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The evidence for relativism about future contingents

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ABSTRACT

John MacFarlane (2003; 2008; 2014, p. 201-237) claims that his relativist view on future contingents satisfies two desiderata: it is compatible with indeterminism and allows us to assess as accurate an assertion about a contingent event that has already occurred but that had not occurred when the assertion was made. Supervaluationism satisfies the first desideratum but not the second. I argue that MacFarlane does not provide good reasons to prefer his view to supervaluationism, and so for accepting his second desideratum. The only possible evidence that could be used to support his proposal consists in the apparent existence of accurate future contingent claims made in the past, and this evidence can be easily put into question. As a result, relativism is ill motivated in the case of future contingents.

Keywords: Future contingents; indeterminism; relativism; supervaluationism.

RESUMO

John MacFarlane (2003; 2008; 2014, p. 201-237) sustenta que sua visão relativista sobre futuros contingentes satisfaz dois desideratos: é compatível com o indeterminismo e nos permite avaliar uma afirmação verdadeira sobre um evento contingente já ocorrido, mas que não tinha ocorrido quando a asserção foi realiziada. O superavalicionismo satisfaz o primeiro desideratum, mas não o segundo. Defendo que MacFarlane não fornece boas razões para preferir sua visão ao superavaliacionismo e, assim, aceitar seu segundo desideratum. A única evidência possível que poderia ser usada para apoiar a sua proposta consiste na aparente existência de asserções verdadeiras acerca de futuros contingentes feitas no passado e esta evidência pode ser facilmente posta em dúvida. Como resultado, o relativismo não se encontra adequadamente motivado no caso dos futuros contingentes.

Palavras-chave: Futuro contingente; indeterminismo; relativismo.

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John MacFarlane (2003; 2008; 2014, p. 201-237) proposes a truth relativist treatment of future contingents (i.e. sentences or propositions about contingent future events). His view addresses the following puzzle. On the one hand, our theory of natural language should contemplate the possibility of indeterminism being true, since whether the future is determined by the present state of the world is a question for physics. And if indeterminism were true, at a present context a future contingent claim (i.e. an assertion of a proposition about a contingent future event) would not be accurate (i.e. it would be inaccurate), since the asserted proposition would be neither true nor false.[1], [2] On the other hand, we afterwards –when the time of the predicted event has passed- often assess as true that very same proposition, and presumably as accurate the previously made assertion. But if the future were objectively open, there would be no fact about the context of utterance that determines whether the asserted proposition is true or false. Can we vindicate this seemingly inconsistent practice of assessing future contingent claims? Analogous remarks can be made about, instead of an assertion, an inner acceptance or rejection of a future contingent proposition.

Let us illustrate this puzzle with an example. Suppose one asserts today that tomorrow is going to be sunny. If we assume that indeterminism about the weather is true, we should assess the proposition asserted as neither true nor false and so the assertion as inaccurate. Suppose now that one day has passed and that the current day is a sunny day. We seem now entitled to judge that the proposition asserted was true and that, presumably, the assertion was accurate. It seems that we are committing a contradiction and consequently that at least one of the two judgments is mistaken. How, then, could we make sense of our practice of assessing future contingent propositions and their assertions, acceptances or rejections?

David Lewis (1986, p. 199-209) thought that it was necessary to either accept determinism or see our ordinary talk and attitudes about the future as deeply confused. In turn, MacFarlane (2014, p. 201-202) intends to offer a proposal that at the same time vindicates this talk and these attitudes and is compatible with indeterminism. His proposal consists of (i) a recursive semantics devised to talk about a branching future and (ii) a post-semantic relativist definition of *truth at a context*.

Regarding the first point, he invites us to think about time in terms of a branching tree moving from the present towards the future instead of a line running form the past to the future. The branching picture is meant to represent the future

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[1] As MacFarlane (2007, p. 23; 2008, p. 94; 2009, p. 248) notices, we do not pre-theoretically predicate truth of assertions but of their contents (i.e. propositions). This is why he uses the term "accuracy" to express a particular truth-derived sense in which an assertion (as well as an acceptance or rejection) can be correct: an assertion is accurate iff the asserted proposition is true at the contextually relevant circumstance(s) of evaluation. Notice that, since "inaccurate" just means not accurate, an assertion of a proposition that is neither true nor false at such circumstance(s) should be classed as inaccurate. In MacFarlane (2014, p. 226) words: "present assertions concerning the future can be shown to be inaccurate by a proof of present unsettledness."

