

Actuality, Relativism and the Open Future

1 Supervaluationism, relativism and the open future

Suppose that indeterminism is true and that the future is objectively open. Suppose furthermore that today, when it is still objectively unsettled whether there will be a sea battle tomorrow, I utter the sentence:

- (1) There will be a sea battle tomorrow

How is my utterance to be evaluated? According to the supervaluationist approach to future contingents,¹ the open future requires us to think of time as a tree of possible worlds overlapping towards the past and branching towards the future. Truth at a context must be consequently understood in terms of truth at every world overlapping at the context of utterance:

- (2) S is true in the context c if, and only if, S is true at every point of evaluation² $\langle c, w \rangle$, such that w is a world overlapping at c ;
S is false in the context c if, and only if, S is false at every point of evaluation $\langle c, w \rangle$, such that w is a world overlapping at c ;
otherwise, S is neither true nor false in c .³

Since only in some possible futures a sea battle is taking place tomorrow, the supervaluationist will predict my utterance of (1) to be neither true nor false, vindicating thus what John MacFarlane has called the ‘indeterminacy intuition’,⁴ i.e. the intuition that utterances about future contingents can lack a truth-value.

¹See Thomason (1970), Belnap et al. (2001), MacFarlane (2003; 2008b).

²A *point of evaluation* is a $\langle \text{context}, \text{index} \rangle$ pair, where a *context* is a possible occasion in which a sentence might be uttered or used (or a representation thereof), and an *index* is a n-tuple of parameters representing the circumstances against which the proposition expressed by the sentence in context has to be evaluated; see Kaplan (1989), Lewis (1996) and MacFarlane (2008b). Here and throughout the paper I will be following MacFarlane (2008b) in treating temporal modifiers as referring terms and quantifiers rather than operators (thus not taking an index to include also a time-parameter).

³See MacFarlane (2008b)

⁴MacFarlane (2003, pp. 323–324).

Supervaluationism appears however to fall short of another fundamental intuition about future-contingent statements: the ‘determinacy intuition’.⁵ Suppose that I uttered (1) yesterday and, as it turned out, a sea battle is now raging. It seems then natural to say that my utterance was true after all. But according to (2), utterance-truth is in fact *absolute*: from any point of view, an utterance has a certain truth-value depending only on the worlds overlapping at the context of utterance. Therefore, for the supervaluationist my utterance of (1) is to be assessed as neither true nor false even from the advantaged point of view of today.

MacFarlane’s (2003) solution to the supervaluationist *impasse* is surprisingly simple. Sentence-truth must be relativized both to a context of use and to a context of assessment, along the following lines:

- (3) S is true in the context of use c and context of assessment c' if, and only if, S is true at every point of evaluation $\langle c, w \rangle$, such that w is a world overlapping both at c and c' ;
- S is false in the context of use c and context of assessment c' if, and only if, S is false at every point of evaluation $\langle c, w \rangle$, such that w is a world overlapping both at c and c' ;
- otherwise, S is neither true nor false in c/c' .

The relativist’s definition of utterance-truth given in (3) allows thus for a simple and elegant account of both the indeterminacy and the determinacy intuition:

- (i) From the point of view of yesterday, my utterance of (1) was neither true nor false, since only in some world overlapping both at the context of utterance and of assessment (which in this case coincide) a sea battle is taking place today.
- (ii) From the point of view of today, my utterance of (1) was true, since in every world overlapping both at the context of utterance and of assessment a sea battle is taking place today.

Recently, however, MacFarlane (2008b) has restricted his argument in favour of a relativist treatment of the open future, acknowledging that our intuitions about retrospective assessments are not based upon considerations about the technical notion of ‘utterance-truth’, but rather upon reflections about the truth of what has been said by our assertions. Therefore, he now argues, the real question is whether supervaluationism can vindicate our retrospective assessments of the truth of propositions. The answer he gives is that, in most cases, the supervaluationist appears to be able to accommodate our intuitions. All she has to do is introducing in the object-language a monadic truth-predicate for propositions, defined as follows:

⁵See MacFarlane (2003; 2008b)

- (4) ‘TRUE’ applies to x at a point of evaluation $\langle c, w \rangle$ iff x is a proposition and x is true at w .⁶

Notice that this definition has two immediate consequences: (i) the absence of an argument place for a time in ‘TRUE’ deprives its tensed uses of any semantic significance (the use of ‘was TRUE’ instead of ‘is TRUE’, for instance, is determined by grammatical reasons only); (ii) the following *disquotational schema* is true at every point of evaluation:

