Necessitation and the Changing Past*

Abstract

A central tenet of truthmaker theory is that necessitation is necessary for truthmaking (NEC). This paper defends NEC in a novel, piecemeal way, namely by responding to a potential counterexample involving a changing past.

If Carter won a race at *t1* but is later disqualified at *t2*, then Carter no longer won at *t1*. A wholly past event seems to have changed in the future. The event makes 'Carter won the race at *t1*' (RACE) true between *t1-2* but fails to make it true at *t2*. So, we have a potential counterexample to necessitation: a truthmaker of RACE fails in another context to make the same truthbearer RACE true. I argue that the best solution to this challenge is not that there are different truthbearers at *t1-2* and *t2* (the semantic response), or that RACE was never true because of the future disqualification or will always be true despite the future disqualification. The best solution is to accept that the past can change: past events can change based on what happens in the future (e.g. via their effects). This paper's novel defence of necessitation will illustrate the importance of utilising explicitly ontological and commonsensical tools in accounting for truth.

Keywords: Truthmaking, Necessitation, Tense, Change, Events, the Past

1 Introduction: Truthmaking and Necessitation

It remains standard amongst truthmaker theorists to assume that truths and truthmakers must be tied in the metaphysically strongest way: by necessitation. For example, if the truth that the table is black is made true by the fact that the table is black, then in all possible worlds in which the truthbearer exists and the fact exists, the truthbearer is true. This is generalised thus:[1]

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[1]Merricks (2007: 7) calls it "*conditional necessitarianism*".

NECESSITATION (NEC): for all x and s, if truthbearer s is made true by truthmaker x, then, in all possible worlds where s exists and x exists, s is true.

NEC is the most central part of standard truthmaker theory, despite not many attempts at defence[2] and with notable detractors.[3] It is well-known, for instance, that NEC needs supplementation by what Smith (1999: 279) calls "some relevance constraint":

ABOUTNESS-CONSTRAINT (AC): truths are made true by the parts (or aspects) of reality *which they are directly about*.[4]

This is to avoid unattractive consequences, which result when taking necessitation also to be *sufficient* for truthmaking, when NEC is expressed by a bi-conditional. For instance, in whatever world a necessary truth (e.g. '2+2=4') and Biden's hands exist, the necessary truth is true. With a relevance constraint, we can rule out that necessary truths are made true by any contingent fact: they aren't all about Biden's hands.[5]

However, even though NEC doesn't express sufficiency for truthmaking, it remains standard to accept NEC's expression of the necessity of necessitation. Since NEC is a general claim about all truthbearers, it is sufficient to undermine the necessity of NEC by presenting problematic counterexamples. As Skiles writes in a slightly different context, "contingentists merely deny that *every possible instance* of grounding carries such strong modal import" (2015: 718).

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[2] See (Armstrong 1997: 116), (Cameron 2008: 109-113), (Merricks 2007: 5), and (Schaffer 2008: 10). Cf. (Merricks 2007: 8-11) for some arguments. The most recent, general defence comes from Asay (2016: *passim*; 2020: 52-68) who argues that necessitarians can account for facts about truthmaking better than non-necessitarians. The aim of the current paper is to defend necessitarianism piecemeal against the best new problematic cases involving shifting truth-values.

[3] See, e.g., Briggs (2012: 22), Cameron (2005: 4–5), Griffith (2015), Heil (2000: 232-233; 2012: 159-161), Mellor (2003: 214-215), Parsons (1999: 328ff), and Schaffer (2008: 304). These truthmaker theorists clearly accept truthmaking while rejecting NEC.

[4] See Schipper (2018: §4; 2021: §2). See also Yablo (2014: especially §4), Griffith (2015: 326), and Lewis (1999: 206; 2003: 25), who put aboutness centre-stage. Not everyone accepts AC. Some try to avoid the problems it solves alternatively, e.g. via grounding (Schaffer 2010), or by arguing from general considerations that necessitation is *sufficient* for truthmaking (Asay 2020: §3.3). For a general defence, pace Asay, see Schipper 2022: *passim*.

[5] See also (Merricks 2007: 22ff, 28ff), (Lewis 2001: 604), and (Read 2000: 69-70) for what's called the problem of necessary truths. There are further puzzles that arise merely from combining NEC and AC. We cannot present them here. To address them, we need also to present more details than necessary for our purposes of the best truth-relevant account of aboutness.

This paper defends the necessity of NEC in a novel, piecemeal way: by addressing what I consider to be the best potential counterexample involving shifting truth-values over time. First, after presenting the most standard semantic machinery to account for tense, §2 presents what I take to be the strongest potential counterexample to NEC, one similar to examples discussed in the literature on tense and the nature of knowledge. In §§3-4, I present responses, especially a semantic response (§4), which tries to save the Fregean orthodoxy that propositions must have their truth-values eternally by introducing context-sensitive elements in the propositions expressed by the sentences in the counterexample. I argue that these responses fail. After setting up the problem and seeing rival answers fail, §5 presents a novel, ontological response that looks carefully at the ontology of the events involved in the case, in particular to their temporal aspect and their relation to their effects. In §6, I argue that this response is preferable to other potential responses.

This paper focuses, in a piecemeal manner, on cases with shifts in truth-value across *times*. Discussing other potential counterexamples with truth-value shifts across other dimensions, such as modal or spatial dimensions, must be left for another time.[6]

2 The Counterexample to NEC: Shifting Truth-values & a Changing Past

The counterexample to NEC that I shall present in this section has the following form: truthbearer s is true and made true by π in context <world @, time t_1>, but s is false in <@, t_2> even though π also exists. This is an example in which a past-tense truthbearer s undergoes a *retroactive* aboutness- and truth-value-change and in which "the past has changed", as Barlassina & Del Prete (2015: 59) put it. They take this to be *a fundamental puzzle to be resolved*, and they locate the fundamental problem to be that the past cannot change.[7] So, they explore possible,

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[6]See (Lewis 1980: §5, 95) for the various ways that shiftiness can occur and how they differ from changes in context.