[2] For the sake of simplicity, we are taking propositions to be neutral only with respect to the world. As we shall see, the points MacFarlane makes are ultimately independent of the type of propositions that are countenanced.

as objectively open in a strong metaphysical sense. The different branches found at one particular time are meant to represent the different possibilities objectively open at the time immediately preceding the branching. The intended kind of possibility at stake is usually called "historical possibility" and is thought to be consistent with physical law. What is possible in this sense changes with time. Something possible at a given time may cease to be possible at a later time, and every past event is historically necessary. Finally, a particular line running from the past to the present and continuing along one particular branch of the future is identified with a possible world. Since what is historically possible is relative to the present time, possible worlds overlap at least until that time.[3], [4] For instance, consider an assertive utterance of sentence (1) made at t_o on Saturday:

(1) It will be sunny tomorrow (at the place where the asserter is).

Suppose now that from a context c_0 at time t_0 there are two relevant possibilities open: w_1 (where it is sunny on Sunday at the place where the asserter is) and w_2 (where it is cloudy on Sunday at that very same place). If we wanted to draw a diagram to analyze how such an assertion should be assessed at different contexts, we could use the following one, where c_1 and c_2 are two contexts respectively located in w_1 and w_2 at time t_2 (on Sunday) and in the same place as c_0 is located:

c_1 (sunny) c_2 (cloudy) t_2 (Sunday)
w_1 w_2 t_1

                     c_0 t_0 (Saturday)
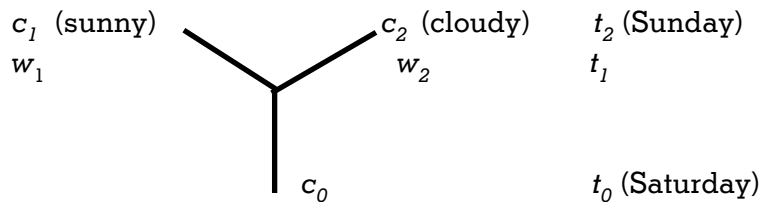
Based on this metaphysical picture, MacFarlane (2014, p. 204-207) devises a modal semantics with the resources to talk about the branching future, providing a truth definition for sentences at a context and index (an ordered set containing at least a world and an assignment to the variables) and a truth definition for propositions at a circumstance of evaluation (an ordered set containing at least a world). As he stresses, the pragmatically relevant definitions (i.e. the ones that are

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[3] It is worth pointing out that we can see the linear picture as a limiting case of the branching picture: in case there were at present only one possible future course of events, there would be –as it were- only one possible future branch (i.e. the future would be determined by the present state of the world). Thus, although MacFarlane proposes the branching picture in order to formulate a view on future contingents compatible with indeterminism, his view is meant to be also compatible with determinism.

[4] Branching tree diagrams would be one way of representing MacFarlane's view on time. Now, since MacFarlane is willing to say that we can say truly that, for instance, yesterday it was unsettled that today it was going to rain, we may want to represent in our diagram some branches that are not live possibilities at present but were open possibilities in the past. Therefore, a net having some paths open and others closed off may better represent this metaphysical picture (this metaphysical difference between the paths can be represented, for instance, by drawing them in different colours).

meant to link our semantic theory with our linguistic practice) are not these truth definitions but the post-semantic definitions of *truth at a context* for sentences and propositions.[5] The context at which a sentence and proposition are used[6] and –if you accept Macfarlane's view- the possibly different one from which this use is to be assessed, would determine the relevant indices and circumstances for respectively assessing the sentence and the proposition for truth and, derivatively, how the just mentioned use (typically an assertion, acceptance or rejection) is to be evaluated for accuracy.

Now, truth relativism constitutes one possible way of addressing the post-semantic question of how to define truth at a context; there are other alternative views that are compatible with the semantics MacFarlane devises to talk about a branching future. One such a view is supervaluationism. In this essay I argue that MacFarlane does not provide good reasons to prefer his view to supervaluationism. The only type of evidence that could be used to support his proposal consists in the apparent existence of accurate future contingent claims made in the past, and such evidence is controversial. As a result of this, the introduction of novel post-semantic devices such as contexts of assessment turns out to be ill motivated in the present case.

