ACTS AND ALTERNATIVE ANALYSES

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Introduction

I will here present an argument against the act-type theory of propositions, the view that propositions are act types directed toward propositional constituents. This theory has a venerable history, but has also gained much attention in recent years.[1] Russellian variants of this theory typically identify the proposition that Socrates is wise with the act type of *predicating* the property of wisdom of Socrates. On a Fregean variant, it would rather be some act type directed toward the *senses* of "wise" and "Socrates", e.g., the act type of *saturating* the former sense with the latter.

Before outlining the argument, let me, by way of a very brief introduction to the act-type theory, mention three important points about it. Firstly, the way in which we are supposed to get a hold of this act type of predicating, according to contemporary advocates, is by identifying them with more familiar act types (*entertaining*, according to Soames (2010, 2015), and *judging*, according to Hanks (2011)). The question which of these alternatives is better has already generated a significant literature, but it will not concern us here, since my

[1] Notable among historical forerunners are Husserl, Meinong, and Reinach (see Moltmann and Textor (forthcoming) for a historical overview). The main contemporary texts include Hanks (2011, 2015), Soames (2010, 2015), and King *et al.* (2013). Related views are discussed in Jubien (2001) and Davis (2003).

argument does not in any way involve the idea that predication or saturation should be identified with some other act type.

Secondly, there is an intuitive objection against the act-type theory, which many take to show it to be a plain non-starter, and which I therefore had better mention here at the outset, if only to have it out of our way. The objection is that the theory is a "category mistake", since "one cannot believe an act type", "act types cannot be true or false", etc. Schnieder (2006) and Soames (2015: 25ff.) have responded at length to this objection, decisively in my view, so I will here be content to defer to these works.

Thirdly and finally, the more general spirit and point of the act-type theory is well illustrated by listing its main alleged advantages, which include its ability to

(1) solve the problem of the unity of the proposition,

(2) explain how propositions can be inherently representational and have their truth-conditions essentially,

(3) provide an attractive model of structured propositions,

(4) avoid Benacerraf problems of arbitrary identifications,

(5) explain how we can have cognitive access to propositions, and (yet)

(6) meet the Fregean demand of making propositions abstract, eternal and mind-independent (in the sense that they can exist without any minds existing).

While some aspects of the act-type theory have been explored in detail, particularly those connected with the points listed above, the question of how to develop an *act-type-theoretical compositional semantics* has mostly been ignored. This paper argues that once such considerations are brought into play, a serious problem arises.

The problem arises because many sentences have *alternative analyses* (see Dummett (1981: Chs. 15-16) for an authoritative introduction and discussion). For instance, "Mary loves John" can be seen as the result of saturating "ξ loves John" with "Mary" but also of saturating "Mary loves ξ" with "John". (Note that "saturate" is here used in a sense related to linguistic expressions, distinct from the sense intended above, related to senses.) On the most obvious semantics to accompany a Russellian act-type theory, the sentence therefore comes out as expressing both

the act type of predicating the property of loving John of Mary

and

the act type of predicating the property of being loved by Mary of John.

But since these act types are directed toward distinct entities, they are themselves distinct. Or so I will argue. Standard act-type theories are thus committed to the radical claim that this sentence is *ambiguous* (as we will see in §3, the argument easily generalizes to any atomic sentence with a polyadic predicate). As I explain further below, however, act-type theorists could avoid this conclusion by positing an additional basic act type, say, predicating*. The final argument will therefore take the form of a dilemma, one horn of which concerns standard act-type theories, and the other concerning such "pluralist" act-type theories.

§1 defends the premise that certain sentences, and the propositions they express, must be taken as having alternative analyses. §2 contains a general discussion about act-types and their linguistic designators, where I defend two principles stating identity conditions on act types that play an important role in the argument. §3 lays out the main argument in full, and

§4 presents a further argument against the pluralist. §5 discusses whether the argument generalizes to structured propositions generally, but concludes that it only sets a certain constraint on theories of structured propositions. It is shown that Jeffrey King's theory fails to meet the constraint, and is thus refuted. In §6, finally, I consider three retreat positions act-type theorists might consider in view of my argument.

1. Alternative analyses of sentences and propositions

In this section, we will see some reasons for taking certain sentences and propositions to have alternative analyses (for a similar-minded discussion, see King (2007: 16ff.)). In preparation for this, we need some special terminology. I will enclose expressions within square brackets, "[ ]" to refer to the *semantic correlate* of the expression within. On the Russellian conception of propositions, [love] will be the loving relation, whereas on the Fregean conception it will be the sense of "love". Although "semantic correlate" may on the Russellian conception seem to be the same as "semantic value", the latter term would not be neutral with respect to the Russellian-Fregean divide. For on Fregean act-type theories, we want a term covering the *sense* of a name, but the "semantic value" of a name is rather ubiquitously taken to be its referent. Better, then, to use the neutral term "correlate".

I will also say that every expression *expresses* its semantic correlate, staying neutral on the nature of this expressing relation. On the Russellian conception, the word "express" is misleading for the case of proper names, since we don't normally say that names *express* their referents. As long as we take notice of this terminological oddity, however, it should cause no confusion. I will throughout stick to this neutral notation with square brackets, "semantic correlate", and "express". Since the argument is wholly formulated in these neutral terms, it targets at once Fregean and Russellian act-type theories.

Finally, I will distinguish between *simple* predicates like "ξ runs" or "ξ = ζ", and *complex* ones, like "ξ = 3" (when saying that "ξ runs" is simple, I ignore tense and mood). The complex predicate, "ξ = 3", results from saturating (in the linguistic sense) "ξ = ζ" in its second place by "3".