[7]See Ben-Yami (2007) for the impossibility of backwards causation (cf. Dummett 1964). Also, backwards causation does not seem to entail changing the past anyway, since apparently Ludovician time travel entails backwards causation without changing the past. See also Tallant and Ingram (2012) and Tallant (2018: 130-132) who criticise Cameron (2011) on the basis that his theory allows for past vacillation (Cameron's [2013: 363] response explicitly aims to avoid this). Almost everyone in the debate about time accepts that even allowing for the possibility of past vacillation

semantic responses, ultimately concluding that no adequate answer can be given with the currently best semantic resources.

To illustrate the assumption that the past cannot change, one might contrast it with the openness of the future. Suppose that Sally has just walked halfway across the street. Even though she is in the process of walking across the street, she may still not complete *this*, since she can as yet turn back or she may be hit by a truck. Her future is open: there are still several live possibilities. By contrast, her having walked halfway across the street is now in the past. So, one can no longer change this. According to the assumption, what is now already in the past cannot change.[8]

In the following case, we seem to have a change in truth-value from context to context, even though we seem to hold fixed the truthmakers (recall, the impossibility of changing the past) and the truthbearing eternal propositions. The upshot seems to be that NEC must be relinquished.

Before we present the case, it is also useful to say something about some basic semantic assumptions. On the standard account of tense, we have to introduce temporal parameters *into* the propositions expressed by the (token) sentences in the differing contexts. That is, sentences are temporally specific, as understood by what Barlassina & Del Prete (2015: 60) take to be the now standard referential analysis of tense proposed by Partee (1973).[9] On this analysis, a sentence s is *temporally specific* exactly if it expresses in context c a proposition p, which ascribes a property F to a specific time t. Barlassina & Del Prete (2015: 60; slightly reconfigured) usefully sum up the semantic principle for past tense truths which combines Kaplan's (1989: 522f) notion of *truth relativised to a context* and the standard referential analysis of tense thus:

***Truth about past times* (TAP):** Let s, c, p, F, t be such that: s is a temporally specific sentence that is about a past time in context c, p is the proposition expressed by s at c, and F is the property that p ascribes to the specific time t. Then, s is true in c if and only if t has property F relative to the past of c.

Now, consider the following truthbearer:

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is to be avoided. There are exceptions, however. Cf. Skow (2015: 56-61) who argues for his account's consistency with past vacillation as a benefit and Effingham (2021) who even articulates a metaphysical framework specifically to allow for "past vacillation".

[8]I thank an anonymous reviewer for suggesting that I expand on this *illustrative* contrast. However, one need not accept the openness of the future to accept the necessity of the past.

[9]See also, among others, (Heim 1994) and (King 2007). By contrast, Recanati (2007) and Brogaard (2012) propose an operator-based account of tense.

RACE: The Jamaican team won the 4x100-metre relay race at the 2008 Beijing Olympics at 4:01 P.M. Beijing Time on 22 August 2008.

We might express the logical form roughly as follows:

RACE*: [$t \leq$ now $\land$ $t =$ 4:01 P.M. Beijing Time, 22nd August 2008 $\land$ the-Jamaican-team-wins-the-race(t)]

On the 22nd of August 2008, the Jamaican team received the Olympic gold medal by winning first place in this particular race, running the race at the then new world record time of 37.10 seconds. The appropriate and competent Olympic authorities performed the relevant pre-race tests (e.g. testing all the participants for doping and checking that all the equipment was in order) and, based on the results, did not intervene on the team's victory. So, when, the day after, the newspapers and everyone, including Sally, who watched the race in awe, believe, report, and express RACE, they do so truthfully. For in <@, 23rd August 2008>, RACE is true. Barlassina & Del Prete (2015: 61), evaluating a similar case, would say of this case that "[t]here is a clear intuition that [Sally] said something true". Stronger still, Popovic (2015: 399), who discusses other similar cases, would claim that Sally (and the others) *know* that RACE.

The plot thickens, however, as almost a decade later, on the 25th of January 2017, Nesta Carter, one of the runners for the Jamaican team who took part in the 4x100-metre race, tested positive for metylhexaneamine, a banned substance. This led the appropriate sporting bodies to reconsider all the races in which Carter took part, after some deliberation coming to the decision to disqualify him from all those races and also the Jamaican team from their performances at the 2008 Olympics almost a decade earlier. And, this, in turn, led the International Olympic Committee (the IOC) to declare that the Jamaican team was *no longer the winner* of the various races which they had won during the 2008 Olympics.[10] So, when in <@, 25th of January 2017>, Sally recalls the race unaware of the latest development and decision-making, and continues to believe that RACE, she believes something false. For the same truthbearer is, in this later context, false: it is now false that the Jamaican team won the race on the 22nd of August 2008. Thus,

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[10]Similar wording was used by the French cycling authority, the *Union du Cyclisme Internationale*, when the Director of the Tour de France, Christian Prudhomme, declared: "Lance Armstrong is no longer the winner of the Tour de France from 1999-2005" (http://www.cbsnews.com/8301-400_162-57537025/lance-armstrong-stripped-of-tour-defrance-medals). This is discussed further in (Barlassina & Del Prete 2015: 64). The significance of this is that if Armstrong and Carter are *no longer* the winners, this presupposes that they *once were* the winners.

RACE, a time-indexed truthbearer, is true in <@, 23rd of August 2008> but false in <@, 25th of January 2017> and thereafter (unless something else changes with the relevant authorities' decision-making).[11]

RACE contains no context-sensitive words such as demonstratives (e.g. 'that') or indexicals (e.g. 'they'). So, RACE clearly expresses the same temporally parametrised proposition in both contexts. Thus, the truthmaker of RACE in <@, 23rd August 2008>, that is, *the team's having met all the pre-established conditions for winning the race, including having crossed the finish line in the fastest time* (let's call it π_{RACE} for short), and the truthbearer RACE both exist in <@, 23rd August 2008> and <@, 25th January 2017>. Furthermore, π_{RACE} is the right truthmaker for RACE (at least in <@, 23rd August 2008>), because it meets the aboutness constraint AC on RACE's truthmaker: π_{RACE} is very plausibly what RACE is directly about. However, RACE is true in the first context but false in the second. Therefore, NEC is false.