In the first section I introduce truth relativism and supervaluationism as well as the alleged advantage of the former over the latter. In the second one I argue that there is no sufficient evidence for the existence of retrospective accuracy assessments supporting relativism about future contingents, and no possible disagreements and retractions lending support to this proposal. This scenario casts doubt on the alleged advantages of truth relativism presented in the first section and makes MacFarlane's (2008, p. 98-101) "actually" operator argument crucial to support truth relativism over supervaluationism. In the third section I present the just-mentioned argument and show that Roberto Loss (2012, p. 19-22) has successfully rebutted it. From the weakness of the data supporting relativism about future contingents we finally conclude, in the fourth section, that the question of whether we should consider this view as true is partially dependent on whether there are other cases deserving a relativist treatment that make this particular proposal non-*ad hoc*.

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[5] It is worth noting that MacFarlane (2014, 72, 76-92) does not class his definition of propositional truth at a circumstance and his definition of propositional truth at a pair of contexts as respectively being a semantic and a post-semantic definition. However, since he (2014, 52-64) does talk about a semantic and a post-semantic definition of sentential truth, and these definitions are respectively associated with the first and the second propositional truth definitions mentioned above, I decided, for ease of presentation, to also talk about a semantic and a post-semantic definition of propositional truth in MacFarlane's framework.

[6] As MacFarlane (2014, p. 78) points out, it sounds odd to talk of a proposition being used at a context because a proposition is not used in the same way as a sentence is. When I make an assertion, the asserted proposition is what I asserted and not –like the uttered sentence- something I used to make the assertion. Be that as it may, as he (2014, p. 78) observes, one can ask about the truth-value of a proposition at a context in which a sentence expressing it might be used, and so one can, in an extended sense, see assertions as uses of the propositions asserted.

1 Truth relativism and supervaluationism

According to the semantics and underlying metaphysics shared by supervaluationism and truth relativism, a context singles out a unique time (i.e. the time of the context) but not necessarily a unique world. Since at the time of a context several future possible courses of events may be open, a context does not in general single out a unique world but a class of worlds, namely the worlds overlapping at the context.[7] We use – following MacFarlane (2014, p. 204-207) – the following notation to spell out the different proposals and ignore, for simplicity's sake, the assignment to the variables in our indices. Let $W(c)$ be the class of worlds that overlap at context c, $[[S]]^c w$ the extension of a sentence S relative to a context c and an index w (i.e. the world w)[8], and $|S|^c$ the (classical world-neutral) proposition S expresses at context c.[9] We can get a relativist post-semantics by introducing a certain modification into a supervaluationist post-semantics. The supervaluationist definitions of truth at a context for sentences and classical propositions are as follows:

> (S1) A sentence S is true/false as used at c iff for every $w \in W(c)$, $[[S]]^c w =$ True/False.
> (S2) A proposition $|S|^c$ is true/false as used at c iff for every $w \in W(c)$, $|S|^c$ is true/false at w.

(S1) and (S2) give rise to truth-value gaps: those propositions that turn out to have different truth-values at the worlds overlapping at the context of use are neither true nor false.

According to supervaluationism, despite a classical proposition having a truth-value only relative to a possible world, which possible worlds are relevant for assessing a proposition depends on the time at which the proposition is used (i.e. the time of the context of use). Hence, supervaluationism is able to do justice to the way we assess for truth what is said at a given time. Suppose that indeterminism about the weather is true and that Ann said yesterday that it was going to be sunny today. Since at the time when Ann made her assertion it was unsettled whether it was going to be sunny today, at a context located at that time one can

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[7] It is worth pointing out that this could be questioned. According to the thin red line view, a context determines one single world in a way that is compatible with indeterminism. For a presentation of this view see Belnap and Green (1994) and MacFarlane (2014, p. 209-213).

[8] MacFarlane's (2014, p. 204-207, p. 226) indices include an assignment to the variables. Since for our present purposes the precise details of MacFarlane's sentential truth definitions are not relevant, I here take indices as being just possible worlds.

