi]\!]^\sigma = \lambda o \in D \ [\![\phi]\!]^{\sigma[\alpha/o]}$

Connectives:

$[\![\wedge]\!] = \lambda q, r \in D_p \ \langle CONJ, \langle q, r \rangle\rangle$

$[\![\neg]\!] = \lambda q \in D_p \ \langle NEG, \langle q \rangle\rangle$

$[\![BEL]\!] = \lambda o \in D_e \ \lambda q \in D_p \ \langle I(BEL), \langle o, q \rangle\rangle$

$[\![\forall]\!] = \lambda g \in D_{(e,p)} \ \langle ALL, \langle g \rangle\rangle$

$[\![\exists]\!] = \lambda g \in D_{(e,p)} \ \langle SOME, \langle g \rangle\rangle$

Sentences:

Atomic: Where π is an n-ary basic or complex predicate and $\alpha_1, \ldots, \alpha_n$ are terms:

$[\![\pi\alpha_1 \ldots \alpha_n]\!]^\sigma = [\![\pi]\!]^\sigma([\![\alpha_1]\!]^\sigma, \ldots, [\![\alpha_n]\!]^\sigma)$

Molecular: Where ϕ and ψ are formulae, π is a complex predicate, and β is a term,

$[\![\phi \wedge \psi]\!]^\sigma = [\![\wedge]\!]([\![\phi]\!]^\sigma, [\![\psi]\!]^\sigma)$

$[\![\neg\phi]\!]^\sigma = [\![\neg]\!]([\![\phi]\!]^\sigma)$

$[\![BEL_\beta\phi]\!]^\sigma = [[\![BEL]\!]^\sigma([\![\beta]\!]^\sigma)]([\![\phi]\!]^\sigma)$

$[\![\forall\pi]\!]^\sigma = [\![\forall]\!]([\![\pi]\!]^\sigma)$

$[\![\exists\pi]\!]^\sigma = [\![\exists]\!]([\![\pi]\!]^\sigma)$

TRUTH:

Relation: The proposition $\langle R, \langle a_1, \ldots, a_n \rangle\rangle$, combining an n-ary relation, R, with a sequence of n objects, $\langle a_1, \ldots, a_n \rangle$ is true just in case $a_1, \ldots, a_n$ (in that order) instantiate R.

The semantics invokes specific properties and relations such as NEG, $CONJ$, ALL, and $SOME$. These call for special axioms.

$CONJ$**:** p and q instantiate $CONJ$ if and only if p is true and q is true.

NEG**:** p instantiates NEG if and only if p is not true.

ALL**:** f instantiates ALL if and only if for all a, $f(a)$ is a true proposition.

$SOME$**:** f instantiates $SOME$ if and only if for some a, $f(a)$ is a true proposition.

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