

# Reply to Forbes \*

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In earlier work (Glüer and Pagin 2006; Glüer and Pagin 2008) we developed a semantics for (metaphysical) modal operators that accommodates Kripkean intuitions about proper names in modal contexts even if names are not rigid designators. The basic idea is simple: the modal operator triggers an “actualist” semantics for the immediate subsentence, and the actualist reference of a name at an arbitrary world is its standard reference in the actual world. Hence, by this semantics, proper names contribute their actual world reference to the semantics of modal contexts. And modal operators are “evaluation switchers”: they switch the semantic evaluation function from the standard (possibilist) semantic evaluation function to the actualist evaluation function.<sup>1</sup>

Graeme Forbes (Forbes 2011) criticizes our proposal. He argues that our semantics predicts readings for certain natural language sentences – containing *mixed contexts involving factive attitude verbs* – that these clearly do not have. In Glüer and Pagin 2006 we suggested handling sentences with mixed non-extensional contexts by letting attitude verbs trigger a switch from actualist semantics back to the standard (possibilist) semantics. This allows us to accommodate the intuition that a sentence like

(1) John might have believed that Hesperus is not Phosphorus.

is true. But truth is not all that matters here. Another question is substitutivity. We think that sentences like (1) – just like ordinary belief contexts – sometimes allow for the substitution of co-referring names and sometimes not. That is, they have both *de dicto* and

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<sup>1</sup>We might add that by now, this kind of “switcher semantics” is rather well understood. We give a model theoretic treatment of the modal case for singular terms in Glüer and Pagin 2008. We extend the treatment to general terms in Glüer and Pagin forthcoming. In Pagin and Westerståhl 2010c, switcher semantics is applied to quotation. Semantics of this kind is typically not compositional, but there is an associated concept of *general compositionality*, introduced in Pagin and Westerståhl 2010a and Pagin and Westerståhl 2010b and more fully developed in Pagin and Westerståhl 2010c, that applies to switcher semantics. In presentations, Pagin has applied switcher semantics to belief contexts, and Glüer to empty names.

*de re* readings, and which reading is relevant in a given context of utterance depends on the intentions of the speaker. The suggested switcher semantics makes both readings available by means of scope distinctions: We get the *de re* reading of (1) by giving the name larger scope than the attitude verb:

(2) John might have believed, concerning Hesperus, that it is not Phosphorus.

But, Forbes argues, there are mixed contexts where some of the readings thus predicted simply do not exist. These are contexts involving *factive* attitude verbs. Using ‘establish’ as his example of such a verb, Forbes submits (3) as an especially clear case:

(3) Necessarily, if someone establishes that Hesperus has no moon, then Hesperus has no moon.

On the assumption that ‘establish’ in fact is an attitude verb, our semantics indeed predicts that there is a reading under which (3) is false (the small-scope reading). But according to Forbes, “on any normal understanding of (3), it has no reading on which it is false”. Since he does not provide any reasons for denying the existence of this reading, we take this to be an appeal to linguistic *intuitions*.

This, then, we take to be the heart of Forbes’s challenge: Intuitively, sentences like (3) have no reading on which they are false. That Forbes himself presents the challenge in the form of an inference thus does not really matter. Nor does it matter for present purposes that Forbes presents our semantics by means of using an actuality *operator*, and not the way we prefer: as a *switcher semantics*.<sup>2</sup> And since we think we can meet his challenge head on, we will not address Forbes’s discussion of the idea that names in the scope of modal operators could be given an actualist semantics no matter what their deeper embeddings.<sup>3</sup>

Is Forbes right about (3)? We don’t want to dispute this categorically, since we are not

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<sup>2</sup>As Forbes mentions, we discuss this alternative at some length in note 15 of Glüer and Pagin 2006. Using an actuality operator means doing the semantics indirectly, by first translating disambiguated natural language sentences into a formal language with an actuality operator, and then giving a more standard semantics for the formal language. This does not dispense with switching, of course; on the operator version, a switching technique will be needed in the translation step instead of in the semantics. This intermediate step thus just adds a complication and is best dispensed with.

Forbes’s reason for preferring the alternative presentation appears to be that he does not like the semantic switching (it “breaks” the standard clause for the modal operator). We discuss this in some detail in forthcoming work (Glüer and Pagin forthcoming), hypothesizing that the resulting distinction between a (simple) sentence’s truth at all (accessible) possible worlds and the truth of its necessitation corresponds to a distinction between different kinds of necessity.

<sup>3</sup>As Forbes notes, the possibility of switching back to possibilist evaluation is of the very essence of our proposal, so we would never try such a way out. We do not fully understand Forbes’s discussion of this idea, but the upshot seems to be that, ultimately, one would end up predicting a false reading for sentences like (3) anyway.

completely sure about the semantics of ‘establishes that’. How clear is it that ‘establishes that’ creates an attitude context? For instance, if someone *establishes that* Hesperus has a moon, has she not thereby also *established that* Phosphorus has a moon? We are not sure, but if Forbes is right, the force of the challenge should not depend on the semantics of ‘establishes that’ in particular. According to Forbes, what matters is that the verb is a factive attitude verb. Hence, any factive attitude operator – any operator such as *see that*, *know that*, or *believe truly that* – should do as well. To make sure we are really dealing with an attitude verb, we shall work with the latter as our example.<sup>4</sup>

Thus, on Forbes’s view

- (4) Necessarily, if someone believes truly that Hesperus has no moon, then Hesperus has no moon.

has no false reading. We shall first directly contest this intuition, and then point out some of the rather unattractive consequences accepting it would have.