- (5) $\forall x((x = \text{the proposition that } S) \supset (\text{TRUE}(x) \equiv S))$ ⁷

With this kind of truth-predicate in play it is easy to prove that in the case of (1) the supervaluationist can accommodate the determinacy intuition by saying that, if yesterday I uttered (1) and today a sea battle is indeed taking place, then what I said yesterday was TRUE:

- (A1) Yesterday I uttered the sentence ‘There will be a sea battle tomorrow’ [premiss]
 (A2) Yesterday I said that a sea battle would take place today [from (A1)]
 (A3) A sea battle is taking place today [premiss]
 (A4) What I said yesterday was TRUE [from (A2),(A3),(5)]

Nevertheless, this result still does not render the relativization to a context of assessment redundant. As a matter of fact, MacFarlane tells us, the supervaluationist seems unable to deliver an adequate account of our retrospective assessments of claims made by means of sentences containing ‘actually’ (henceforth: ‘actuality-sentences’).

The aim of this paper is to defend the supervaluationist account of the open future from MacFarlane’s relativist attack. Firstly, I will distinguish between two possible characterizations of the kind of context-sensitivity of the actuality operator; secondly, I will argue that, in either case, contrary to what MacFarlane claims, the supervaluationist appears not to be worse off than the relativist in coping with the determinacy intuition.

2 Adding ‘actually’

A plausible constraint on ‘actually’ is given by what MacFarlane dubs ‘Initial Redundancy’

⁶MacFarlane (2008b, p. 95).

⁷MacFarlane (2008b, p. 95).

- (6) An operator \star is *initial-redundant* just in case for all sentences S , $\lceil \star S \rceil$ is true at exactly the same contexts of use (and assessment) as S (equivalently: each is a logical consequence of the other).⁸

In standard (non-branching) frameworks, Initial Redundancy is granted by the fact that the actuality operator shifts the world of evaluation to the world of the context of utterance. The effect is that the proposition expressed by the sentence embedded by ‘actually’ is always evaluated with respect to the world of utterance:

- (7) $\lceil \textit{Actually}:S \rceil$ is true at the point of evaluation $\langle c, w \rangle$, iff S is true at $\langle c, w_c \rangle$, where w_c is the world of the context c .

In a branching framework, however, this definition won’t do, since the openness of the future entails that there is no such thing as *the* world of the context of utterance. MacFarlane proposes thus the following definition for the actuality operator in a supervaluationist setting:

- (8) $\lceil \textit{Actually}:S \rceil$ is true at $\langle c, w \rangle$ iff S is true at every point of evaluation $\langle c, w' \rangle$, where w' is a world overlapping at c .⁹

Here the actuality-operator shifts the world of evaluation to every world overlapping at the context of use, thus respecting Initial Redundancy. To achieve the same result for the relativist, MacFarlane enriches the relativist’s points of evaluation with a context-of-assessment parameter, defining thus the actuality operator as shifting the worlds of evaluation to every world overlapping both at the context of utterance and the context of assessment:

- (9) $\lceil \textit{Actually}:S \rceil$ is true at $\langle c_u, c_a, w \rangle$ (where c_u is the context of use and c_a the context of assessment) iff S is true at every point of evaluation $\langle c_u, c_a, w' \rangle$, where w' is a world overlapping both at c_u and c_a .¹⁰

Suppose then that yesterday, in the context c_1 , I uttered both

- (10) It will be sunny tomorrow

and

- (11) It will actually be sunny tomorrow

Call these, respectively, my ‘first claim’ and my ‘second claim’. Suppose furthermore that today, in the context c_2 , it is in fact a sunny day. It is easy to see that the relativist will predict that, from the point of view of today, both my utterances of (10) and (11) are true. What about the supervaluationist? MacFarlane claims that

⁸MacFarlane (2008b, p. 98).

⁹MacFarlane (2008b, p. 99).

¹⁰MacFarlane (2008b, p. 99).

According to the supervenient, it should be correct for me to say [today] that my first claim was TRUE and my second claim FALSE¹¹

According to MacFarlane, when the supervenient evaluates today the proposition I expressed yesterday by my second claim, since

no matter how deeply embedded we are, no matter how far the world of evaluation has been shifted, the actuality operator returns it to the world of the context of use.¹²

the relevant worlds for the truth of this proposition (today) are those overlapping at yesterday's context. Therefore, argues MacFarlane, the supervenient cannot but give the wrong predictions—today—about the truth of my second claim.

