

Floating, Anchored and Future-Tensed Propositions

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Abstract

There are two prominent theses in Bonomi's 2023 paper "Non-Persistent Truths", here labelled *the two-levels* and the *changing background* theses. According to the former, both semantic eternalism and temporalism are right, in that our ordinary natural language utterances may be taken to express both *anchored* propositions with a fixed truth value and *floating* propositions with a changing truth value. According to the changing background thesis, there are future-tensed propositions that change truth value, for reasons that have to do with change in background information available to ordinary speakers, rather than with assumptions of indeterminism or open future. The two-levels thesis deserves assent and it is here connected to considerations regarding temporal ontology. One needs to distinguish between the propositions expressed by ordinary natural language sentences and further propositions that convey specific commitments to temporal-ontological theses. Moreover, there is a problem with the token-reflexive approach to the meaning of tensed sentences of the old B theory of time. On the other hand, the changing background thesis had better be resisted. Valuable insights can however be gained by pondering on it.

Keywords: Tense, Time, Temporal ontology, Open future.

1. Introduction

Since at least Frege (1918) and Prior (1957, 1967, 1968) there have been two competing views on the nature of the proposition expressed by a sentence utterance. One takes the proposition as never changing its truth value in time, whereas the other considers the proposition as capable of changing its truth value in time. These two standpoints are nowadays often labelled as *eternalist* and *temporalist*, respectively (see, e.g., Jokic and Smith 2003). Bonomi dwells on this dispute in his intriguing and rewarding "Non-Persistent Truths" (Bonomi 2023), on which I shall comment here. Following his terminology (2023: 149), let us call *floating* the propositions of the Fregean-eternalist conception, and *anchored* the propositions of the Priorean-temporalist conception. Bonomi argues that both views are

right in a sense, because there are linguistic data suggesting that a sentence utterance can be understood either way, depending on the context, i.e., as either expressing an anchored proposition, or a floating proposition. I believe this is his main point, which we may call the *two-levels thesis*, since Bonomi (2023: 149) speaks of two levels of analysis; the first level yields floating propositions, and the second anchored propositions. Bonomi also insists extensively on another thesis, regarding some special future-tensed statements. They are taken to express future-tensed propositions that exhibit a change of truth value in time, which signals an asymmetry in our conception of past and future, independently of metaphysical assumptions of indeterminism or open future, such as those notably put forward by Prior (1967: Ch. 7). The change of truth value in question has rather to do with a change in background contextual information available to the speaker. Let us then call this second thesis, the *changing background thesis*.

As I see it, Bonomi is right regarding the two-levels thesis and to uphold it is insightful. It may be useful to connect it to the current debate on temporal ontology, while providing an appropriate formal representation of the propositions expressed at the different levels of analysis. I shall dwell on this in §2. As regards the changing background thesis, instead, I think that Bonomi is wrong. Nevertheless, focusing on it also provides valuable insights, especially if we still keep an eye on the formal representation of the relevant propositions. I shall turn to this in §3.

Before proceeding, it may be worth pointing out that eternalism and temporalism, as here understood, are *semantic* doctrines. Thus, in particular, *semantic* eternalism should not be confused with the *ontological* eternalism discussed in temporal ontology, of which there will be reason to speak in §2.

2. The Two Levels Thesis and Temporal Ontology

To appreciate the difference between eternalism and temporalism, consider first an utterance, or token, u_1 , of the sentence

(1) Mina is singing in public,

Assume u_1 is uttered at a specific time, T_1 , at which Mina is in fact singing in public. Moreover, consider also another token, u_2 , of (1), uttered at a later time, T_2 , at which Mina is not singing in public (in working with this example, I shall often omit “in public” for brevity’s sake). Please note that I use “ T_1 ”, “ T_2 ”, etc. as convenient abbreviations of punctual dates such as “3 p.m. o’ clock of May 23, 1968”.

According to eternalism, the proposition expressed by u_1 somehow encapsulates the utterance time T_1 , *qua* time with respect to which Mina’s singing is said to occur; we could represent this proposition formally as follows:

(1e.1) $@(T_1, S(m))$.