3 Two Eternalist Responses

There are two direct but unsatisfactory ways of responding: (a) the Jamaican team *never really won* the race because Carter cheated, that is, RACE was never actually true, even in <@, 2008>, and (b) RACE is true even in <@, 2017>.

Barlassina & Del Prete (2015: 62-66) point out that there is a distinction between *winning* and *deserving to win*. In response to (a), one might say that the Jamaican team, and in their case Lance Armstrong, *won* their respective races, even if they didn't *deserve to win* because Armstrong and Carter cheated (see ibid.: 62). However, unlike Armstrong, technically, it's not clear that Carter cheated in 2008. He tested positive almost a decade later but was still punished retroactively by having his wins annulled even in races in which there was no evidence that he cheated. Their distinction is, overall, not necessary. They clearly *won* because π_{RACE}, that is, they met all the pre-established conditions for winning at the time, such as passing the baton without dropping it, finishing the race before any other contestant, and passing any relevant tests to the satisfaction of the governing au-

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[11]This is a true-life case similar to Popovic's (2015: 400) schematic case of a subject *S*'s having knowledge that team A won the race, even though the proposition retroactively becomes false. Popovic, however, draws the more controversial conclusion that knowledge does not require truth; this is unnecessary for one might accept the underlying semantics but conclude that Sally no longer knows (for she doesn't have the relevant new information in 2017). Also, this first case is similar to, but different in crucial details from, Barlassina & Del Prete's (2015: 60ff) main case, the true story of Lance Armstrong.

thorities before the race. They did exactly what it takes to win this race in these circumstances, making what they did exactly and directly what RACE is about and, thus, *directly relevant enough* and *sufficient* to be the truthmaker of RACE.

In addition, they won even if the governing authorities didn't actively declare them the winners, for they clearly met all the pre-established conditions and there was no evidence at the time of the team or any individual in the team breaking the rules or cheating. Meeting the relevant conditions was enough for their winning at the time. The governing authorities, for instance, need not, in addition, have actively declared them the winners for them to satisfy all the conditions for winning. Even if such active declarations were necessary for victory in Olympic games (in fact, they aren't),[12] and one thinks that such a declaration matters for the case, we can easily imagine cases where this is not necessary, with or without explicit stipulation. For instance, in chess, if one player puts the other player in checkmate, then the first player has won, whether or not anyone actively declares this to be the case. Let's, however, stick to our example and take the active declaration of victory not to be necessary.

Also, they would have continued to be the winner if, for instance, the governing bodies, despite the new information, decided not to declare them no longer winners,[13] or if they were never found out to have had an unfair advantage.[14] Both happen regularly in real-life.

In our cases, the relevant authorities *do* declare the teams no longer to be the winners a decade later. (Note, again, that they didn't actively declare the Jamaican team the winner at the time of the win, for there was no need to make such a declaration: the Jamaican team decisively, and without any evidence to the contrary, won the race. Such declarations are only made when there is a controversy and an active adjudication is necessary, which was decidedly not the case here.) However, those authorities might have been more like other authorities who have allowed those with an unfair advantage to continue to be winners despite the new

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[12]Not all games require evaluation from the judges such as with boxing and gymnastics.

[13]In fact, there is precedent that only the relevant athletes and not their whole teams are affected. For instance, the USA team retained their Sydney 2000 Olympic medals after a successful appeal in 2010 despite Marion Jones losing hers due to doping. Also, the IOC decided not to disqualify the USA team retroactively of their 2004 medals despite Crystal Cox admitting to doping and being stripped of her 4x400 relay medal. See https://www.cbsnews.com/news/tyson-gay-doping-case-olympics-us-london-medal.

[14]In Carter's case, the new tests were made at random of the 454 athletes who participated in the 2008 Olympics and were to participate in Rio 2016. So, he could easily not have even been re-tested later.

information that came to light,[15] or they could instead have never been found out to be cheaters (if they were) and thereby continued to be winners. Both possible outcomes require that they had already won in the first place.

(b) is just plainly false.[16] The relevant authorities *just can*, that is, have the authority to, declare former winners to be no longer winners. Thus, claiming (b), that RACE is true even in $<@, 2017>$, would be to reject that the relevant authorities have the authority that they clearly have.

3.1   Cases such as RACE are not Anomalous

These sorts of cases are not anomalous or restricted to sports. Popovic (2015: §4) emphasises this, even giving a "*recipe for counterexamples*".[17] In each such case, there is a change in truth-value, (seemingly) despite

(i) the relevant truthbearers being numerically the same from context to context
and

(ii) without a change in how things were with the world at the relevant time.

Thus, even though nothing seems to change in the truthmakers from $<@, t_1>$ to $<@, t_2>$, the truthbearers can change their truth-value from true to false (and vice-versa). Therefore, NEC is false, despite time-indexing.

In the next section, I present the semantic (Fregean) response, which in short rejects (i) above, and argue that it fails to save NEC. §5 presents the right, ontological response, which rejects (ii): standard event ontology reveals that events wholly in the past *can* change in the future.

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[15]See my footnotes above. Also, Barlassina & Del Prete (ibid.) discuss the case of Argentina winning against England in the 1981 World Cup via the so-called "Hand of God".

[16]For a more detailed response which repudiates examples where "sincere and informed" statements in newspapers "seem to assert" (b), see Barlassina & Del Prete (ibid.: 63-64). Going into the details here is unnecessary. For one, what newspapers say, let alone what they "seem to assert" when one analyses them with logical machinery, even if they are "sincere and informed", is not a good guide to truth, especially when they conflict with what other "sincere and informed" newspapers seem to assert about the same subtle details.

[17]His examples concern the nature of knowledge. His recipe can easily be changed to apply to our discussion.

4   The Orthodox Fregean, Semantic Response

Orthodox Fregeanism is clearly threatened. According to this approach, if there is a difference in truth-value, there must be a difference in sense or proposition. For a sentence's proposition (or sense) *determines* its truth-value (eternally). But, as we saw with the case in section 2, we have exactly the same eternal propositions but also a difference in truth-value in different contexts. What *can* orthodox Fregeans concerning propositions say about the problematic cases?