3 Indexical vs nonindexical

In his 'Nonindexical Contextualism' MacFarlane (2008a) disentangles two notions which appear to have always been conflated in the contemporary debate on semantic context-sensitivity, i.e. the notions of *context-sensitivity* (dependence of *truth* or *extension* on features of the context) and *indexicality* (dependence of *content* on features of the context). According to its definitions a context-sensitive expression *e* is

- *indexical* if, and only if, its content depends on some feature of the context;
- *nonindexical* if, and only if, only its extension depends on some feature of the context

This distinction depends on the two roles that the context of utterance has in determining the truth value of a certain sentence: On the one hand, the context of use helps determine which proposition is expressed by the sentence (the *content-determinative* role); on the other hand it tells us at which circumstances of evaluation we should evaluate this proposition to get a truth value for the sentence in context (the *circumstance-determinative* role). Therefore, an expression might be context-sensitive either because the context determines its very content, or because—although its content is constant—its extension depends on some features of the circumstances of evaluation which get determined by the context of use.

According to MacFarlane's analysis (which I will not dispute here), in our branching framework 'actually' is a context-sensitive operator: specifically, it is sensitive to the set of worlds overlapping at the context. What is, then, the nature of its context-sensitivity? Before tackling this question, consider that, from what we have just said above, the following holds

¹¹MacFarlane (2008b, p. 100).

¹²MacFarlane (2008b, p. 98).

- (12) ‘actually’ is an indexical operator *iff* for every sentence K expressing the same proposition in any context, $\lceil \textit{Actually}:K \rceil$ may express different propositions in different contexts.¹³
- (13) ‘actually’ is a nonindexical operator *iff* for every sentence K which expresses the same proposition in any context, $\lceil \textit{Actually}:K \rceil$ expresses the same proposition in any context.¹⁴

However, it follows directly from (13) that if ‘actually’ is thought of as a non-indexical operator, the supervaluationist *can* account for our retrospective assessments using MacFarlane’s truth-predicate ‘TRUE’. The following argument shows it:

- (B1) Yesterday I uttered the sentence ‘It will actually be sunny tomorrow’ [premiss]
- (B2) Yesterday I said that it would actually be sunny today [from (B1), (13) and the semantics of ‘today’ and ‘tomorrow’]
- (B3) It is actually sunny today [premiss]
- (B4) What I said yesterday was TRUE [from (B2),(B3),(5)]

As a matter of fact, endorsing a nonindexical reading of ‘actually’ implies that the proposition expressed yesterday by an utterance of

- (11) It will actually be sunny tomorrow

is the same as the one expressed today by an utterance of

- (14) It is actually sunny today

Therefore, since (14) is true if uttered today, it is also true to say—today—that what I said yesterday by uttering (11) was TRUE.

With the indexical/nonindexical distinction in play we can then ask: Is the operator defined by MacFarlane in (8) indexical or nonindexical? I think that the right answer is that (8) does not commit us to any specific view about the context-sensitivity of ‘actually’.¹⁵ However, the question whether ‘actually’ as

¹³See Soames (2007, p. 251) for a recent and explicit example of indexical stance on ‘actually’ in a non-branching framework .

¹⁴The view that ‘actually’ is nonindexical appears to be upheld by Percival (1989, p. 191).

¹⁵(8) appears to tell us only that the context of use provides the parameter at which the world of evaluation has to be shifted, but not *how* it provides it, i.e. whether by affecting the very proposition expressed by $\lceil \textit{Actually}:S \rceil$ in *c* or not.

defined in (8) is consistent with a nonindexical reading can be left aside, since—as I will be arguing in the following section—the supervaluationist appears to have the resources to offer an *explicitly* nonindexical semantics for the actuality operator which respects both Initial Redundancy and MacFarlane’s idea that ‘actually’ quantifies always over the set of worlds overlapping at the context of use.