[9] At the propositional level, MacFarlane (2014, p. 207, 227) chooses to formulate his position talking mainly about classical propositions (i.e. propositions that have a truth-value only relative to a possible world). Be that as it may, he (2014, p. 227) also provides a truth at a context definition for propositions that can also be time-neutral. As he (2014, p. 207) points out, the positions here considered could be formulated in terms of frameworks that make room for time-neutral propositions or other kinds of non-classical propositions. For simplicity's sake I just consider the case of classical propositions.

say truly about the proposition Ann asserted that it is neither true nor false. Suppose now that it is sunny today. Supervaluationism correctly predicts that one can say truly today about the very same proposition Ann asserted yesterday that it is true. The context at which we use this proposition to predicate a truth-value or truth-value gap of it has changed from one day to the next, and consequently the worlds overlapping at each context –i.e. the ones one should take as relevant for assessing the proposition for truth- are different.

We can see the point more clearly if we notice that, according to the semantics shared by supervaluationism and truth relativism, the object language truth predicate is a monadic predicate that satisfies the *Equivalence Schema*: 'The proposition that p is true iff p.'[10] Accordingly, "true" can be predicated of a proposition p at $<c, w>$ iff p is true at w. Given this semantics for "true," a simple argument shows that Ann said something true yesterday:

1. Yesterday Ann uttered the sentence "It will be sunny tomorrow" (premise).
2. Yesterday Ann said that it would be sunny today (from 1 by the semantics for "tomorrow").
3. It is sunny today (premise).
4. What Ann said yesterday is true (from 2, 3 by the *Equivalence Schema*).

Be that as it may, supervaluationism takes accuracy to be absolute and so it would not solve MacFarlane's puzzle. An assertion, acceptance or rejection would be a way of using a proposition, and supervaluationism takes the context of use as fixing all the worlds that are relevant for truth-value assessments. Accordingly, on this view an assertion is accurate iff the asserted proposition is true at all the worlds overlapping at the context where the assertion is made. In other words, supervaluationism is a form of non-indexical contextualism: it takes the truth of certain world-neutral propositions to vary across contexts, but conceives of the accuracy of assertions as fixed once and for all. Thus, MacFarlane (2008, p. 89-90; 2014, p. 224-226) claims that supervaluationism does not do justice to the way we retrospectively assess assertions for accuracy: future contingent claims are absolutely assessed as inaccurate because of the proposition asserted not being true at all the worlds overlapping at the context where the assertion is made, and so cannot be assessed as accurate at later times. That is, supervaluationism would not offer an answer to the puzzle that allows us to vindicate indeterminism and – what MacFarlane takes to be- our retrospective accuracy assessments.

There is an answer to this critical observation that makes the "actually" operator argument particularly relevant in arguing for the superiority of relativism over supervaluationism. We shall consider this answer and the just-mentioned argument in the third and fourth sections respectively. For now, let us see how truth relativism is designed to fix the alleged drawback had by supervaluationism.

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[10] Or, in formal vocabulary: $\forall x\,((x = \text{the proposition that } p) \supset (\text{true}(x) \equiv p))$.

As we said, we can get a truth relativist post-semantics by introducing a change into the supervaluationist post-semantics. Instead of quantifying over all the worlds that overlap at the context of use when defining truth at a context, truth relativism quantifies over all the worlds overlapping at the context of use c_0 and the context of assessment c_1. The set of worlds overlapping at both contexts is defined in the following way:

$$W(c_0, c_1) = W(c_1) \text{ if } W(c_1) \subset W(c_0)$$
$$W(c_0) \text{ otherwise}^{11}$$

The truth relativist definitions run then as follows:

(R1) A sentence S is true/false as used at c_0 and assessed from context c_1 iff for every $w \in W(c_0, c_1)$, $[[S]]^{c0}w = \text{True/False}$.

(R2) A proposition $|S|^{c0}$ is true/false as used at context c_0 and assessed from context c_1 iff for every $w \in W(c_0, c_1)$, $S|^{c0}$ is true/false at w.

(R1) and (R2), like (S1) and (S2), give rise to truth-value gaps: those propositions that do not have the same truth-value at all worlds overlapping at the context of use and the context of assessment are neither true nor false. This would typically happen when both context coincide, that is when one assesses an assertion from the context at which it is made.