Since it says that Mina is singing at T_1 and Mina is indeed singing at T_1 , this proposition is true at the *evaluation time* T_1 (which is also the *utterance time*) and remains true forever, at any subsequent evaluation time, including T_2 , later than the utterance time. We cannot express this very proposition again by uttering (1) once more at a later time, such as T_2 , for if we do this, we express *another* proposition, which differs from the former, in that it encapsulates T_2 rather than T_1 :

(1e.2) $@(T_2, S(m))$.

This new proposition says that Mina is singing at T2 and thus, since Mina is not singing at T2, it is false at the evaluation and utterance time T2, and remains false at any subsequent evaluation time after the utterance time.

According to temporalism, in contrast, the proposition expressed by u1 does not encapsulate the utterance time T1 and could then be formally represented simply as follows:

(1t) S(m).

Since it only says that Mina is singing and Mina is indeed singing at T1, this proposition is true at the evaluation and utterance time T1. This very proposition can be expressed at any other time, e.g., at T2, by producing the token u2. However, since at T2 Mina is not singing, the proposition is false at T2.

Bonomi's argument for the two-levels thesis has to do with our use of the expressions "no longer true" and "still true" in connection with nominal phrases that seemingly refer to previously expressed propositions, such as "what I said one year ago" or the like; depending on how we employ them, it seems clear that we may refer to either a floating proposition or to an anchored proposition. Bonomi (2023: 147) convincingly works with the example of Leo, a famous economist, who utters "Italy is facing a severe crisis" on November 27, 2011, when Italy is in fact facing a severe crisis. A year later, Leo comments: "Thank Goodness, what I said one year ago is no longer true". Leo's comment makes sense and is true, if we take his "what I said one year ago" as referring to a floating proposition, expressed by Leo's 2011 utterance, which was true in 2011, and is no longer true at the time of the comment. Bonomi (2023: 152), however, also considers that someone makes the following comment one year after Leo's 2011 utterance: "I've just checked all the relevant data. What Leo said last year is true: Italy was really facing a severe crisis at that time". This other comment makes sense, and is true, if we take "what Leo said last year" as referring to an anchored proposition, also expressed by Leo's 2011 utterance, which was true in 2011 and is still true at the time of the comment.

I subscribe to the two-level thesis.¹ Once we accept it, however, one crucial point regarding temporal ontology must be brought to the fore. As the debate in the philosophy of time since at least Prior's time has made clear, we can have conflicting temporal ontologies such as presentism, A- and B-eternalism and growing-blockism (see, e.g., Dowden 2023: §14), and we do not want to be committed to one ontology or the other just for the fact that we speak a natural language that is capable of expressing both floating and anchored propositions.² The eternalist is willing to accept that there are all sorts of times, past, present, and future, at which past, present, and future events occur. In contrast, the presentist is at most willing to accept that there is a present time at which present events occur, while past and future times do not really exist. Now, giving a share of truth to semantic eternalism, thus admitting anchored propositions, in the way we have seen, might give rise to a suspicion; namely, that one is thereby committed to ontological eternalism, since one is after all accepting propositions involving

¹ As a matter of fact, I have already adhered to something like the two-level thesis in Orilia 2010: § 7.2, but without the arguments and richness of details offered by Bonomi.

² In a nutshell, this is what such views claim. Presentism: only present things exist. A-eternalism: all things, whether past, present or future, exist. B-eternalism: all things, whether earlier than, simultaneous with, or later than this utterance, exist. Growing-blockism: all things, whether past or present, exist.

times as constituents, times which may well be past or future. For example, the time T1, which is past when at T2 we evaluate (1e.1) as true. On the other hand, there might be the suspicion that granting a share of truth to temporalism, thus admitting that there are floating *present-tensed* propositions such as (1t), opens the way to corresponding times and events that are objectively present, when such propositions are true; or, similarly, once floating *past-tensed* or *future-tensed* propositions are acknowledged, the suspicion might be that the way is open for corresponding times and events, which are objectively past, or future, when such propositions happen to be true. This is something that B-eternalists would not accept, while A-eternalists, growing-blockers and presentists would have different reactions about them.