In the specific cases, Fregeans might try to argue that, despite appearances, there are in fact context-sensitive elements which yield different propositions in the different contexts. The best Fregean response, in the case of RACE, might be to say that the predicate 'win' somehow has a different semantic role which allows it to shift its content in the different contexts. One might say, for instance, that 'win' is a context-sensitive predicate whose sense in context c depends on what is decided in the relevant context, and thus involves the relevant decisions in the context; that is, in context c, 'wins' actually means something like 'wins-according-to-the-decisions-that-are-relevant-in-context-c'.[18] The contents of predicates like 'win' *involve* the relevant contextual decisions. Thus, for these predicates 'F', 'o is F' uttered (or believed, or said) by subject S in c really means that object o is some way F-according-to-the-relevant-authorities-in-c (e.g. the Olympic Committee). The change from $<@, t_1>$ to $<@, t_2>$ is a change in the relevant decisions, which are then part of, and hence change, the propositions expressed.

This type of strategy fails for various reasons.

For one, it gets the wrong results when applied to utterances of sentences such as 'The Jamaican Team were no longer the winners of the race on the 22nd of August 2008' in $<@,$ the 26th of January 2017$>$. On the contextualist analysis, the occurrence of 'won' is understood as meaning something like 'won-according-to-the-decisions-relevant-in-$<@,$ the 26th of January 2017$>$, that is, according to the IOC decision of 25 January 2017'. Thus, the content expressed by the sentence above would be: that the Jamaican team was no longer the winner on the 22nd of August 2008 according to the IOC's decision of the 25th of January 2017.[19] But, this has the clearly false presupposition that it was true that the team was, before

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[18]See also Barlassina & Del Prete (2015: 64-66), who call this "Contextualism". They also address the strategy on which 'won' is implicitly relational. What I say in response should apply to this strategy, too.

[19]As Barlassina & Del Prete (2015: 66) emphasise, according to this contextualist analysis of the predicate, the added propositional constituent concerning the relevant decisions "obligatorily takes narrow scope with respect to the propositional constituent *it is no longer the case that*".

<@, 25 January 2017>, the winner on the 22nd of August 2008 according to the IOC's decision of the 25th of January 2017. This contextualist understanding of the predicate, thus, fails to save NEC.

It also gets the wrong results with regard to propositional attitude ascriptions. Recall, Sally believes RACE both in <@, 23rd August 2008> and in <@, 25th of January 2017>. According to the new contextualist analysis, 'won' is a predicate which means 'won-according-to-the-decisions-of-the-relevant-authorities-in-the-context'. This has the result that, in <@, 25th of January 2017>, Sally actually believes *that the Jamaicans won the Olympic relay race in 2008 according to the decisions on 25th of January 2017 of the Olympic Committee*. But she is, as stipulated, completely unaware of their decision-making, which is also why she continued to believe RACE. So, we have the wrong result as to what she believes.

One might object that, because she is unaware of the new information, her belief in <@, 25th of January 2017> is really *that the Jamaicans won the Olympic relay race in 2008 according to the decisions of the Olympic Committee on 22 August 2008*. But this is also implausible. For (1), in fact, the Jamaicans won the race in 2008 because they satisfied the pre-established conditions for winning the race and not because of, or according to, the decisions of the Olympic Committee (or any other relevant authority), who only makes an active decision if there is a reason to intervene (e.g. if there is sufficient evidence of cheating). If she had this belief before <@, 25th of January 2017>, her belief would turn out false when it is true. Furthermore, (2) she could be completely unaware that the Olympic Committee's post-race decisions can have any effect on the outcome of the race; she formed her belief upon seeing the race, seeing that the Jamaican team ran faster than the other teams.

This analysis also can't capture why she clearly just has a false belief when she continues to believe that RACE in <@, 25th of January 2017>: the falsity of the belief should not be disputed even by the Fregean. With either specification of her belief-content according to this contextualist account of 'won', we get the wrong result: the belief ends up with propositional constituents which would be wrong to ascribe to Sally. So, again, contextualising the predicates fails to save NEC.

5   An Ontological Response

What we learned from the previous section is that a semantic response to the problem is not promising. In fact, examples such as RACE are deeply problematic for

our semantic accounting of truths,[20] in particular for Fregean views which take truthbearers to be eternal propositions. However, as will be argued in this section, the problem does not carry over to NEC, because truthmaking is also a fundamentally metaphysical rather than just a semantic enterprise.[21] For this reason, we need not limit ourselves to employing semantic machinery to account for truth. Truthmaking is, as Asay nicely puts it, also "a project of *ontological accounting*" (2020: 31).[22] Looking at the ontological details of the relevant truthmakers will reveal that NEC is preserved even when faced with potential counterexamples like RACE. In the next section, I argue that the ontological story I tell in this section is preferable to other accounts.

Recall, the problem was that π_{RACE}

(a) makes RACE true in <@, 23 August 2008>,

(b) exists in <@, 26th of January 2017>, at least as much as it existed in the previous context, but

(c) doesn't make RACE true then because it is false.

Truthmaker theorists should ask: "what is π_{RACE}?" It is clearly an event. It was in the past in both contexts, involved particular runners from various national teams, most relevantly for RACE the Jamaican national team, took place during the Olympics in a certain place and time in Beijing, and so on. The puzzle of the changing past, as Barlassina & Del Prete call it, arises because π_{RACE} is a winning in <@, 23 August 2008> but is no longer a winning in <@, 26 January 2017>. As we said, the possibility of changing the past is metaphysically controversial (e.g. accepting the asymmetry of the past and future).

However, when we look more closely at the ontology of events, puzzlement evaporates. For, famously, past events often do change. In Davidson's (1980: 57f) well-known, original example,[23] Sally's moving her hand in such a way as to pour

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[20]This is probably how to understand the main message of Barlassina & Del Prete (2015).

[21]This is a key feature of most of the truthmaking debates. However, compare this to Fine's (2017: §1) truthmaker semantics, which is explicitly not metaphysical, but which Asay (2020: 12) says "seems to me to have co-opted the term for different purposes".

[22]Asay seems to take this to be *the only* aim of truthmaking. However, the "delineation [of] corresponding truthmaking chunks of what is real [via] our practice of judgement affects reality itself", as Smith (1999: 274) famously writes. Hence, the aboutness constraint and the fruitfulness of looking at what truthbearers are about. Asay (2020: 75) seems to acknowledge this, however; for further (friendly) criticism, see Schipper 2022: 4-5.