Truth relativism yields the same results as supervaluationism does concerning retrospective truth-value assessments of what was said but different results concerning retrospective accuracy assessments.[12] In deriving the accuracy or inaccuracy of an assertion from the truth-value or truth-value gap of the asserted proposition as used at the context of the assertion and assessed from our current context, we would obtain results that are in line with our linguistic practice. In case c_0 is in the past of c_1 (i.e. if both contexts are in one single world), $W(c_0, c_1) = W(c_1)$. Hence, an assessor at c_1 must judge an assertion made at c_0 as accurate just in case the proposition asserted is true at all the worlds that overlap at c_1. In this way truth relativism would explain why a future contingent claim that –due to indeterminism- is inaccurate as assessed from the context where it is made because of the asserted proposition being neither true nor false, could be at a later context correctly judged as accurate. On the other hand, when $c_0 = c_1$ the assessor

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[11] One could think that the context of assessment is the only context needed to determine the relevant class of worlds for assessing propositions. This would be so if the context of use were always in the past of the context of assessment, but MacFarlane wants to take into account the possibility of assessing hypothetical future contingent claims made in counterfactual situations. For such assessments, the worlds overlapping at the context of use would be the ones that matter. Therefore, in order to have a general definition, MacFarlane talks about the class of worlds overlapping at both contexts and defines such a class in the just stated way.

[12] When we assess what was said (i.e. a proposition) for monadic truth, we use (accept or reject) this proposition. Thus, the context of use coincides with the context of assessment when it comes to propositional truth-value assessments. The practical difference between supervaluationism and truth relativism is only found in the results they yield concerning accuracy assessments.

must judge the assertion as accurate just in case the proposition asserted is true at all the worlds overlapping at c_0, or for that matter c_1.

According to what we said, in case indeterminism were true, an assessor at c_0 should not judge a future contingent claim made at the time of that context as accurate but as inaccurate (because of the proposition asserted not being true). This is the reason why MacFarlane (2008, p. 90; 2014, p. 226) holds that whereas a proof of present unsettledness (i.e. a proof that it is not settled whether a future contingent proposition is true or false) can be sufficient to compel a retraction of an assertion of this proposition, a proof of past unsettledness is not sufficient for this: an assertion that is inaccurate as assessed from context c because of the proposition asserted being neither true nor false, can be accurate as assessed from a later context c' because of that very same proposition being true.

2 The evidence for truth relativism

As MacFarlane (2008, p. 94-98) acknowledges, there is no robust evidence for the existence of retrospective accuracy assessments supporting truth relativism about future contingents. The reason why this is so is that "accuracy," as applied to assertions, is a technical term devised to talk about the correctness of assertions derived from the truth of their contents at the relevant context(s). Truth, in turn, would be pre-theoretically predicated only of these contents (i.e. propositions) and so, insofar as the alleged data on assessments of future contingent claims involve the ordinary truth predicate, they would have to do with the contents of these assertions and not with the assertions themselves. According to this, speakers do not have an everyday term to assess the accuracy of assertions. This does not mean that we do not have and cannot elicit intuitions about accuracy,[13] but it puts into question part of the adduced retrospective assessment data based on everyday dialogues, since when speakers say that a past future contingent claim is true or false they would be just evaluating at their context the asserted proposition, which at the context of utterance was neither true nor false. In the end, all the evidential weight based on dialogues is laid on our use of sentences like "I was right," "She was right" or "You were right," which do seem to imply that we are now assessing a previous assertion, acceptance or rejection as accurate. But we could cast doubt on the legitimacy of such data and motivate opposite intuitions by stressing the fact that from the context where it was made a future contingent claim was inaccurate because of the future being unsettled, and so the speaker was not entitled to make this assertion.

On the other hand, one cannot elicit intuitions of disagreement or retraction to support relativism about future contingents, as we can in the case of other relativist proposals (e.g. in the case of truth relativism about predicates of personal

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[13] As a matter of fact, in appealing to the notion of assessment sensitive accuracy to account for a range of alleged retractions and disagreements the relativist about a given domain of discourse assumes that the notion of accuracy is intuitively significant.

taste, knowledge ascriptions or epistemic modals). Let us consider first why there cannot be disagreements conferring support on this view, and then see why we cannot find retractions (i.e. speech acts by means of which a speaker takes back an earlier speech act she made) supporting this view either.