Regarding the first worry, it is appropriate to follow Prior (Prior 1967: Ch. 5, Prior 1968: Ch. 11, Prior and Fine 1997: 32ff.) and proceed as follows. We take dates such as “T1” and “T2” to stand for *instant propositions*; one such proposition, T, identifies one specific instant, in that T was true, or T is true, or T will be true, and, when true, it was not the case that T was already true or that T will be again true. Thus, by using the familiar past and future operators, “P” and “F”, that T is an instant proposition amounts to this: $\mathbf{P}(T \ \& \ \sim\mathbf{P}T \ \& \ \sim\mathbf{F}T) \vee (T \ \& \ \sim\mathbf{P}T \ \& \ \sim\mathbf{F}T) \vee \mathbf{F}(T \ \& \ \sim\mathbf{P}T \ \& \ \sim\mathbf{F}T)$.³ Once dates are so understood, a proposition such as (1e.1) tells us that the proposition that Mina is singing is true when the date proposition T1 is true. In other words, either it was the case that it is time T1 and Mina sings, or it is the case that it is time T1 and Mina sings, or it will be the case that it is time T1 and Mina sings. Thus, in general, where T is a date proposition, $\mathbf{@}(T, A)$ amounts to: $\mathbf{P}(T \ \& \ A) \vee (T \ \& \ A) \vee \mathbf{F}(T \ \& \ A)$.

Regarding the second worry, it must be made clear that the truth of floating tensed propositions does not in itself grant that there are corresponding *A-facts*, as they are often called, e.g., facts consisting of the presentness, pastness or futurity of times or events. To use Prior’s words, a floating tensed proposition simply “*implicitly refers* to the time of utterance” (Prior and Fine 1997: 30; Bonomi 2023: 146 also quotes this). One needs do more than expressing such propositions to commit oneself to specific theses of a temporal ontology, and we must be more liberal than Prior in allowing for a language that allows one to subscribe to such theses. In fact, a language that quantifies *à la* Davidson on events and times (see, e.g., Parsons 1990) may be appropriate to express such commitments, as I shall illustrate in the following. For example, consider a presentist, an A-eternalist and a B-eternalist who are enjoying Mina’s exhibition at T1. They can agree that (1t) is true. However, only the A-eternalist and the presentist will also hold that there is a Mina singing event that is objectively present, as it occurs at an objectively present time. This may be represented as follows:

$$(1a) \exists t \exists e(\text{time}(t) \ \& \ \text{present}(t) \ \& \ \text{occur}(t, e) \ \& \ \text{agent}(e, m) \ \& \ \text{attribute}(e, S)).$$

The B-eternalist will at most hold that there is a Mina singing event simultaneous with some other event such as the uttering of u1. If we take the predicate “U1” to characterize such an event, this can be represented thus:

³ A dating system should be presupposed, which involves taking one instant proposition as asserting that a certain origin event, such as the birth of Jesus Christ, has taken place (Prior 1967: 103–106).

(1b) $\exists t \exists e \exists e' (\text{time}(t) \ \& \ \text{occur}(t, e) \ \& \ \text{occur}(t, e') \ \& \ U1(e') \ \& \ \text{agent}(e, m) \ \& \ \text{attribute}(e, S))$.

Similarly, when, at time T2, one of them recalls Mina's exhibition by uttering a token u2' of

(2) Mina sang in public

they can agree on the truth of the past-tensed floating proposition expressed by u2', namely,

(2t) PS(m).

However, only the A-eternalist will also hold that there is a Mina singing event that is objectively past, *qua* occurring at an objectively past time:

(2a) $\exists t \exists e (\text{time}(t) \ \& \ \text{past}(t) \ \& \ \text{occur}(t, e) \ \& \ \text{agent}(e, m) \ \& \ \text{attribute}(e, S))$.

The B-eternalist will only hold that there is a Mina singing event that is earlier than some other event such as the uttering of u2'. If we take the predicate "U2" to characterize such an event, this can be represented thus:

(2b) $\exists t \exists t' \exists e \exists e' (\text{time}(t) \ \& \ \text{time}(t') \ \& \ t < t' \ \& \ \text{occur}(t, e) \ \& \ \text{occur}(t, e') \ \& \ U2(e') \ \& \ \text{agent}(e, m) \ \& \ \text{attribute}(e, S))$.