The claim that (4) has *no* false reading is a strong one. We can easily admit that the sentence has a *preferred* reading on which it is true. But as long as it nonetheless has *a* reading under which it is false, we are fine. Bringing out that (4) indeed has such a reading might take a little work, but that does not mean the reading doesn’t exist. To make it more salient, consider the following:

- (5) Someone might have believed truly that Hesperus, i.e. the heavenly body visible in position *x* in the evening, has a moon. In fact, it might have been the case that someone believed truly *that Hesperus has a moon*, while yet Hesperus (*itself*) did *not* have a moon. For under those circumstances, Hesperus might not be the body in position *x*.

Save for some ornaments not affecting truth conditions, the second sentence in this example is the negation of (4). If this sentence strikes you as having a true reading, you therefore should also acknowledge that (4) has a false reading. To our minds, this is clearly the case.

Not only that, however. Denying the existence of this reading has some rather unattractive consequences. On both our and Forbes’s view, actually co-referring proper names are intersubstitutable in modal contexts. Therefore, it follows from Forbes’s view that

- (6) Necessarily, if someone believes truly that Hesperus does not have a moon, then Phosphorus does not have a moon.

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<sup>4</sup>This is important, because our semantics only predicts the contested false reading if the relevant verb indeed is an attitude verb.

does not have a false reading. But if we have understood the dialectics here, Forbes claims that there is a special problem with *factive* attitude verbs in modal contexts, a problem we do not have with non-factive attitude verbs in modal contexts. If this is correct, he should grant us the intuition that

- (7) It might have been the case that someone believes that Hesperus does not have a moon but not that Phosphorus does have a moon.

is true. In fact, he should also grant the corresponding positive intuition that

- (8) It might have been the case that someone believes that Hesperus does not have a moon and that Phosphorus does have a moon.

is true.

Putting these things together, it follows that

- (9) Necessarily, if someone believes truly that Hesperus does not have a moon and that Phosphorus does have a moon, then Hesperus does not have a moon and Phosphorus does have a moon.

does not have false reading, and the same goes for

- (10) Necessarily, if someone believes truly that Hesperus does not have a moon and that Phosphorus does have a moon, then Hesperus does not have a moon and Hesperus does have a moon.

Now by the principle

$$\Box(A \rightarrow B) \longrightarrow (\Diamond A \rightarrow \Diamond B)$$

valid in the elementary modal logic K, it holds that since the embedded consequent of (10) is impossible, so is the embedded antecedent. Hence, by Forbes's standards,

- (11) It might have been the case that someone truly believes that Hesperus does not have a moon and that Phosphorus does have a moon.

does not not have a true reading, despite the fact that (8) does, intuitively, have a true reading.

The intuition behind the acceptability of (8) is that someone *can* coherently believe that Hesperus does not have a moon, but Phosphorus does – even though no-one can coherently believe *that Hesperus has a moon and Hesperus does not have a moon*. The most natural explanation of why the first belief is coherent is that it might have been

true. But exactly this is (implicitly) *denied* by Forbes – since he must deny that (11) has a true reading.<sup>5</sup>

The options for Forbes then seem to be either to deny that (8) does have true reading, or to account for its truth in some way that does *not* entail the truth (11). The first option leaves Forbes with very many intuitions to deny and explain away.<sup>6</sup> The second option merely highlights the difficulties rigid designation theories have with belief contexts anyway: The effects rigid designation would have on belief contexts must be blocked by some more complex account.<sup>7</sup> Our proposal was meant to accommodate the modal intuitions concerning proper names while preserving the power of descriptivist theories of proper names for handling belief contexts. We still have to be convinced that the proposal fails. And if the proposal is rejected, the problem of belief sentences remains as hard as ever. In fact, on the premise that (4) does not have a false reading, it gets even harder.<sup>8</sup>

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<sup>5</sup>Forbes (p.c.) holds that in the *epistemic sense of might*, the proposition *that Hesperus has a moon and Hesperus does not have a moon* might have been true. This by itself does not account for the coherence of the belief, but it is related to an account of belief contexts that blocks the conclusion that (8) attributes an incoherent belief. See note 7.

<sup>6</sup>Note that since our semantics is supposed to fail because of the intuition concerning (4), appeal to intuitions cannot be rejected by him as bad methodology.

<sup>7</sup>One way of bringing out the difference is this: We can stick to the traditional, intuitive idea that – for instance in the examples above – the things believed are the propositions expressed by the embedded clauses. To get the intuitive substitution conditions in belief contexts, a rigid designation semantics has to deny that. Here, what is believed is something *else*, like a way of thinking about the proposition in question, and that in turn may then be *another, different* proposition. See, for instance Forbes 1990. On that account, what that other proposition is depends on the mental files (dossiers) of the attributee, which in general is at best partially known by the attributor, and which is in general not shared between attributees. According to the similar account in Forbes 1996, the embedded clause specifies a *situation type*, and what is believed is a proposition that is a way of thinking of that situation type.

<sup>8</sup>As we noted already in Glüer and Pagin 2006, the simple combination of semantics for modal and attitude contexts in a single possible-worlds framework that we suggested there fails for reasons of logical omniscience. A combination of possible-worlds semantics and structured meanings that uses the semantic switching technique but avoids this drawback has been presented by Pagin on various occasions, including at SPE 3, Paris 2010.

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