There are two types of purported disagreements that one might think could lend support to this view. Firstly, we could appeal to cases where two parties occupying contexts that are located at different branches disagree over the accuracy of a future contingent claim made in the past of these two contexts (i.e. a claim made before these two contexts branched). But notice that these alleged disagreeing parties occupy different (sets of) worlds. Are we entitled to say that someone in a counterfactual situation would be wrong in judging that a past future contingent claim, which we assess as accurate given how the world *actually* turned out to be, was inaccurate? The answer seems to be negative, since when we think about a hypothetical assessor in a counterfactual situation we arguably shift the world(s) of evaluation and must consider whether she would be right or wrong if the world were such and such. We should thus determine whether she would be right or wrong taking into account the counterfactual situation she is in. Accordingly, we should take the allegedly disagreeing parties' judgments about a past claim as being about the same claim but concerning different (sets of) worlds.[14] As a result, their alleged disagreement should be classed as a mere case of *doxastic non-cotenability*. As MacFarlane (2014, p. 121-128) shows, this is a weak, arguably non-genuine form of disagreement not involving *preclusion of joint accuracy* (i.e. the impossibility of two assertions, acceptances or rejections being jointly accurate) but just the impossibility of adopting one's disagreeing party's attitude without changing one's mind. [15]

The second kind of purported disagreements about a future contingent claim the relativist could appeal to, are cases where the parties occupy contexts located at different times of a single line of the tree, and the asserted future contingent proposition is neither true nor false as assessed from the earlier context while it is true as assessed from the later one. Can we say that the assessor at the earlier context can correctly (from her context) assess as inaccurate a judgment that the assessor at the later context makes and it is accurate as assessed from her context? It does not seem so. For the earlier assessor, the biggest set of worlds the later assessor occupies is different (for the moment, at least) from the one she occupies, and so the considerations from the last paragraph can be applied to this case. More precisely, from the context of the earlier assessor, the set of worlds intersecting at the time of this context is different from the set of worlds intersecting at the time

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[14] I am here using John Perry's (1986) distinction between a thought or utterance *being about x* (i.e. x is part of the content of the thought or utterance) or *concerning x* (i.e. x is included in the circumstance of evaluation that the context of use fixes as relevant).

[15] Non-indexical contextualism about a given domain of discourse, can only take the apparent disagreements adduced in support of truth relativism about that very same domain as cases of doxastic non-cotenability. Truth relativism, in turn, is supposed to be able to also take them as cases of preclusion of joint accuracy. To be sure, "accuracy" must be understood here as assessment sensitive.

of the context of the later assessor, and so the worlds these two assessors will ultimately occupy can be different. The opposite case, i.e. the one where the assessor at the later context correctly assesses as inaccurate the judgment made by the assessor at the earlier context, is much more plausible. After all, she is assessing a claim made by someone in the same world as she is. Be that as it may, cases where an assessor correctly rejects as inaccurate a future contingent claim made in the past do not support relativism as opposed to supervaluationism, since for the latter view all future contingent claims are inaccurate because of the asserted proposition being neither true not false at the context of use. Thus, relativism about future contingents, unlike relativism about other cases, does not allow for the possibility of two disagreeing parties being both accurate (in a single world) relative to their own different contexts of assessment.

Finally, relativists about future contingents cannot appeal to retractions to support their view either. A retraction supports truth relativism insofar as this view vindicates the impression that the retracted claim is inaccurate as assessed from the context at which the retraction takes place but it is accurate as assessed from the context at which the claim was made. But, as we have seen, according to both relativism and supervaluationism, a future contingent claim is inaccurate as assessed from the context at which it is made. Thus, uses of sentences like "I was wrong/mistaken," just as uses of sentences like "You were wrong/mistaken," cannot support truth relativism over supervaluationism. To be sure, the relativist could claim that there are retractions (or rejections of others' past future contingent claims) made by means of assertively uttering a sentence like "That was false," and that only her view could vindicate them. However, as we suggested, uses of such sentences do not constitute evidence for retraction (or rejection of someone else's claim), since the speaker can just be, from her current context, assessing for truth a previously asserted proposition without retracting (or rejecting) the assertion itself.

To conclude, relativists about future contingents can only appeal to retrospective assessments of a future contingent claim as accurate in order to support their view, and the evidence for the existence and legitimacy of such assessments is not robust. These considerations cast doubt not only on truth relativism but also over MacFarlane's formulation of the puzzle presented at the beginning of this essay, that is as a puzzle about the accuracy assessments of future contingent claims and not just about the truth-value assessments of the asserted propositions. However, MacFarlane (2008, p. 98-101) has put forward one further argument in support of his view, namely the "actually" operator argument. But as we shall see in the next section, Roberto Loss (2012, p. 19-22) has rebutted this argument.