In contrast, the presentist rejects both (2a) and (2b), since they commit to the existence of non-present times and events.

It is interesting to note at this juncture that Bonomi's data in favor of floating propositions speak against a token-reflexive approach regarding the meaning of utterances of tensed sentences such as (1) and (2), which has been upheld by many B-theorists of the last century (see, e.g., Smart 1949). The idea is to postulate an implicit use of "this token" in an utterance of any such sentence, which would refer to the utterance itself, so as to allow for the meaning of the utterance to be a proposition of the sort of (1b) and (2b). Other B-theorists have rather taken anchored propositions such as (1e.1) to be meanings of the utterances in question. This latter choice, however, is subject to a serious drawback, pointed out in Gale 1962: anchored propositions of this sort cannot have the cognitive effect that can be produced in appropriate circumstances by uttering present-tensed sentences. Gale puts forward the example of a sentinel uttering "the enemy is approaching". There is a resulting cognitive effect on the other soldiers, i.e., their becoming alert. Suppose the proposition expressed were an anchored proposition involving the uttering time, say, 3 a.m., so that it provides the information that the enemy is approaching at 3 a.m. Then, to be alerted immediately after the uttering, the soldiers should presumably know that it is 3 a.m., and, clearly, they do need to know this in order to get alerted. This drawback has led many B-theorists to concede that tensed sentences may well have floating propositions as meanings, thus giving rise to the so-called *new B-theory of time*, to be contrasted with the *old B-theory*, which denied floating propositions. The token-reflexive approach, however, does not suffer from the drawback in question. From the perspective of this approach, the soldiers need not know that it is 3 a.m. They simply need to realize that the approaching of the enemy is simultaneous with the sentinel's uttering. Thus, in a joint paper, I and N.L. Oaklander argued that the B-theorist may retain the old B-theory after all, as long as the token reflexive approach is incorporated (Orilia and Oaklander 2015). The problem is, however, that, with this approach, we cannot account for Bonomi's data. Token-reflexive propositions differ from anchored propositions for their capacity to account for cognitive effects in the way we have

seen, and in this they are quite similar to floating propositions. However, they are incapable of changing truth value just like anchored propositions; if a certain uttering event, e.g., the one occurring when Leo says that Italy is facing a severe crisis, is simultaneous with another event, Italy's suffering a severe crisis, then at any subsequent time it will still be true that this simultaneity has occurred. And, thus, we have no way to make sense of Leo's comment, "Thank Goodness, what I said one year ago is no longer true". To make sense of it, we need to assume that at the time of the crisis Leo expressed a floating proposition that changed truth value, and the token-reflexive proposition just isn't a proposition of this sort.

3. The Changing Background Thesis and The Asymmetry of Past and Future

Let us now move to the changing background thesis. Let us consider this scenario, analogous to some scenarios discussed by Bonomi. Mina has agreed to sing live and at time T3 a program is released, according to which the concert is scheduled to occur at time T5. A Mina fan who reads the program happily utters at T3 an utterance u3 of:

(3) Mina will sing in public.

There is surely a sense in which the fan has said something true. However, at T4, he comes to know that Mina has changed her mind and that the concert is cancelled. He then utters with disappointment: "what I said after reading the program is no longer true, Mina will not sing in public". This seems also true, and "what I said after reading the program" appears to refer precisely to the proposition expressed by u3, and thus it seems that there is a future-tensed proposition expressed by u3 that changes its truth value. According to Bonomi, as I understand him, this proposition is indeed future-tensed and it is also "partially diagonal" (Bonomi 2023: 153), that is to say, it is like a floating proposition, except that it incorporates the time spoken about, i.e., in this case, the future time at which the performance is supposed to take place. Accordingly, the proposition in question could be represented as follows:

(1a) $F(T5 \ \& \ M(s))$.

In contrast, there cannot be such a change of truth value for an analogous, but past-tensed, proposition. Imagine that another Mina fan sees the program at T6 and thus comes to believe that at T5 Mina sang. With dismay, since he is convinced to have missed a great performance of his favorite singer, he proffers an utterance of:

(3) Mina sang in public.