[23]I've changed it to be less monarchical and added names.

poison into Jack's ear at t_1 is an event that is completed at t_1,[24] but it only becomes a killing of Jack when he dies hours later at t_2. The event already occurred from t_0 to t_1. So, at t_2, it is a past event. At t_1, it was many things, for instance, a movement of Sally's hand, a pouring (of poison), and a poisoning. But, until t_2, it was not a killing. This means that from t_1 to t_2 (non-inclusively), the event, let's call it $e_{<Sally,\,Jack>}$, was not a killing; so, it wasn't true in $<@, t_{1\text{-}2}>$ that at t_1, $e_{<Sally,\,Jack>}$ was a killing. At t_2, when Jack dies, $e_{<Sally,\,Jack>}$ becomes a killing of Jack; so, it is true in $<@, t_2>$ that at t_1, $e_{<Sally,\,Jack>}$ is a killing. $e_{<Sally,\,Jack>}$, which occurred at t_1, causes the death of Jack at t_2, and is thereby identical with Sally's causing of a death (Jack's), and is thereby identical with Sally's killing of Jack.[25] As Davidson (1980: 58) explains,

> The idea that under the assumed circumstances killing a person differs from moving one's hand in a certain way springs from a confusion between a feature of the description of an event and a feature of the event itself. The mistake consists in thinking that when the description of an event is made to include reference to a consequence, then the consequence itself is included in the described event.[26]

It would be a mistake to think that what happens at t_2 is part of $e_{<Sally,\,Jack>}$ which occurred at t_1. It is caused by $e_{<Sally,\,Jack>}$, which in turn, by having such an effect at t_2, becomes a killing of Jack. Thereby, $e_{<Sally,\,Jack>}$ becomes a killing of Jack by Sally's pouring poison into his ear. Sally had to do nothing else to kill Jack by

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[24]Most philosophers accept, further, that events only come into being when they are complete. Hornsby writes, "When a stretch of ongoing activity is over, an event is on the scene" (2013: 9). See also McDowell 2011: 7, Thompson 2008: 134-137; 2011: 209; Marcus 2012: 192; and Ford 2014: 33. For criticism: Hinshelwood 2018: 31ff and Bacharach 2021: §§1&8. Bacharach argues, against these authors, that one can speak of an event as itself occurring before it has finished and that we should understand the notion of existence that is relevant to events as "derivative of the more fundamental one of occurrence over an interval" (ibid.: 26). However, we need not take sides here. Let's accept the following. Suppose that John was crossing the street. This does not imply that John crossed the street. For he can, while crossing the street, still turn back or be hit by a truck. The process is captured by the imperfect nominal 'John's crossing the street', not by the perfect nominal 'John's crossing *of* the street', which records an event. When a process is thwarted and is never completed, the corresponding event does not occur. Both parties should accept this (though McDowell [2011: 7] might not). For an extensive discussion of verb aspect within a truthmaker framework, see Schipper 2020: §2. I thank an anonymous reviewer here for discussion.

[25]Compare this with what Austin (1962: 98-99) says about what is perceived being able to be "described, identified, classified, characterized, named in many different ways".

[26]See also Davidson (1980: 177) who writes: there is "a tendency to confuse events described [...] in terms of terminal states and events described [...] in terms of what they cause".

pouring poison into his ear at t_1 (Anscombe 1957: 37-47).[27] As Davidson (ibid.) writes, "She has done her work; it only remains for the poison to do its."

When one says that Sally killed Jack, this is false when one says it in $<@, t_1>$ since Jack is not yet dead then, but it is true in $<@, t_2>$. When uttered in $<@, t_2>$, it is true and is made true by Sally's killing Jack, $e_{<Sally, Jack>}$, which occurred in the past, at t_1. Before t_2, it was not yet a killing of Jack and, thus, $e_{<Sally, Jack>}$ does not yet make 'Sally killed Jack' true.

This is a standard case in which the properties of a concrete particular change only after the particular is already a wholly past particular. It is also not anomalous to events. Jack is childless at t_2, when he dies from poison, and, hence, not a father. But, once his girlfriend Jill gives birth to Jack Jr, a few months later at t_3, Jack will be Jack Jr's father. Before t_3, Jack wasn't a father, but after t_3, he is. Similarly, he can become a famous writer posthumously. When, much later, Jack Jr's own children say, "Our grandfather, the famous writer, was poisoned by Sally at t_1", they say something true.[28] This echoes an important point made by Bennett:

> [A]n event can change its status after it has occurred [...] Although events cannot move or otherwise alter, because they stretch through

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[27]Bennett (1988: ch. 12) dubbed the principle he took to underlie these identities "Anscombe's Thesis". Schnieder (2009: 650) formulates it thus:

AT If x ϕ-s by ψ-ing, then x's ϕ-ing = x's ψ-ing.

Much has been written about AT. Annas (1976: 253), for instance, argues that even Anscombe, who accepts the ontological story here, doesn't subscribe to the principle AT (though see Anscombe 1979: 223-227). Even if its critics, such as Goldman (1970: 5; 1971: 762), Thomson (1971), Alvarez and Hyman (1998: 234-236), and more recently Schnieder (2009: §3), are right and AT is false, that is, that the general principle doesn't hold, this doesn't mean that, in the case above, the poisoning of Jack is not the killing of Jack. I present the current ontological story here because I take it to be standard and natural. It will help us to see why the counterexample to NEC fails. Later, I discuss an alternative story of the ontology of events which rejects AT. The counterexample also fails with this story. So, it fails on both accounts. The defence of NEC is not tied to accepting AT.