Now, there are two main kinds of resistance against the idea of alternative analyses. On the one hand, one might think, with Frank Ramsey, that the very idea of alternative analyses is incoherent (1929: 118). I side with Geach (1975) and Dummett (1981: Chs. 15-16, especially pp. 264ff.), however, in holding his attitude to be ungrounded, and I do not think act-type theorists will want to defend their theory by appeal to Ramsey's claim, especially given the strong reasons for thinking that we need to accept the phenomenon of alternative analyses. What exactly are these reasons? Why couldn't act-type theorists just insist that "Mary loves John" only has one analysis, on which it is formed by the primitive expressions "Mary", "ξ loves ζ", and "John"?

The answer comes in two parts, the first being the claim that we have to acknowledge complex predicates, and the second being the claim that once we do, the phenomenon of alternative analyses is inescapable. The second part is obvious. For if there is such a predicate as "ξ loves John", we surely have to accept that it can be saturated with "Mary" to yield "Mary loves John", and similarly for "Mary loves ξ" and "John". And this is just what it is for the sentence to have alternative analyses.

The reason we need to posit complex predicates is less obvious. I think we need complex predicates for many different purposes in semantics and logic, but I will focus on an argument due to Dummett, to the effect that we need them to state certain generalizations about inferences (1981: Chs. 15-16, especially pp. 273ff.). He even argued for positing such unobvious predicates as the *monadic* predicate, "ξ killed ξ", but we will only be concerned with the less exotic examples of "Mary loves ξ" and "ξ loves John".

Here is a simple version of Dummett's argument. Take the commonplace claim that the law of substitution of identicals is truth-preserving. We could state this claim thus:

(SI) For any sentences of the forms "$a = b$", "$F(a)$", and "$F(b)$", if the first two are true, so is the third.

Here, a sentence of the form "$F(a)$" is of course a sentence formed by saturating a monadic predicate with a name. But unless we posit *complex* monadic predicates, like "ξ loves John", (SI) will not even cover such an obvious instance of (SI) as,

(SII) If "John = James" and "John loves Mary" are true, so is "James loves Mary".

This establishes that "Mary loves John" and many other sentences have alternative analyses.

Assuming propositions are structured and that there are complex predicates, we can also show there are alternative analyses of *propositions* (act-type theorists of course accept the first assumption, and the second one was established above). Given these assumptions, a sentence "$F(a)$" must be taken to express a proposition composed of the semantic correlates of "$F(\xi)$" and "a", i.e., $[F(\xi)]$ and $[a]$. Let us refer to this proposition as $f([F(\xi)],[a])$. But for a sentence like "Mary loves John", there are two choices for the respective "$F(\xi)$" and "a" here. Thus, [Mary loves John], the semantic correlate of "Mary loves John", must be identical to both f([Mary loves ξ], [John]) and f([ξ loves John], [Mary]). And what it means for a proposition p to have alternative analyses is precisely that, for this function f taking propositional constituents to propositions, p is identical with both $f(x, y)$ and $f(z, w)$, for *distinct* constituents x, y, z, w.

The idea of alternative analyses of propositions is not new. Frege writes,

> If several proper names occur in a sentence, the corresponding thought can be analyzed into a complete and unsaturated part in different ways. The sense of each of these proper names can be set up as the complete part over against the rest of the thought as the unsaturated part (1884/1979: 295).

Alternative analyses of propositions can also be established by an argument similar to the one involving (SI) above. To see this, consider how we might formulate a *propositional* analogue of (SI)? We could do so by saying that for any triple of propositions expressed by sentences of the form "$a = b$", "$F(a)$", and "$F(b)$", if the first two are true, so is the third. But it would be odd and unsatisfactory if there were not also a *direct* formulation, which avoids this detour *via* sentences.

The obvious idea is to say,

(PI) For every x, y, P, if $f_2([=], x, y)$ and $f(P, x)$ are true, then $f(P, y)$ is true.

Here, as before, f takes the semantic correlates of a monadic predicate and of a name to a proposition composed by the two, and f_2 takes the semantic correlates of one dyadic predicate and two names to a proposition composed of them. The variables "x" and "y" in (PI) range over propositional constituents related to proper names (objects or name-senses), and "P" ranges over predicative, monadic propositional constituents (properties or monadic, predicative senses). But unless "P" ranges over both simple *and complex* predicative propositional constituents, (PI) will fail to entail,

(PII) If f_2([=], [John], [James]) and f([Mary loves ξ], [John]) are true, then f([Mary loves ξ], [James]) is true.

So, we must posit complex predicative propositional constituents, and that leads inescapably to alternative analyses of propositions.

Objection: "Mary loves John" only has one analysis, on which its structure is NP-VP. Reply: This may be true in some sense, but clearly, we still need to posit "Mary loves ξ" in order for the kinds of generalizations above to be of adequate generality. Besides, it would seem to be bad enough for the act-type theorist if the relevant sentences of first-order logic come out as ambiguous, however things stand with natural languages.

2. Act types and their designators

The argument of this paper will rely heavily on certain "structural" principles about act types, which I'll introduce and defend in this section. Act-type theorists typically refer to act types using expressions of the form, "the act type of φ-ing $x_1, \ldots, x_n$". I, too, will use this schematic form to generalize over such instances as "kissing John", "giving a to b", "attaching a onto b", etc., and of course the act-type theorist's "predicating a of b" and "saturating a with b" (here and below, I leave out the apposition, "the act type of").

