

# Do We Really Need a New B-theory of Time?

Francesco Orilia · L. Nathan Oaklander

Published online: 31 August 2013  
© Springer Science+Business Media Dordrecht 2013

**Abstract** It is customary in current philosophy of time to distinguish between an A- (or tensed) and a B- (or tenseless) theory of time. It is also customary to distinguish between an old B-theory of time, and a new B-theory of time. We may say that the former holds both semantic atensionalism and ontological atensionalism, whereas the latter gives up semantic atensionalism and retains ontological atensionalism. It is typically assumed that the B-theorists have been induced by advances in the philosophy of language and related A-theorists' criticisms to acknowledge that semantic atensionalism can hardly stand, but have also maintained that what is essential for the B-theory is ontological atensionalism, which can be independently defended. Here it is argued that the B-theorists have been too quick in abandoning semantic atensionalism: they can still cling to it.

**Keywords** Time · Tense · A-theory · B-theory · Ontology · Semantics

## 1 Introduction

It is customary in current philosophy of time to distinguish between an A- (or tensed) and a B- (or tenseless) theory of time. Very roughly, the former admits A-properties such as 'past', 'present' and 'future' in its ontology, whereas the latter denies that there really are such properties, or that they are really exemplified, unless, perhaps, as reduced to B-relations such as 'earlier' and 'simultaneous,' in such a way, e.g., that 'present' is understood as 'simultaneous with *e*,' where *e* is an event such as some subject's entertaining a certain thought, or a certain linguistic token's being uttered (we use single quotes to refer to properties and relations). It is also customary to distinguish between an old B-theory of time, supported most prominently by Russell (1903, 1906, 1915), Frege (1918–1919), Bergmann (1960, pp. 237–38), Broad (1921), Kneale (1936), Reichenbach (1947, §§ 50–51), Smart (1949, 1963), Goodman (1951, Ch. 11), Quine (1960, § 36), and a new B-theory of time defended in more recent times by Smart (1980), Mellor (1981, 1998), Oaklander (1984, 2004), Beer (1988, 2007), Dyke (2002, 2003, 2007) and others. We may say that the former holds both *semantic atensionalism* and *ontological atensionalism*, whereas the latter gives up semantic atensionalism and retains ontological atensionalism. According to the semantic doctrine in question, there are no tensed sentences and, correspondingly, on the assumptions that there are propositions as meanings of sentences, no tensed propositions. The ontological doctrine, on the other hand, claims that there are no tensed facts, states of affairs or events, where facts, states of affairs or events are understood as truthmakers<sup>1</sup> of true sentences or propositions (we shall use "fact," "state of

---

F. Orilia (✉)  
Sezione di Filosofia e Scienze Umane, Dipartimento di Studi Umanistici—Lingue, Mediazione, Storia, Lettere, Filosofia, Università di Macerata, via Garibaldi, 20, 62100 Macerata, Italy  
e-mail: orilia@unimc.it

L. N. Oaklander  
Department of Philosophy, University of Michigan-Flint, Flint, MI 48502, USA  
e-mail: lno@umflint.edu

<sup>1</sup> Or truth conditions, in a certain sense of "truth condition" (see e.g., Smith 1993, p. 12).

affairs” and “event” interchangeably, in the broad sense adopted for “event” by Smith (1993, p. 6), i.e., as exemplifications by objects of properties or relations).<sup>2</sup>

The story has it that the B-theorists have been induced by advances in the philosophy of language and related A-theorists’ criticisms to acknowledge that semantic antirealistism can hardly stand, but have also maintained that what is essential for the B-theory is ontological antirealistism, which can be independently defended (Smith 1994; Oaklander 2008, Vol. I, preface; Dainton 2010, § 3.3). Here we want to argue that the B-theorists have been too quick in abandoning semantic antirealistism: they can still cling to it.

We shall proceed as follows. First, we shall lay down some relevant conventions and background information on truth-bearers and the tensed/tenselessness distinction. Next, we shall present a sort of ideal reconstruction of the dialectic that has led from the old to the new B-theory of time. It will emerge that one of the two traditional criticisms of the old B-theory fails and the other is really effective only against one version of it, namely, the date approach. It does not work against the other two versions, the psychological and the token-reflexive approaches. Both, however, were subjected to a number of other deep-searching criticisms by Smith (1993). We shall thus turn our attention to Smith’s criticisms, focusing on the token-reflexive approach, in an attempt to show that they can be resisted after all.<sup>3</sup> The paper will then come to an end, by summing up what has been achieved and drawing some morals.