4 ‘Actually’ as nonindexical

Given the definition of nonindexicality set out in the previous section, it follows that a sufficient condition for an operator \star to be nonindexical is given by the following clause:

- (15) An operator \star is nonindexical if, for every sentence K , such that K expresses the same proposition in every context, and every point of evaluation $\langle c, i \rangle$ (where c is a context and i is an index):
- $$\lceil \star K \rceil \text{ is true in } \langle c, i \rangle \text{ iff, for every context } c', \lceil \star K \rceil \text{ is true in } \langle c', i \rangle$$

What (15) says should be pretty intuitive: an operator \star is nonindexical if (for any K and $\langle c, i \rangle$) the truth of $\lceil \star K \rceil$ with respect to $\langle c, i \rangle$ *doesn’t depend* on the context parameter. Clearly, this wouldn’t be possible if the content of \star and, therefore, the proposition expressed by $\lceil \star K \rceil$ were to depend on the context of use. Given the truth of (15), however, it is relatively easy to give a nonindexical semantics for ‘actually’ which meets our *desiderata*.

- The first step we have to take is to enrich our indices with a set of worlds s , thought of as the ‘actuality parameter’, so that a point of evaluation will then be a $\langle \text{context}, \text{world}, \text{set of worlds} \rangle$ triple.
- Secondly, we define the actuality operator as follows:

- (16) $\lceil \text{Actually}:S \rceil$ is true at $\langle c, w, s \rangle$ iff S is true at every point of evaluation $\langle c, w', s \rangle$, where w' is a world belonging to s .

- Finally, we substitute the definition of sentence-truth in a context given in (2) with

- (17) S is true in the context c if, and only if, S is true at every point of evaluation $\langle c, w, s_c \rangle$, such that w is a world overlapping at c and s_c is the set of worlds overlapping at c ;
 S is false in the context c if, and only if, S is false at every point of evaluation $\langle c, w, s_c \rangle$, such that w is a world overlapping at c and s_c is the set of worlds overlapping at c ;
otherwise, S is neither true nor false in c .

Although according to (16) the actuality operator isn't sensitive to the context parameter, two facts assure that it will always quantify over the set of worlds overlapping at the context of use (respecting thus Initial Redundancy): (i) on the one hand—as established by (17)—the actuality parameter is initialized by the context of use; (ii) on the other, since there is no operator capable of shifting it,¹⁶ it will retain the same value (i.e. the set of worlds overlapping at the context of use) “no matter how far the world of evaluation has been shifted”.

If the supervaluationist adopts the nonindexical semantics for ‘actually’ given in (16), it is then straightforward to see that she can use the predicate ‘TRUE’ to vindicate the determinacy intuition. As a matter of fact, since the actuality operator is in this case clearly nonindexical, the proposition expressed by an utterance of ‘It will actually be sunny tomorrow’ in c_1 will have no *trace*—as it were—of the context in which the sentence was uttered; the truth of this proposition will then depend only on the circumstances of evaluation against which it is evaluated. Therefore, if I say today—in c_2 :

(18) What you have said yesterday was TRUE

referring to the proposition you expressed yesterday uttering (11), my utterance is true, since for every $\langle w, s_2 \rangle$ such that w belongs to s_2 and s_2 is the set of worlds overlapping at c_2 the proposition that it is actually sunny today is true with respect to $\langle w, s_2 \rangle$.¹⁷

5 ‘Actually’ as indexical

5.1 Indexical actuality and content-relativism

Why exactly does the supervaluationist fail to accommodate our intuitions if ‘actually’ is thought of as an indexical operator? A plausible informal reconstruction of the argument from the indexicality of ‘actually’ to the supervaluationist’s failure given (8) appears to be the following:

¹⁶Stanley (2005) has recently attacked—drawing on Lewis (1996)—the position according to which some elements of the circumstances cannot be shifted by a sentence operator. Nevertheless, as MacFarlane (2008a) has argued, there appear to be sufficient grounds to reject this objection (MacFarlane 2008a, §6.3).

¹⁷Of course (4) must be modified as follows:

(*) ‘TRUE’ applies to x at a point of evaluation $\langle c, w, s \rangle$ iff x is a proposition and x is true at $\langle w, s \rangle$.