Expressions of the form "φ-ing $x_1, \ldots, x_n$" I call "structural, canonical act-type designators", or SCADs. SCADs are like "that"-clauses in that they have their references independently of any empirical facts, except the facts about what their constituent expressions mean (hence, "canonical"). "That"-clauses are like this, too, and thus differ from such "accidental", non-canonical proposition-designators as "what he said", which do so depend. Act types, too, can be referred to thus "accidentally": compare "killing Caesar" with "the act type Brutus is best known for (having performed a token of)".

SCADs are important for act-type theorists, partly because they are canonical in the sense above, but more so because they *contain* designators of propositional constituents, as witnessed by "the act type of predicating wisdom of Socrates", containing "wisdom" and "Socrates" (and similarly for Fregean act-type theories). SCADs thereby enable straightforward formulations of compositional semantic axioms, where the semantic correlates of names and predicates are referred to by terms contained in the designators of the semantic correlates of sentences.

The most important principle about act types for the argument to come is,

(A1) If φ-ing $x_1, \ldots, x_n$ = φ-ing $y_1, \ldots, y_n$, then
at least one of $x_1, \ldots, x_n$ is identical to one of $y_1, \ldots, y_n$.[2]

To give an intuitive feel for (A1), suppose we have four distinct bricks, *a*, *b*, *c*, and *d*. Surely, an act type directed toward *a* and *b*, e.g., the act type of laying *a* on *b*, cannot be identical with the same basic act type directed toward *c* and *d*, i.e., laying *c* on *d*. Contrapositively, if laying *a* on *b* = laying *c* on *d*, then at least one of *a* and *b* must be identical to either *c* or *d*.

If (A1) is true, then predicating the property of loving John of Mary must be distinct from predicating the property of being loved by Mary of John, since the four objects involved here

[2] I think there are equally plausible but considerably stronger variants here, like the claim which is like (A1) but whose consequent reads, "$x_1 = y_1$ & … & $x_n = y_n$". But (A1) is strong enough for my purposes.

are distinct. (A1) thereby plays an important part of the argument for the claim that act-type theorists are committed to taking "Mary loves John" to be ambiguous, i.e., to express more than one proposition. As I explain in more detail in §3, however, one might try to avoid the ambiguity claim by positing two distinct act types, say, predicating and predicating*. If so, then (A1) cannot be used to infer the ambiguity claim, since (A1) contains two occurrences of the same schematic letter, "φ". But one might think there is an equally plausible principle threatening this alternative version of the act-type theory:

(A*) If φ-ing $x_1, \ldots, x_n = \psi$-ing $y_1, \ldots, y_n$, then at least one of $x_1, \ldots, x_n$ is identical to one of $y_1, \ldots, y_n$.

With (A*), we can infer the ambiguity claim, since we here have two distinct schematic letters, "φ" and "ψ". However, (A*) is inconsistent with the plausible claim,

(ID) For every act type a, a = the act type of performing a.

plus the trivial assumption that, e.g., kissing John ≠ John. Another counter-example to (A*) is the following: say that x johnates y just in case x introduces John to y, and that x maryizes y just in case x introduces y to Mary. Now, plausibly, johnating Mary = maryizing John, even though John ≠ Mary.

Note, though, that both of these examples involve act types that somehow "overlap". Now, it is rather plausible to think that the *only* counter-examples to (A*) involve precisely such overlapping act types. We could thus qualify (A*) by requiring the act types not to overlap, and this will give us a principle that can be used in the argument against the pluralist version of the act-type theory:

(A2) If (i) φ-ing $x_1, \ldots, x_n$ = ψ-ing $y_1, \ldots, y_n$ and (ii) φ-ing and ψ-ing do not overlap, then: one of $x_1, \ldots, x_n$ is identical to one of $y_1, \ldots, y_n$.

The notion of overlapping requires some explanation. Firstly, let's say that act types *involve* other act types and objects, where this notion is governed by the schema:

(IS) The act type of φ-ing $x_1, \ldots x_n$ involves φ-ing, as well as each of $x_1, \ldots x_n$.

Of course, we cannot read off from (IS) plus the identity claim "johnating Mary = maryizing John" that johnating and maryizing overlap. But with the definitions of johnating and maryizing, we can, and this is sufficient for our purposes.

I will not be more specific about what involvement amounts to (e.g., by giving necessary and sufficient conditions for something's being involved in an act type). I take (IS) to be undeniable, since it merely a stipulation, and I note that it does not force upon us any particular view about the nature of involvement. In particular, it does not require that we see involvement as somehow mereological in character.

It would now be natural to propose that for act types to *overlap* is for there to be something they both *involve*. But given (ID), performing is involved in every act type. Hence, every act type overlaps with every other act type in this sense of "overlap". I will therefore say instead that two act types overlap just in case they involve something *not* involved in every act type. Then, if two act types fail to overlap, they are as disjoint as act types possibly can be. Now, the special case of johnating and maryizing comes out as a case of overlapping in this sense, but other examples will be far between.

To assess the plausibility of (A2), keeping this sense of "overlap" in mind, consider its contrapositive, the claim that if φ-ing and ψ-ing do not overlap, then φ-ing $x_1, \ldots, x_n$ cannot be the same as ψ-ing $y_1, \ldots, y_n$,. Suppose that φ-ing and ψ-ing do not overlap. Then, they are as disjoint as act types can be, like, say, kicking and conceiving-of. Then, surely, φ-ing $x_1, \ldots, x_n$ cannot be the same as ψ-ing $y_1, \ldots, y_n$. And this will be so independently of whether or one (or each) of $x_1, \ldots, x_n$ is identical with one of $y_1, \ldots, y_n$.