[28]For the statement to be true, Jack needs to be the grandfather and a famous writer, both of which he only becomes posthumously. See also (Hazlett 2011: 171-172) for five more excellent and commonsensical examples in which the past similarly depends on the future. However, he claims that these cases do not involve change, only a past dependent on the future (ibid.: 172-173). To back up his intuition, he says: "It is quite unnatural to say that a watch might change from being destroyed to not being destroyed (or whatever)" (ibid.). This is odd. When something is destroyed, one can naturally talk about it being rebuilt later, which requires that it was destroyed before; this includes cities, lives, as well as watches. It's natural, too, to say that Jack wasn't a father until his son was born, but his son can still talk about his father's childhood. Similarly, a winning can change into an event that is no longer a winning (which requires that it was a win before).

time rather than lasting through it, they can change relationally, as when a particular event becomes famous or becomes forgotten or comes to satisfy the description "cause of a now-past fall of a tree". Not just events—*anything* can acquire a relational property after it has ceased to exist: Johanna Rosine Wagner had been dead for thirty-five years when she first became describable as "mother of someone who has composed *Parsifal*". [1988: 195-196]

Our potential counterexample to NEC has a similar structure. π_{RACE} also just acquires a relational property after it has ended. π_{RACE} makes RACE true, but not always. Between 23 August 2008 and 25 January 2017, π_{RACE} was a winning by the Jamaican team. Carter's use of the banned metylhexaneamine causally contributes to the discovery of the substance in his system by the relevant authorities. A decision is then made to disqualify him from his races on the 25th of January 2017. At that moment, something changes for π_{RACE}: it is no longer a winning. This is not an instance of backwards causation or anything similar; it is an instance of a non-causal, relational change to an event in the past, in part due to events in the future of which it itself is a contributing cause (e.g. the disqualification would not have happened if π_{RACE} had not happened). Similarly, hours after it ended, $e_{<Sally, Jack>}$ is no longer not a killing and just a poisoning but becomes a killing, and months after the killing, Jack is no longer childless and becomes a father.

This all makes sense and helps us to see how the standard ontologies of events can respond to the problem for NEC. These ontologies can roughly be divided into two groups. On the most standard view, events are coarse-grained, concrete particulars that have spatio-temporal extension, a specific temporal shape, and the bearers of properties or can be described in various ways (Quine 1985: 167f, Lemmon 1967: 98-99, Davidson 1969: 179f, and Bacharach 2021: §1). On this view, π_{RACE} loses a property directly relevant to RACE on the 25th of January 2017: its being a winning. On the second most standard view, events are fine-grained entities, such as property-exemplifications: triples of substances, properties, and times (Kim 1966: 231ff; 1976: 34ff; Goldman 1970; Wilson 1974: §§4-5, Taylor 1985; Hendrickson 2006). On this view, π_{RACE} just goes out of existence, since the property of winning the race on 22 August 2008 is no longer exemplified. This seems to be the more radical consequence, for it involves the coming-out-of-existence of a past event in the future by way of its causal effects (let's assume that π_{RACE} was part of the overall cause of the discovery of the banned substance and subsequent retroactive disqualification).[29]

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[29]So much the worse for the fine-grained events views if this consequence is *too* radical.

We can now see why the standard ontologies of events give us a response to the puzzle. Before 2017, Sally's belief that RACE was true. It was also made true by π_{RACE}. From 25 January 2017, her belief is false either because (a) π_{RACE} changed on that day from being a winning to being a non-winning (the coarse-grained view) or (b) π_{RACE} just no longer exists, since winning is no longer exemplified by the Jamaican team in 2008 (the fine-grained view). Both ontological accounts explain what happens to the event when one of its consequences occurs years later. And they do this in a completely standard way, which is made clear when we compare it to the other examples of this section (e.g. killing and fathering).

Now, one might respond that, on the coarse-grained view, π_{RACE} still exists, even after 2017, when RACE becomes false. Thus, on this view, NEC is still false.

This response can be dealt with if we look more closely at the aboutness constraint AC with which we started and understand what this means for NEC. AC requires minimally that truthmakers are the aspects and parts of the world that the truthbearers are directly about. What helps us to identify the parts or aspects of the world that a truthbearer is about is the best semantic account of what it is about (Yablo 2014: 39-42; Schipper 2020: 510-515). According to this account and, in particular, its wholeness or fullness constraint (Yablo 2014: 14; Schipper 2018: §4.2.4; 2020: §1.1; Lewis 1988: 11; Goodman 1961: 7f; Ryle 1933: 10), truthbearers are about not just "*whether* things are, but also *how* they are", to use Lewis's (1992: 218) words. Thus, adding AC to NEC lets us amend NEC thus:

NECESSITATION-ABOUT (NEC*): for all x and s, if truthbearer s is made true by what it is directly about, that is, truthmaker x and how things relevantly are with x, then, in all possible worlds where s exists, x exists, and matters are the same with how x is, s is true.

NEC* is NEC updated with what AC requires of truthmakers. The difference between NEC* and NEC follows from the details of the best semantic account of aboutness, which allows us to explicate what AC requires and incorporates the importance of *how matters are with things* for our account of aboutness and truthmakers.[30]

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[30]This result is also natural and consistent with Merricks (2007: 34) who argues: "I lose my [...] grip [even] on *aboutness* if I add that that which a truth is relevantly about does not (even conditionally) necessitate that truth. So I shall assume that Truthmaker implies not only that truths are about their respective truthmakers but also that truthmakers necessitate their respective truths". Without including in what we're talking about *how matters relevantly are* with the objects we are talking about (e.g. their tropes or states of affairs), the simple fact that objects can change would, if they were truthmakers, undermine NEC. Thus, for aboutness and NEC to be so closely tied, we also need to be able to talk about *how matters are with objects* and not just about objects.

As should be clear by now (e.g. given how we should understand phenomena such as second-order quantification), *how* things are with entities, or their *ways* of being, need not be further entities over and above the entities of which they are ways (Prior 1971: 37; Bigelow 1988: 159; Rayo and Yablo 2001: 79; Dodd 2002: 74; Pietroski 2005: 276; Schipper 2020: 511-513; Cameron 2019: 340-341, 344-347).[31] However, one might still dispute this and claim that *ways* are entities (Devitt 1980: 94; Armstrong 1980: 102-3; Peacock 2009: 204ff). Either way, NEC* is unaffected by the potential counterexample. For, on the coarse-grained view of events, *how matters stand with* x is relevantly changed on and after 25 January 2017, that is, π_{RACE} is no longer a winning by the Jamaican team; instead, it's a disqualified running. So, even though π_{RACE} exists in <@, 25 January 2017> in the same way as in <@, 23 August 2008>, as an event which occurred in the past,[32] something important and relevant to the truth-value of RACE has indeed changed about it, whether or not such ways it has changed is a further entity itself. This change to π_{RACE} also gives us a satisfying and sufficient ontological account of why RACE shifts in truth-value from true to false. Such ontological accounting is exactly what truthmaking requires. What allows us to balance the ontological books is a better view of the ontology of events and the further ontological requirements on NEC that follow from AC (Schipper 2022: 7), which we expressed with NEC*.