In analogy with the previous case, the proposition expressed is:

(3a) $P(T5 \ \& \ M(s))$.

In contrast with the previous case, however, this proposition is just false when uttered, since Mina did not sing at T5, and surely will be false at any subsequent moment.

In the light of this, Bonomi urges that there is evidence of an asymmetry in how ordinary speakers conceive of past and future, which has nothing to do with a metaphysical assumption of indeterminism, or, I would add, more generally, of an open future. To grant this open future, one need not only allow for indeterminism, but also for a non-eternalist ontology such as presentism, or at least growing-

blockism, according to which future events do not already exist, but rather come to exist in succession, as time goes by. Bonomi grants that, given such assumptions, future-tensed propositions can exhibit a change of truth-value that past-tensed propositions can't. Bonomi considers the usual sea-battle example. At some time, say T6, Leo predicts that there will be a sea battle at time T8, by uttering a token of:

(4) there will be a sea battle at T8.

We can take the expressed proposition to be:

(1a) $F(T8 \ \& \ SB)$.

Bonomi suggests that, following MacFarlane 2003, this can be taken to be a proposition that is neither true nor false at the time of utterance T6, since it is not then determined that there will be a sea battle at T8, and that becomes true at a later moment, say T7, when it is determined. Alternatively, we can follow Prior (1967: Ch. 7) in his Peircean approach (also evoked by Bonomi (2023: 123)). In this case, we take (1a) to be true at T7, after having been false at the time of utterance T6, just like the proposition expressed by an utterance of:

(1) there will not be a sea battle at T8,

i.e., the proposition

(1a) $F(T8 \ \& \ \sim SB)$.

I fully agree that we can take future-tensed propositions as capable of changing truth value in this way, once we assume the open future.⁴

However, as regards the changing background thesis, I demur. I do not think that the proposition expressed by the utterance u3 of the Mina fan is really future-tensed. It seems to me that examples such as the Mina case considered above, and those considered by Bonomi, simply show that we can use the grammatical future tense to attribute present-tensedly a disposition or a tendency, which someone or something may in fact have, on the basis of an existing intention, plan or program, but which may very well be lost, if the intention, plan or program is given up. If so, the proposition expressed by u3 is not really a future-tensed proposition, to be represented by recourse to the future operator "F", but rather a present-tensed proposition, involving a present-tensed attribution expressible by a predicate such a "x is expected to sing at time y". If we use "E-S" for this predicate, the proposition is formally represented thus:

(1b) $E-S(m, T5)$.

This proposition was indeed true at T3, and became false at T4, when Mina changed her mind, but it is a floating present-tensed proposition just like (1t), except that it incorporates, in Bonomi's terminology, a time spoken about, namely T5.

⁴ As Bonomi (2023: 153) notes, one could comment: "what Leo said was true". This may suggest that such an anti-eternalist/determinist approach is wrong, at least for ordinary speakers. I do not think so. I would say that such a comment is strictly speaking false, precisely because the proposition was not true. If we take "What Leo said" to refer to the proposition that there is a sea battle at T8, we may truly say at T8: "what Leo said turned out to be/became true".

4. Conclusion

I have focused on what I take to be the two main theses in Bonomi's paper, which I labelled *the two-levels* theses and the *changing background* theses. I assented to the former and connected it to considerations regarding temporal ontology. In particular I pointed out the need to distinguish between the propositions expressed by ordinary natural language sentences and further propositions that convey specific commitments to temporal-ontological theses. And I also pointed out that the two-levels thesis suggests that there is a problem with a token-reflexive approach to the meaning of tensed sentences for the old B theory of time. I then turned to the changing background thesis and explained why it should be resisted. There is further material in Bonomi's rich paper, which I did not discuss. In particular, Bonomi (2023: 150–155) outlines a cartography of propositions that includes propositions allegedly different from those that I have discussed here. I am not sure that all of them are really different, but surely it would be interesting to explore the issue and ponder on it, by providing formal representations of them in the way I have done for the cases here discussed. Unfortunately, there is no room for this now.

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