(A2) entails that if "Mary loves John" is not ambiguous, predicating and predicating* *overlap*. Thus, to avoid the ambiguity claim, adherents of this view must take predicating and predicating* to overlap. In §3, I argue that this is a dubious claim.

I said that (A1) is obvious, but some readers might not be convinced. I will here point to some possible misinterpretations of (A1) on which it will seems unobvious or even false (much of this discussion will apply equally to (A2)). Firstly, it is natural to say that laying *a* on *b* is "the same kind of act" as laying *c* on *d*, even if *a*, *b*, *c*, and *d* are distinct. As an observation about our common, lay ways of dividing up act types, this is plausible enough. But, firstly, the finer division into object-related act types surely *can* be made. Also, act-type theorists clearly *need* to make it, on pain of saying that all atomic sentences express the same proposition (on a Russellian variant, this would be the mere act type of predicating).

Doubts about (A1) might also be due to conflating

(i) *identity* with *being tokens of the same type,*

(ii) act types with act tokens,

(iii) act types with their *results*.

That these are indeed erroneous conflations will be obvious, but we do well to make them explicit, to ward off any possible confusion about (A1).

Firstly, some readers might take (A1)-(A2) to be unobvious because they read "=" as expressing the relation that holds between two things just in case they belong to the same type. Of course, it is unclear what "the type" is supposed to be here, but I am merely trying to identify a possible misreading on which the relevant identities may seem unobvious.

Secondly, some believe that a token of one act type can be identical with a token of a distinct act type. On this view, if I insult John by insulting his mother, then my insulting John will be identical with my insulting his mother. But the relevant act *types* clearly cannot be identical. This example would be a counter-example to (A1) if the SCADs are interpreted as referring to act tokens (such a reading is helped by adding an implicit variable with a possessive "s", as in, "x's φ-ing …").

Thirdly, we might easily slip into reading "saturating x with y", etc., as referring to the *result* of saturating x with y. When speaking of "saturating a predicate with a name", for instance, we tend to focus at the *results* rather than at the *act types* of doing so (where the results in question are of course linguistic expressions). On such a "result reading" of the SCADs in (A1), it is false, as shown by the following example.

Suppose we have three pieces of Lego, G, Y, and B (for green, yellow, and blue) and suppose that x^y is the *result* (not the act type) of attaching x on top of y. Here, x^y is a physical object consisting of x and y. Now, it should be clear upon reflection that (G^Y)^B = G^(Y^B). But since G^Y ≠ B ≠ G ≠ Y^B, (A1) is false under the relevant interpretation (I use "$a \neq b \neq \ldots$" to say that all of a, b, … are distinct from one another). However, the *act type* (as opposed to the *result*) of attaching G^Y on top of B is not identical with the act type of attaching G on top of Y^B. One can clearly perform a token of one without performing a token of the other. So (A1) stands.

I think this example can also be used to respond to another objection against (A1). To wit, one might object that (A1) seems plausible only so long as we focus on examples with *wholly* *disjoint* objects, whereas when we consider *overlapping* objects, things are less clear. Thus, predicating the property of being loved by Mary of John could be identical with predicating the property of loving John of Mary, after all, since these properties overlap (they both involve loving). We can respond to this objection simply by pointing to the Lego example: G^Y and Y^B clearly overlap but the relevant act types (as opposed to results) are still distinct, contrary to the objection.

3. The argument

We are now in a position to present in full detail the argument involving "Mary loves John". It will proceed as a dilemma, both horns of which turn out to lead to unattractive commitments. But let us begin by making some general observations about what an act-type-theoretic semantics must be like. Like any semantics, it will need some semantic axiom(s) showing how the semantic correlate of a complex predicate is determined by those of its immediate parts. The simplest and most uniform semantics will operate with some axiom like,

(PA) PLUG_i("$F(\xi_1, \ldots, \xi_n)$", "a") expresses $plug_i([F(\xi_1, \ldots, \xi_n)], [a])$,

where PLUG_i is a mode of combination, taking an n-place predicate "$F(\xi_1, \ldots, \xi_n)$" and a name "a" to the n-1-place predicate resulting from saturating (or "plugging") "$F(\xi_1, \ldots, \xi_n)$" in its ith place with "a". Thus, PLUG_2 takes "ξ loves ζ" and "John" to "ξ loves John", and so on.

Further, $plug_i([F(\xi_1, \ldots, \xi_n)], [a])$ is the semantic correlate of PLUG_i("$F(\xi_1, \ldots, \xi_n)$", "a"), and its nature will of course depend on whether we adopt a Russellian or Fregean conception of propositions (this "plug notation" is taken from Zalta (1988), although his account of structured propositions is not an act-type theory).

While (PA) is natural, it is not mandatory, so we should not base the argument on the assumption that act-type theorists are committed to it. And it suffices for the argument that we suppose only that they are committed to the weaker,

(P1) For any monadic predicate "$F(\xi)$" and name "a", PLUG_1("$F(\xi)$", "a") expresses $plug_1([F(\xi)], [a])$,

We are here presupposing that "Mary loves John" = PLUG_1("Mary loves ξ", "John"), and so on, but this falls directly out of the definition of PLUG_1 in terms of "saturate".