As a result of both of the most standard views of the nature of events (the coarse-grained view and the fine-grained view) and their interaction with NEC*, we can see that the potential counterexample poses no real threat to necessitarianism.

5.1 The Ontological vs Semantic Responses

The ontological response clearly gives us the tools to save NEC in ways that the semantic responses did not. Appealing to standard event-ontology allows us to see how matters are with *reality* and not just with our systematic semantic theorising, our *representations* of reality, that is, with the world rather than with what we say or believe about the world.

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[31]Those sceptical about whether events themselves are entities can rest assured with NEC* for it can accommodate modest positions on which even events should be understood as ways things are with whatever are the underlying entities (e.g. runners or atoms-arranged-runner-wise). For discussion especially about some relevantly non-entitative ways of understanding events, see Schipper 2020: §2, especially §2.1.4.

[32]One way to challenge this is with what Bennett (1988: 195) calls the "*actio praecox* argument" that the event wasn't complete until the later time. For criticisms of this strategy, see Bennett ibid.: 195ff.

Thus, what Sally says or believes about the race, indeed, can be the same in $<@, t_1>$ and $<@, t_2>$, as it intuitively should be, while there is a relevant, ontologically perfectly plausible change in the worldly events that her belief is about. In particular, we can accept the standard semantics without having to introduce contextual features into the *meanings* of, or propositions corresponding to, the utterances and propositional attitudes. Unlike the semantic responses, which attempted to use additional semantic machinery to preserve the Fregean doctrine that propositions are eternally true or false, this approach doesn't yield the wrong results as to what Sally utters and believes.

Further, this approach highlights the plausible distinction between what is reasonable to believe in a context and what is true in that context.[33] Sally's belief is reasonable in both contexts, given the evidence that she has concerning the race. Despite it being true in the earlier context, unbeknownst to her, it becomes false in the later context, for there is a relevant change in the past event that her belief is about. A better view of how things stand ontologically lets us see that the example is perfectly consistent with the truth of NEC*: there is a relevant change in how things are with what the belief is about which makes the belief no longer true.

Despite being focused on the ontology of events, the response, nevertheless, preserves the appropriate links with what is said and believed, the truthbearers, codified with AC. Crucially, RACE is made true by what it is directly about. It is about π_{RACE} and not other events such as the IOC's decision at any time. The IOC's decision in 2017 is part of a full *explanation* of why RACE becomes false in 2017, but it is no part of the *truthmaker* or what it is about.[34] The event is no longer a winning—that's why it's false; and when it was a winning, from 2008 to January 2017, the event and how things are then with the event are what made it true. Similarly, when Sally's moving her arm caused the death of Jack, Sally's arm-movement then became a killing of Jack. Her killing of Jack then made Jill's belief that Sally killed Jack true. Jack's death at t_2 and the IOC's decision to disqualify the Jamaican team in 2017 are part of the *explanation of the truths* of Jill's and Sally's beliefs, respectively, but these later events, which are in part caused by the events in question, are neither what the beliefs are directly about nor any part of their truthmakers.

I propose that this is the correct, ontological account of the truth and falsity of these truthbearers. It is based on a piecemeal, ontological clarification of the

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[33] See also Iacona (2016: 142) who emphasises this for his *fiat* realism.

[34] See also (Asay 2020: 33) and (Schipper 2022: 2-3) for the distinction between explaining truth and ontologically accounting for truth. Cf. Griffith 2022, Rodriguez-Pereyra 2022.

truthmakers, applying the standard, general accounts. Further, it is a natural and commonsensical account, which makes sense of how we ordinarily think of the past events, giving it the epistemic status of a Moorean fact. Thus, it won't be undermined by philosophical intuitions for instance about the asymmetry of the past and the future.[35] It is commonsensical to think, talk, and act in a way that assumes that how some ways things are with the past (e.g. whether something is a winning, killing, or a father) can change depending on what happens in the future. This also illuminates and is consistent with the most plausible and intuitive account of what these truthbearers are about.

6   Alternative Responses

In this section, I defend the ontological response presented in the previous section by explaining that it is preferable to some alternative responses that have been offered to Barlassina & Del Prete's similar, but relevantly different, case.

6.1   Iacona on retroactive decisions

One might respond to the anti-NEC argument, following Iacona's (2016: 140f) response to Barlassina & Del Prete's Armstrong case, by arguing for §3's option (a), that the Jamaican team never really won the race because Carter cheated. Consider the following principle that Iacona presents:

(L) If an object or event x is subject to a sequence of retroactive judgements j_0, ...j_n such that each j_i replaces j_{i-1}, the institutional facts about x are determined by j_n. [ibid.: 140]

Iacona claims that there are two *readings* of (L): (a) which judgement is valid depends on the context, the "temporal" reading, and (b) only the last judgement is valid for all contexts, the "atemporal" reading. If (a) is right, the truth-values can shift. If (b) is right, they cannot. Iacona merely offers (b) as a way to *resist* the conclusion that the past has *changed*. This would also save NEC and since my solution accepts the possibility of a changing past, one might think that this response is better.

However, this is not a better way to save NEC.

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[35]See also Hazlett's (2011: 168, *passim*) discussion of how his cases, in which the past can depend on the future, are similarly commonsense facts with Moorean status.

First, Iacona's (b)-reading of (L) is reasonable for some institutional facts, but for many cases, it is very problematic unless eternalism is true. (A consequence of eternalism is that everything that will happen in the future is already the case in the present.) Unless eternalism is true, then it's not clear whether any truthbearers such as RACE will ever be true or false. Let's say that eternalism is false. Then what would be RACE's truth-value at $<@, 2008>$? At any time t_n, there is always some later time t_{n+m}, when some later retroactive judgement can be made either way. But then for any t_n, there is no final judgement j_n that determines the truth-value of RACE. The consequence seems to be that RACE has no truth-value if eternalism is false.