- (C1) ‘Actually’ is an indexical operator [premiss]
- (C2) ‘Actually’ is sensitive to the set of worlds overlapping at the context of use [from (8)]
- (C3) The proposition expressed by a sentence of the form ‘Actually, p ’ in a context c is the proposition that in all the worlds overlapping at c , it is the case that p [from (C1) and (C2)]
- (C4) Yesterday—in c_1 —I uttered the sentence ‘It will actually be sunny tomorrow’ [premiss]
- (C5) Yesterday I expressed the proposition that in all the worlds overlapping at c_1 it is sunny the next day [from (C3) and (C4)]
- (C6) It is false that in all the worlds overlapping at c_1 it is sunny the next day [premiss]
- (C7) What I said yesterday was FALSE [from (C5) and (C6)]

If ‘actually’ is an indexical operator, MacFarlane is then right in saying that the supervaluationist theory falls short of our intuitions about retrospective assessments.¹⁸ However, consider again MacFarlane’s relativist semantics for ‘actually’:

- (9) $\lceil \textit{Actually}:S \rceil$ is true at $\langle c_u, c_a, w \rangle$ (where c_u is the context of use and c_a the context of assessment) iff S is true at every point of evaluation $\langle c_u, c_a, w' \rangle$, where w' is a world overlapping both at c_u and c_a .

Since we are assuming that the context-sensitivity of ‘actually’ amounts to a case of indexicality and, according to (9), ‘actually’ is sensitive to both the context of use *and the context of assessment*, we must conclude that, for the relativist, the proposition expressed by an actuality-sentence will depend *both* on the context of utterance and on the context of assessment. This, however, implies that MacFarlane has tacitly brought us farther from standard semantics than it initially seemed. As a matter of fact, his theory now appears as an instance of ‘content-relativism’, i.e. the view according to which *the very content*

¹⁸For a characterization of the proposition expressed by an actuality-sentence along the lines of (C3) in a non branching framework, see Soames (2007): “‘actually’ stands for the world-state c_w of the context in a manner analogous to the way in which ‘now’ stands for the time, and ‘I’ stands for the agent, of the context. When p is the proposition expressed by S in c , ‘Actually S ’ expresses the proposition that p is true at c_w .” (pp. 252-253).

of our assertions may vary on the variation of the context of assessment. But if this analysis is correct, the prospects for a relativist solution of the puzzle of future contingents under an indexical reading of the actuality operator look bleak.

5.2 The determinacy illusion

The only reason why relativism is claimed to be necessary in the open future is to save our intuitions about retrospective assessments. As far as intuitions are concerned, however, it strikes me as intuitive as the determinacy intuition itself that, when I am retrospectively assessing what I said yesterday as true, I am in fact assessing as true what I assessed yesterday as false. It appears highly counter-intuitive to say that if I yesterday uttered ‘It will be actually sunny tomorrow’ and today is in fact sunny, my utterance was true because from the point of today my utterance expresses something different from what it expressed from the point of view of yesterday.

Furthermore, the ‘determinacy intuition’ itself winds up in this case being a mere *illusion*: it is not true that what I *really* said yesterday is true from the point of view of today. It just *seems* to be so, because we do not realize that it is instead the very content of my assertion which has changed. But if this is the case, then the supervaluationist would be in some relevant sense *right* in claiming that what I said yesterday was false, since what I *really* said yesterday was indeed false.

Finally, if we accept to dissolve the puzzle of future contingents by appealing to different propositions, then the supervaluationist appears to be in position to offer a far more economical explanation of why it is correct to say today ‘what I said yesterday was true’. As Richard Heck (2006) has pointed out she might appeal instead to the context-sensitivity of the expression ‘what N said’, claiming that it may denote different propositions in different contexts, despite the fact we are talking about the same utterance.¹⁹

It appears, therefore, that the hypothesis that ‘actually’ is an indexical operator together with MacFarlane’s semantics for ‘actually’ in a relativist setting undermine the very motivations for the necessity of a relativist treatment of the open future.

6 Conclusion

MacFarlane (2008b) has claimed that a proper treatment of the actuality operator in the open future requires the relativization of sentence-truth to a context of assessment. In this paper I have shown that:

¹⁹Heck (2006, p. 94).

- (i) although ‘actually’ as defined by MacFarlane is context-sensitive, there are two ways in which its sensitivity can be spelled out: as indexical or nonindexical;
- (ii) if ‘actually’ is nonindexical the supervaluationist can give a proper treatment of the actuality operator;
- (iii) there is an easy way for the supervaluationist to give an explicitly nonindexical semantics for ‘actually’;
- (iv) if, on the other hand, ‘actually’ is treated as an indexical operator, the prospects of a relativist solution of the puzzle of future contingents look bleak.

I conclude therefore, that—at least insofar the determinacy intuition is concerned—if the supervaluationist can make use of MacFarlane’s contextualist truth-predicate ‘TRUE’, then relativism may hardly be defended from the charge of being an unnecessary departure from standard semantics.

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