The claim that "Mary loves John" has alternative analyses can now be formalized as,

(P2) "Mary loves John" = PLUG_1("Mary loves ξ", "John") = PLUG_1("ξ loves John", "Mary").

Now, it follows from (P1) and (P2) that:

(C) (a) "Mary loves John" expresses $plug_1$([Mary loves ξ], [John]),

(b) "Mary loves John" expresses $plug_1$([ξ loves John], [Mary]).

Further, where x is the semantic correlate of a monadic predicate, any act type theorists must take $plug_1(x, y)$, to be an act type directed toward x and y. Assuming they are committed to this claim, it is tempting to infer (given (P1) and (P2)) that they are also committed to holding that, for some act type A and for any predicate "$F(\xi)$", PLUG_1("$F(\xi)$","a") expresses A-ing $[F(\xi)],[a]$. This would be fallacious, however. What follows is merely that for all predicates "$F(\xi)$", there is an act type A such that PLUG_1("$F(\xi)$","a") expresses A-ing $[F(\xi)],[a]$.

A counter-example to the inference is a case where there are two *distinct* act types, A-ing and A^*-ing, such that "Mary loves John" expresses the act type of A-ing [ξ loves John], [Mary] and the act type of A^*-ing [Mary loves ξ], [John]. Although no act type theorist has opted for such a "pluralist" semantics, we do well to show that it, too, has undesirable consequences, since it may otherwise be seen as a possible retreat position for the act-type theorist in view of my argument. This is why the argument will proceed as a dilemma.

Grabbing now the first horn, assume first that the act type theorist posits only one basic act type, which we call A-ing. He will then define $plug_1$ so that, where x is a monadic predicative propositional constituent,

$plug_1(x, y)$ = the act type of performing A toward x and y (in that order),

or, for short,

$plug_1(x, y) = A$-ing x, y.

Given these assumptions, (C) above entails

(C2) (a) "Mary loves John" expresses A-ing [Mary loves ξ], [John],

(b) "Mary loves John" expresses A-ing [ξ loves John], [Mary].

The unacceptable conclusion that "Mary loves John" is ambiguous follows from (C2) and the claim,

(≠) *A*-ing [Mary loves ξ], [John] ≠ *A*-ing [ξ loves John], [Mary],

which in turn follows from (A1) plus the trivial assumption that [Mary] ≠ [ξ loves John] ≠ [John] ≠ [Mary loves ξ].

Showing how this argument afflicts the specific views of flesh-and-blood act-type theorists like Soames and Hanks is merely a trivial exercise of suitably *instantiating* the schematic argument given above. For instance, the instantiation of (≠) relative to Soames's theory would just be

(≠I) The act type of predicating *the property of being loved by Mary* of John ≠ the act type of predicating *the property of loving John* of Mary.

Also, there is nothing further that these theorists have said that somehow helps them avoid the argument, since its premises are non-negotiable, not just commitments of this or that theorist (such considerations would just be *ad hominem* in any case). For instance, Soames's identification of acts of predication with acts of entertaining plays no role in this argument (and similarly for Hanks's view that predications are judgings).

Consider now the second horn of the dilemma, which concerns pluralism. On this view, different basic act types must be appealed to depending on whether the predicate is of the form "*R*(ξ, *a*)" or "*R*(*a*, ξ)"). Rather than (C2), pluralism is committed to,

(C2*)(a) "Mary loves John" expresses *A*-ing [Mary loves ξ], [John],

(b) "Mary loves John" expresses A^*-ing [ξ loves John], [Mary].

By (A2) plus trivial distinctness claims, we can now infer that "Mary loves John" is unambiguous only if A-ing and A^*-ing overlap. Let us now discuss this commitment.

These act types would overlap, of course, if they were *identical*, and this is a fully intelligible hypothesis. But this just brings us back to the first horn of the dilemma. Thus, we must rather consider the hypothesis that they overlap but are *distinct*. But it is difficult to see just which object or basic act type these act types are supposed to have in common. Given this uncertainty, positing two distinct act types and insisting that they overlap also seems blatantly *ad hoc*: we are positing two highly unobvious claims only to avoid the conclusion that "Mary loves John" is ambiguous (the two claims being, firstly, that there are two basic act types, A-ing and A^*-ing, and, secondly, that they overlap). To dodge this suspicion, some independent argument for this view is needed, but it is hard to see what such support might consist in. If, surprisingly, this way out should turn out viable, it would be a significant addition to standard act-type theories, and thus a significant result in any case.

We have found that on both horns of the dilemma, the act-type theorist is hard pressed to avoid committed to the ambiguity of every sentence containing a polyadic predicate. Could they bite the bullet and accept the ambiguity? Note first that such a view would go beyond the familiar view that syntactically ambiguous sentences are semantically ambiguous. For the phenomenon of alternative analyses is not the same as syntactic ambiguity, as ordinarily conceived. A standard example of the latter is, "Flying planes can be dangerous". This sentence is clearly ambiguous, saying, on one parsing, that the activity of flying planes can be dangerous, and, on the other, that planes that fly can be dangerous. But "Mary loves John" is quite different. *A fortiori*, it does not seem to have different truth-conditions, or to "say" different things depending on the "parsing". Biting this bullet thus means hypostatizing an ambiguity where there does not seem to be one, contrary to standard methodological principles of linguistic theory, and doing so only to avoid an objection against the act-type theory. Note also that not only will the act-type theorist be burdened with double ambiguity for sentences with dyadic predicates; the ambiguity of sentences will also increase with their complexity, with at least one new reading for each name-occurrence in a sentence. This is not a semantics anyone can bear.