But, this is wrong. Truthbearers such as RACE should be able to be true or false even if eternalism is false. Admittedly, one might take this to be part of an argument against eternalism. But, it is not clear that the impossibility of changing the past is any less plausible than eternalism. Both are philosophical positions. And, if what I argued in the previous section is correct, then it is a commonsensical, ontological fact that how things are in the past can change depending on how things are in the future. Such facts put in doubt any philosophical positions that challenge it. Also, it is not attractive if RACE cannot be assigned a truth-value. It is more attractive if it can be assigned a truth-value even if that truth-value can change because there is a change in how things are with what it's about in different contexts. Such changes are commonplace, contrary to some metaphysical intuitions but given what I have argued.

Iacona (2016: 142) compares truthbearers like RACE to truthbearers such as:

CIGARETTE: That was my last cigarette.

CIGARETTE is in part about some past cigarette, but, indeed, its truth or falsity also depends on what will happen in the future. It is neither true nor false until the speaker's life comes to an end. Unlike lives, however, sporting bodies don't have natural ends. And, unlike sentences like CIGARETTE which do clearly lack a truth-value until the future is decided, it seems wrong to think that there are no binding sporting results until the possibility of retroactive decisions is completely eliminated. Further, there is no evidence that anything in RACE implicitly makes its truth-value depend on the future. It's just a plain fact that the Olympic rules allow for teams to be disqualified after an event has happened. But this rarely happens. By contrast, CIGARETTE's truth-value depends on the future because saying that something is someone's last cigarette signifies that that person will have no more cigarettes *in the future*. It is clearly in part also about the future. RACE is not.

Further, the current ontological response, I suggest, does not depend on eternalism but is, rather, compatible with the various standard theories of time, including presentism (e.g. Bigelow 1996) and the growing block theory (e.g. Broad 1923 and Tooley 1997). At $<@, 2008>$, RACE is true and π_{RACE} is a winning, while at $<@, 25 \text{ January } 2017>$ and after, it is false and π_{RACE} is no longer a winning. Presentists will have no special problem accounting for the truthmakers for truthbearers about the past here, since π_{RACE} is a past event (they'll have similar trouble with any truths about the past). If the present is before 25 January 2017, then RACE is just true and π_{RACE} is a winning; if the present is 25 January 2017 or after, then it is false and π_{RACE} is no longer a winning. This can be accepted, too, both by growing block theorists and eternalists.[36] Let's say that one accepts, instead, that time is ordered in a B-series, according to which tense is reducible to other notions such as simultaneity. Then one can say that before the 25th of January 2017, π_{RACE} is a winning and RACE is true. When RACE is believed on or after this time, π_{RACE} is not a winning and RACE is false. The changes to π_{RACE} and the corresponding changes to RACE's true-value are (at least prima facie) compatible with any of the standard views about the nature of time. Given that it is compatible with the main theories, the event-ontological response is preferable to responses that depend on a specific theory of time, such as Iacona's view which depends on eternalism.[37]

Second, although unlikely, it is possible that in the future, a dictator comes to rule both the world and the IOC and dictates that all medals retroactively go to North Korea and that North Korea is the winner of all Olympic competitions in the past. If this is the final decision (let's say he also ends the world), should anyone think that this really determines whether Jamaica wins either at $<@, 2008>$ and $<@, 2017>$? The temporal reading on which judgements have real effects but can be overturned in the future is much more plausible. (In our case, no first judgement even needed to be made: teams should be able to win and be disqualified later.)

Finally, that there is an atemporal reading of (L) doesn't undermine the normal judgements in the case, either. Further rules analogous to the readings could be

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[36]An eternalist view which accepts the primitiveness and the temporariness of the present is Cameron's (2015: 2) moving spotlight view. He even explicitly claims that his view is "completely compatible with it being the case that [*being true*] is had temporarily, and that things were different with respect to a proposition's being true" (ibid.: 5).

[37]Torrengo (2018: §§4-5) also defends a response to puzzles about the changing past by explicitly articulating a B-theoretic view. His proposal further also explicitly requires a *realism about institutional entities*. The current view does not, making it more parsimonious. Even Torrengo concedes that "Endorsing eliminativism [about institutional kinds and entities] might turn out to be the right thing to do" (ibid.: 244).

stipulated in the rules of games. For instance, it could be stipulated that the final judgement of the committee in the future will hold for all time. But by the same token, it could be stipulated that the winner in a context will depend on whether there is or isn't an overruling decision by the IOC in that specific context. Thus, unfortunately for Iacona (2016), even though the (b)-reading is possible, it does not rule out there being rules explicitly following the (a)-reading. Without a further, deeper, ontological response such as ours, NEC would still be threatened, for all a challenge requires is one counterexample.

7   Conclusion

Smith (1999: 279) taught us to relinquish *necessitation's sufficiency* for truthmaking and established the necessity of an aboutness and "relevance constraint".[38] With new counterexamples (§2), the remaining core of necessitarianism, *necessitation's necessity*, faced significant and novel challenges. However, in §5, I presented an *ontological* response to the potentially problematic cases. By looking closely at relevant parts of the best ontologies of events, we see that they can change their (relational) properties over time. This response pushed us to look more closely at the relationship between NEC and AC which revealed that with the best semantic account of what truths are about, we should update NEC to NEC*.

Furthermore, I argued in §4 that the types of cases presented in §2 generally elude standard semantic theorising (this is the way to understand Barlassina & Del Prete's [2015: §4] discussion). Indeed, examples like §2's are subject to truth-value shifts. They, thus, threaten orthodox Fregeanism. The ontological response in §5 could not save Fregeanism but it could defuse the challenge to NEC. This is a welcome result, further, because it shows that a commitment to NEC does not require one to accept eternal propositions which have their truth-values eternally.

Finally, in §5, I also argued that the ontological response is preferable to other potential responses in part because it is also neutral with regard to which theory of time is correct. All we need is a commonsensical and natural ontology of events and their relation to the future.

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[38]Cf. Asay (2020: 57ff) who disagrees.

Acknowledgements

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