3 The "actually" operator argument

MacFarlane (2008, p. 98-101) claims that supervaluationism yields wrong predictions concerning our use of "actually." More precisely, it would yield wrong

predictions about the truth-value of the propositions asserted in the past by means of sentences like (2):

(2) It will actually be sunny tomorrow.

According to MacFarlane, "actually" is an operator whose uses are constrained by the principle of *Initial Redundancy* (I will not question this assumption):

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

In standard non-branching frameworks, the semantics for this operator respects *IR* and runs as follows:

(A) 'Actually: S' is true at $<c, w>$ iff S is true at $<c, w_c>$, where c is a context of use, w is a world, and w_c is the world of c.[16]

This semantics for "actually" respects *IR*, since the operator is taken to shift the world of evaluation to the world of the context of use no matter how deeply embedded it is. But in a branching framework we arguably need a different semantics for "actually," since there need not be a world of the context.[17] According to MacFarlane, whereas supervaluationism has to endorse (A_1), truth relativism has to endorse (A_2):

(A_1) 'Actually: S' is true at $<c, w>$ iff S is true at $<c, w'>$, for all $w' \in W(c)$.
(A_2) 'Actually: S' is true at $<c_u, c_a, w>$ iff S is true at $<c_u, c_a, w'>$, for all $w' \in W(c_u, c_a)$, where c_u is the context of use and c_a is the context of assessment.[18]

According to (A_1) "actually" universally quantifies over the worlds overlapping at the context of use, whereas (A_2) states that it universally quantifies over the worlds that overlap at the context of use and the context of assessment. As a result, both (A_1) and (A_2) satisfy *IR*.

Suppose now that yesterday at context c_0 I uttered (2) and that today at context c_1 it is sunny. Insofar as supervaluationism would endorse (A_1), it would be committed to claim that what I said yesterday was true if and only if it is sunny

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[16] We are assuming that S is a sentence that lacks quantifiers, and so we can afford not mentioning the assignment to the variables that should be included in the indices. That is, for simplicity's sake we are taking indices as being just possible worlds and so our sentential evaluation points as being pairs of a context and a world.

[17] As we pointed out, this could be questioned. According to the thin red line view, we could coherently talk about the world of the context of use even if indeterminism were true.

[18] Note that in order to give a recursive semantics for the "actually" operator, the relativist would need to take contexts of assessment into account at the strictly semantic level.

today at all the worlds overlapping at c_0. Since this is not the case, supervaluationism would counter-intuitively predict that if I were to say today that what I said yesterday was true, I would say something false. Truth relativism, on the other hand, would correctly predict that I can say this truly today, since today it is sunny at all the worlds overlapping at the context of use c_0 and the context of assessment c_1. This is MacFarlane's "actually" operator argument against supervaluationism.

As Loss (2012, p. 19-21) shows, MacFarlane's argument assumes that supervaluationism cannot help but consider "actually" as an indexically context-sensitive expression (i.e. an expression that makes different contributions to propositional content across contexts), but this is a false assumption because there are alternative non-indexical contextualist semantics for this expression that supervaluationism can endorse. Thus, Loss's reply has two parts: (a) first, he shows that MacFarlane assumes that supervaluationism must take "actually" as an indexically context-sensitive expression, and (b) then he argues that there is an alternative semantics for "actually" available to this view.

There is a simple argument for the first thesis. Notice that MacFarlane is committed to say that the following argument (let us call it *A*) is invalid within a supervaluationist framework:

1. Yesterday I uttered the sentence "It will actually be sunny tomorrow" (premise).
2. Yesterday I said that it would be actually sunny today (from 1 by the semantics for "tomorrow" and "today").
3. It is actually sunny today (premise).
4. What I said yesterday is true (from 2 and 3 by the *Equivalence Schema*[19]).

Assuming that 1 and 3 are true, if *A* were valid within the supervaluationist framework MacFarlane's objection would be mistaken, since its conclusion would be true within that framework contrary to what MacFarlane claims. In other words, if MacFarlane's criticism were right, *A* should be invalid within a supervaluationist framework. Now, once the *Equivalence Schema* is assumed, the only part of *A* that can be responsible for its invalidity is the transition from 1 to 2. This, in turn, implies that the proposition asserted yesterday by uttering "It will actually be sunny tomorrow" is different from the one asserted today by uttering "It is actually sunny today."[20] And given the semantic assumptions that, together with MacFarlane

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[19] Recall that this principle states the following: $\forall x \, ((x = \text{the proposition that } S) \supset (\text{true}(x) \equiv S))$.