Biting this bullet would also raise many new, awkward questions. It is natural to assume that the proposition expressed by a sentence is something that can be believed, inferred, doubted, and so on, and this assumption is also made by act-type theorists. But which of the two propositions expressed by "Mary loves John" do we believe when, as one would naïvely put it, we "believe that Mary loves John"? Both? Could one believe one but not the other? If one can, then what does the difference consist in? And if one cannot, then the claim that they are nevertheless distinct violates even the fine-grained "cognitive significance" test of propositional identity urged by Frege.

4. A further argument against pluralistic act-type theories

Even if standard act-type theories are conclusively refuted by this argument, the "pluralist" variant, found on the second horn of the dilemma clearly isn't. But there is a further argument against pluralists, to the effect that they must posit *infinitely many* basic act types directed toward the semantic correlates of monadic predicates and names.

To see that they are so committed, consider the sentence "$7 + 8 = 15$", which contains the complex triadic predicate, "$\xi + \zeta = \chi$", as well as the monadic predicates,

"$7 + 8 = \xi$",

"$7 + \xi = 15$",

"$\xi + 8 = 15$".

If we try to avoid the conclusion that "7 + 8 = 15" is ambiguous by multiplying basic act types, we need to posit not two, but *three* distinct basic act types. By reasoning exactly paralleling the above, we would then be committed to,

(C2$^+$) (a) "7 + 8 = 15" expresses A-ing [$7 + 8 = \xi$], [15]

(b) "7 + 8 = 15" expresses A*-ing [$7 + \xi = 15$], [8]

(c) "7 + 8 = 15" expresses A**-ing [$\xi + 8 = 15$], [7],

where A-ing $\neq A$*-ing $\neq A$**-ing. For if we suppose that it is *not* true that A-ing $\neq A$*-ing $\neq$ A**-ing, then some identity between two of them holds and then the argument from (A1) sets in immediately and we can infer that "7 + 8 = 15" is ambiguous. We can generate infinitely many more arguments like this, with complex predicates of ever increasing adicities.

Given this infinity of act types, certain claims that the act-type theorist will want to make cannot be finitely stated. Consider, for instance, the definition of $plug_1$. It seems that this definition will need one clause for each of the infinitely many forms that monadic predicates may take, where these "forms" are,

$R(a_1, \ldots, a_n, \xi)$,

$R(a_1, \ldots, a_{n\text{-}1}, \xi, a_n)$,

$R(a_1, \ldots, a_{n\text{-}2}, \xi, a_{n\text{-}1}, a_n)$, and so on, for all n. The simplest definition will define $plug_1$ over predicative propositional constituents differing in which argument place (first, second, etc.) is "unsaturated":

(DP) $plug_1(x, y) =_{df}$ the entity z such that if x is monadic, then:

if x is simple, then z = the act type of B-ing x, y, and

if x is complex and has an empty slot in its first place, then z = A-ing x, y, and

if x is complex and has an empty slot in its second place, then z = A^*-ing x, y, and

…

Here, I use "empty slot" and "place" in a non-standard sense, in which, e.g., "1 = ξ" has an empty slot in its "second" place but not in its "first". Normally, one would say that any monadic predicate has only one slot and that a slot is by definition empty. But I think this alternative terminology should be obvious enough. Now, since the adicities of predicates have no upper limit, this definition cannot be completed. As the first line of (DP) makes clear, it must have clauses for each adicity, but it is enough for our purposes to consider the first clause, dealing with monadic predicative propositional constituents.

As against this, it may be suggested that a finite formulation might still be available if, instead of merely labelling these act types "A", "A^*", and so on, we refer to them using *complex expressions containing numerals*. For instance, we could posit a single, basic act type, C-ing, which takes as objects not merely the semantic correlates of predicates and names, but also positive integers. The definition of $plug_1$ could then read,

(DP′) $plug_1(x, y) =_{df}$ the entity z such that if x is monadic, then:

if x is simple, then z = the act type of B-ing x, y, and if x is complex and has an empty slot in its nth place, then $z = C$-ing x, y, n

and if x is dyadic, …

This solves the problem of the infinity of basic act types corresponding to different "empty slots", in my special sense, and so allows us to formulate a finite clause for monadic predicative propositional constituents in the definition of $plug_1$. However, this solution is purely formal, and sheds no light on how to make sense of C-ing and its relationship with the positive integers it is directed toward. So, although we should not reject this solution out of hand, we should note that it is so far only a schematic sketch, which needs to be filled in, and which goes far beyond standard act-type theories.

5. A general constraint on structured propositions

Doesn't the argument above generalize to structured propositions in general, thus refuting the very idea? No, but it does amount to certain general constraints on theories of structured propositions. To wit, propositions may not be identified with the kind of structures that obey a principle analogous to (A1). Since not all structures do, however, the argument does not generalize to the very idea of structured propositions. This, in any case, will be the upshot of this section.

The structures that do not obey any principle analogous to (A1) include mereological sums, states of affairs (referred to by sentence-nominalizations involving gerunds), and composite physical objects (referred to as the results of putting their parts together a certain way). For, where $x \sqcap y$ is the mereological sum of x and y, $(a \sqcap b) \sqcap c = a \sqcap (b \sqcap c)$ even when $a \sqcap b \neq c \neq a \neq b \sqcap c$. Likewise, the state of affairs of John's having the property of being loved by Mary is plausibly identical with the state of affairs of Mary's having the property of loving John, even though John ≠ being loved by Mary ≠ Mary ≠ loving John. Finally, recall that the composite pieces of Lego, G^(Y^B) and (G^Y)^B, are identical even though G ≠ Y^B ≠ G^Y ≠ B.

We should get clearer on what it is for a kind of structure to "obey a principle analogous to (A1). To this end, we can generalize on (A1) to get the schema,

(G) If $X(x_1, \ldots, x_n) = X(y_1, \ldots, y_n)$, then at least one of $x_1, \ldots, x_n$ is identical with one of $y_1, \ldots, y_n$,

where "X" stands proxy for an expression, which, when saturated with n names ($n \geq 1$), yields a singular term referring to some structure or other. Thus, "$X(x_1, \ldots, x_n)$" may stand proxy for each of the following three:

the mereological sum of $x_1, \ldots, x_n$,

the state of affairs in which x_1 instantiates the property of standing in relation x_2 to x_3,

x_1^x_2,

(in the second and third examples, we ignore values of n other than 3 and 2, respectively).

Now, the general constraint on theories of structured propositions cannot be simply, "propositions cannot be identified with structures satisfying (G)". The constraint that can be derived from the argument of this paper is more specific, and it specifies how elements of the structure can be identified with certain types of propositional constituent only if the structure fails to satisfy (G), along the lines of, (GC) $[F(a)] = X([F(\xi)], [a])$ only if X does not satisfy (G1).

For suppose X satisfies (G). We know that, on any reasonable semantics, there will be cases in which $[R(\xi, b)] \neq [a] \neq [R(a, \xi)] \neq [b]$. From these assumptions, it follows that $X(y, [R(a, \xi)], [b]) \neq X(x, [R(\xi, b)], [a])$, and, hence, that "$R(a, b)$" is ambiguous.

For propositions to be identified with a type of structure, it is not enough that the latter fails to satisfy (G). For instance, although "the mereological sum of $x_1, \ldots, x_n$" fails to satisfy (G), it satisfies the principle, "$X(x_1, x_2, x_3) = X(x_1, x_3, x_2)$". Thus, identifying propositions with mere mereological sums would entail, absurdly, that $[R(a, b)] = [R(b, a)]$.

Jeffrey King has proposed that propositions be identified with a certain kind of complex fact (2007). The simple atomic proposition that Rebecca swims is identified with the fact that Rebecca stands in a certain complex relation *REL* with the property of swimming. Now, for now-familiar reasons, King must say that the proposition that Mary loves John is identical both with (F1) the fact that Mary *REL*s [ξ loves John] and (F2) the fact that John *REL*s [Mary loves ξ]. (King himself accepts these commitments (2007: 16ff.).) The relevant instance of (G) is thus,

(GK) If the fact that $REL(x, y)$ = the fact that $REL(z, w)$, then either x or y is identical with one of z and w.

However, we cannot well have intuitions about the truth of (GK), and, although we will in the end find reason to reject (GK), we will do so by finding reason to believe that F1 ≠ F2. Since the latter is what we ultimately aim to discover, (GK) will play no role in our argument.

Now, to see whether F1 = F2, we must first look closer at *REL*. King defines *REL* as holding between x and y iff there is a language *L*, lexical items *a* and *b* of *L* and a context *c*, such that

(i) *a* and *b* occur at the left and right terminal nodes (respectively) of the sentential relation *R* that in *L* encodes ascription &

(ii) *x* is the semantic value of *a* in *c* &

(iii) *y* is the semantic value of *b* in *c*

(King (2007: 62)). In contrast to the Lewisian, abstract conception of languages, King takes a language to be *actually used* (2007: 46f.). But in that case, there will be worlds in which F1 but not F2 exists. For instance, there is a world where there is a language containing a primitive lexical element whose semantic value is [Mary loves ξ] but no language with a lexical element whose semantic value is [ξ loves John]. I am assuming here that there can be non-composite lexical elements that designate complex properties, but this seems innocuous. If such a world exists, however, then F1 ≠ F2, even on a very coarse-grained conception of facts, on which strict equivalence suffices for identity.

Suppose King switches to the Lewisian conception of languages. Then, however, the *definiens* of *REL* becomes a necessary truth for any values of "*x*" and "*y*". Given the coarse-grained conception of facts, there is then only one proposition! So the switch had better be coupled with a fine-grained conception of facts, on which F1 = F2 only if (1) they have the same structure and (2) for any entity *e* and node *n* in this structure, F1 has *e* at *n* just in case F2 has *e* at *n*. But on such a conception, clearly, F1 ≠ F2. It will not help if we express these facts by the more detailed formulation in the *definiens* of *REL*. That will merely show that the conjuncts within the scope of the existential quantifiers differ, whence, again, F1 ≠ F2. (This argument equally afflicts King's actual account coupled with a fine-grained conception of facts). I conclude that King's theory, too, entails that sentences with alternative analyses are ambiguous, and is thus refuted.

6. Some retreat positions

By a "retreat position", I mean a theory that is modified so as to avoid the argument above, but which is still *in the spirit of* standard act-type theories. I won't define "being in the spirit of", however, but one important way of assessing this matter is by seeing whether the position in question will have the advantages of standard act-type theories listed in the Introduction. I will consider three retreat positions, which say, respectively, that propositions are

(i) *equivalence classes* of act types,

(ii) *results* of act types,

(iii) *more inclusive* act types (which can be performed *by* performing the usual act types of predicating, etc.).