[20] Loss (2012, p. 20) presents one further argument to show that MacFarlane assumes that supervaluationism takes the propositions asserted by means of these utterances to be different:

1. Yesterday (by uttering the sentence "It will actually be sunny tomorrow") I expressed the proposition P_1 (premise).
2. Today (by uttering the sentence "It is actually sunny today") I have expressed the proposition P_2 (premise).
3. It is actually sunny today (premise).
4. P_2 is true (from 2 and 3 by the semantics for "true").
5. P1 and P2 are the same proposition (premise).
6. What I said yesterday is true (from 1, 4 and 5 by the *Equivalence Schema*).

(2008, p. 99-101), we are making (i.e. we are treating "today" and "tomorrow" as directly referential expressions,[21] and tense markers in general either as referential expressions or quantifiers), these utterances can express different propositions only if "actually" is an indexically context-sensitive expression.

But is it mandatory for supervaluationism to treat "actually" as an indexically context-sensitive expression? It is not difficult to show that the answer to this question is negative. As Loss (2012, p. 21-22) argues, in order to devise a non-indexical contextualist semantics for "actually" satisfying *initial redundancy* (*IR*) we need to do three things:

(i) First, we have to enrich our indices and circumstances of evaluation with a *set-of-worlds* parameter s (i.e. the *actuality* parameter).[22]

(ii) Second, we have to define the semantic truth conditions for "actually." An obvious option is the following: 'Actually: S' is true at context c and index $<w, s>$ (where w is a world and s is a set of worlds) iff S is true at c and every index $<w', s>$, where w' is a world belonging to s.[23], [24]

(iii) Finally, we need to replace the original supervaluationist definitions of sentential and propositional truth at a context presented in the first section with the following definitions:

(S1') A sentence S is true/false at c iff S is true/false at c and every index $<w, s_c>$, such that w is a world overlapping at c and s_c is the set of worlds overlapping at c.

(S2') A proposition $|S|^c$ is true/false at c iff it is true/false at every circumstance $<w, s_c>$, such that w is a world overlapping at c and s_c is the set of worlds overlapping at c.

The three points above stated show that in order to universally quantify over the set of worlds overlapping at the context of use we do not have to endorse (A_1). According to (ii) and (iii), the truth-conditional contribution of "actually" involves such a universal quantification. This secures *IR*. But on this semantics, despite "actually" being sensitive to the context of use, the feature of such a context that this operator is sensitive to (i.e. the set of worlds overlapping at this context) does not affect the proposition expressed but just becomes part of the index and

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This is a valid argument. In order to reject its conclusion, the only premise that makes sense to reject is 5.

[21] Loss (2012, p. 19-20) presents his argument without using these two expressions, but a name for a particular time (i.e. t_2). This shows that MacFarlane's "actually" operator argument would still be in trouble if these semantic assumptions were not made.

[22] As a result, our circumstances are order pairs consisting of a world and a set of worlds, whereas our indices are ordered triples consisting of a world, a set of worlds and an assignment to the variables. We are here ignoring this assignment.

[23] On the other hand, the proposition expressed at c by 'Actually: S' is true at a circumstance $<w, s>$ iff the proposition expressed at c by S is true at every circumstance $<w', s>$, where w' is a world belonging to s.

[24] It is worth noting that Loss (2012, p. 23) prefers a more complicated definition that allows a sentence like "It will actually be sunny" to be gappy (lack a truth-value) when a sentence like "It will be sunny" is gappy.

circumstance that are contextually relevant for respectively assessing for truth a sentence containing "actually" and the proposition it expresses. Thus, so defined "actually" is sensitive to the context of use but does not make different contributions to propositional content across contexts. As a result, argument A can be valid within a supervaluationist framework, which means that MacFarlane's "actually" operator argument is mistaken.

4 Final remarks

This scenario makes the evidence for truth relativism and against supervaluationism rather weak. In the end, the evidence for the former view consists entirely in the apparent existence of accurate future contingent claims made in the past and, as we saw in section 2, this evidence can be put into question. Be that as it may, it can be argued that, despite not being robust, this evidence still confers some plausibility on truth relativism. Hence, the question of whether we should go relativist in the present case is arguably dependent on whether there are other cases deserving a relativist treatment that make this particular proposal non-*ad hoc*.

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