Option (i) is to define some relation of equivalence making *A*-ing [ξ loves John], [Mary] and *A*-ing [Mary loves ξ], [John] equivalent, and then identify [Mary loves John] with some set containing both (and perhaps more). The main problem with this idea is that it does not take propositions to be (syntactically) structured, and so is not in the spirit of standard act-type theories.

One might try to avoid the worst excesses of unstructured views of propositions by setting stricter conditions on equivalence. If equivalence is cashed out simply in terms of truth-in-the-same-worlds or mutual inferability, then, for any *p*, *q*, [*p*] = [*p* & (*q* or not-*q*)], which is of course precisely the kind of consequence one wants to avoid by taking propositions to be structured. But suppose we add the requirement that act types are equivalent only if the basic act type with "widest scope" in each is the same. Then, *A*-ing [ξ loves John], [Mary] and *A*-ing [Mary loves ξ], [John] come out as equivalent, and we can still distinguish [Mary loves John] from [Mary loves John and (*p* or not-*p*)] by saying that the latter proposition is the act type of A^{+}-ing [and], [Mary loves John], [*p* or not-*p*], where *A*-ing ≠ A^{+}-ing.

But we can still not distinguish between [*p* and *q*] and [(*p* and *q*) and (*r* or not-*r*)]. Requiring in addition equivalent act types to have the same simple constituents would not be sufficient either, since [(*Fa* or not-*Fa*) and (*Gb* or not-*Gb*)] and [(*Ga* or not-*Ga*) and (*Fb* or not-*Fb*)] would still come out as identical. The obvious remedy is to say that act types *a* and *b* are equivalent just in case they have identical structures and, for any entity *e* and node *n* in this structure, *a* has *e* at *n* just in case *b* has *e* at *n.* However, this would make *A*-ing [ξ loves John], [Mary]) and *A*-ing [Mary loves ξ], [John] inequivalent, contrary to the initial assumption of this retreat position. This points to a general difficulty: that of distinguishing logically equivalent propositions without thereby multiplying propositions wherever there are alternative analyses. It is not clear whether any version of option (i) can meet this constraint, nor whether the resulting theory would be in the spirit of standard act-type theories.

Option (ii), on which propositions are *results* of act-types could perhaps be independently motivated (perhaps on the lines of Moltmann (2014), although she is no act-type theorist in our sense). But the idea as it stands is highly underspecified: we do not yet know what kind of entity propositions are, whether abstract, concrete, events, states, sets, etc. All we know is that they result from certain acts.

There is also reason to think this account, however specified, will not be in the spirit of original act-type theories, because it will not assign any real theoretical work to act types. Assume that we decide that propositions are *X*s, which result in some systematic way from act types of predicating or saturating. Suppose also we define $plug_i$ in the usual act-type-theoretical (Fregean or Russellian) way and then say that propositions are the values of some function $\mathbf{plug}_i$, such that $plug_i(x, y)$ always results in $\mathbf{plug}_i(x, y)$. (Note that, for this account to avoid the argument of this paper, it must hold that $\mathbf{plug}_1$([ξ loves John], [Mary]) = $\mathbf{plug}_1$([Mary loves ξ], [John]).) The *crux* is that we can now just refer to propositions and propositional constituents using "$\mathbf{plug}_i$", and any detour via mental acts will be otiose. The obvious alternative to (PA), for instance, would be,

(PA′) $\quad \mathrm{PLUG}_i$("$F(\xi_1, \ldots, \xi_n)$", "a") expresses $\mathbf{plug}_i([F(\xi_1, \ldots, \xi_n)], [a])$.

So, since act-types do not seem to do any useful theoretical work on option (ii), it is scarcely in the spirit of standard act-type theories.

Finally, let's consider option (iii), of taking propositions to be "more inclusive" act types, such that the usual act types of predicating or saturating are mere *ways* of performing them. The idea is to say that [Mary loves John] is an act type that can be performed both by predicating/saturating [Mary loves ξ] of/with [John] *and* by predicating/saturating [ξ loves John] of/with [Mary], and similarly for the other examples. This seems to be in the spirit of the original act-type theory, since propositions are here identified with act-types, and also promises to allow for a workable compositional semantics.

One might worry, though, that these act types cannot be referred to by SCADs. We have already seen how SCADs help state the axioms of an act-type-theoretic compositional semantics: with them, we can refer to the semantic correlate of a sentence with an expression, which contains singular terms referring to the semantic correlates of its immediate parts.

However, even if propositions cannot be designated *simply* by SCADs, they could still be designated by expressions *containing* SCADs. If we had a clear, independently motivated conception of the inclusive act types with which we want to identify propositions, we should be able to define a function *f* taking the usual, structural act types to the more inclusive act types. Then, we could say something of the form,

[Mary loves John] = *f*(*A*-ing [Mary loves ξ], [John]).

(Given the argument of this paper, this entity must be identical with *f*(*A*-ing [ξ loves John], [Mary]). Thus, I don't think the worry under consideration here is very serious.

The problem, it seems to me, is rather that we currently only have a very inchoate, schematic sketch of this idea. We don't know how to designate these more inclusive act types. We could try describing such an act type as *the* act such that *a*, *b*, *c*, … are ways of performing it. But how do we know if such descriptions single out unique act types? It is also unclear, on this kind of theory, toward which objects [Mary loves John] is supposed to be directed. Is [Mary loves ξ] among them, or [ξ loves John], or both? If these questions and problems could be handled somehow, perhaps the act-type theory could be resuscitated in the design of option (iii), but like many other potential escape routes we have been considering in this paper, this one lies far away from extant act-type theories.

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