## 2 Truth-Bearers

It is crucial for our purposes to be clear about what the truth-bearers are. According to a widely shared view, the

primary bearers of truth are propositions, mind and language independent entities that can function as meanings of sentences and as objects of propositional attitudes (in particular they are items that can be believed or disbelieved). There are those who dissent and deny that there are propositions. Notably, in the debate that is of interest to us here, among them we find Dyke (2002, § 5). However, propositions are typically presupposed in the debate in question (Mellor 1998, p. 24; Oaklander 2004, p. 268; Torre 2009) and thus we shall take them for granted.<sup>4</sup> Accordingly, these conventions will be useful. We shall use brackets to indicate the proposition expressed by a sentence and braces to indicate the corresponding fact. For example, [Obama is a man] is the proposition expressed by a token of “Obama is a man” and {Obama is a man} is the fact that makes this proposition true.

It is also commonly held that sentences can be taken to be, in a secondary sense, truth-bearers. That is, they are true or false depending on whether the propositions they express (their meanings) are true or false. But we must distinguish between sentence types and sentence tokens and also between a *lexical* meaning that can be assigned to a linguistic item independently of a context of utterance and the *pragmatic* meaning that a linguistic item expresses in a given context (Orilia 2010). The two distinctions are interconnected. Once abstract entities such as linguistic types and corresponding meanings are admitted, it is appropriate to say that the lexical meaning is something to be assigned to a linguistic type (for example, apart from context, the ambiguous word “bank,” as a type, has different concepts as lexical meanings). As regards pragmatic meanings, there are two views on the market. According to a *type-oriented* approach, championed by Kaplan (1989) in his works on indexicals, and widespread in the philosophy of language, pragmatic meanings are associated to pairs whose first member is a linguistic item and whose second member is a context, understood as a set comprising items such as a speaker, a time, a place, an object that can be potentially demonstrated and perhaps more. The context

<sup>2</sup> In the vast literature on these topics tensed and tenseless sentences are often called “A-sentences” and “B-sentences” and an analogous terminology is used for propositions. As we shall see below, we shall reserve the terms “A-sentences” (“B-sentences”) for those sentences that *prima facie* look tensed (tenseless), leaving it open whether or not they are really tensed (tenseless). A similar terminology will be assumed for propositions.

<sup>3</sup> Even though Smith’s arguments regarding token-reflexivity are of interest to us here primarily as addressed to the old B-theory, it is worth noting that at least some of them were also directed against the new B-theory and have convinced Mellor, possibly the most influential new B-theorist in the last few decades, and presumably many others, that token-reflexivity is not a viable semantic road. Accordingly, Mellor (1981) has moved from a version of the new B-theory based on token-reflexivity to a version based on a date approach (1988). We surmise that at least some of the counterarguments that we shall present against Smith in order to vindicate the token-reflexive old B-theory could be adapted to an attempt to rescue a token-reflexive new B-theory, but this issue is beyond the scope of this paper.

<sup>4</sup> As it will be apparent below, especially in Sect. 7, some of the objections to the old B-theory presuppose mind-independent propositions and it will be interesting to see that these objections can be defused without abandoning this presupposition. However, although our defense of the old B-theory of time employs the assumption of mind-independent propositions, one of us (Oaklander) is reluctant to countenance them, and prefers to construe propositions, or something in their neighborhood that can perform their functions (for example, as truth bearers), as mental contents in states of consciousness. Oaklander’s reluctance to accept mind-independent propositions and Oaklander’s alternative are not pertinent to the purpose of this paper and so will not be discussed. It is worth noting, however, that he has abandoned the view held earlier (Oaklander 2004, p. 254) that “‘is true’ and ‘is false’ apply to sentence-tokens” since, apart from thought, sentence tokens are just marks on paper or sounds without meaning or truth value.

allows us to semantically evaluate sentences involving indexicals such as “I,” “here,” “now” and “this.” According to a *token-oriented* approach, pragmatic meanings are associated to tokens in a context understood as a bunch of facts surrounding the utterance of the tokens in question and relevant for the selection of the appropriate meanings (for example, a token of “bank,” while talking about finance, is likely to mean financial institution, and, while talking during a picnic near a river, is likely to mean river bank). There are good reasons independent of the issues at stake here for preferring the latter approach (see e.g., Garcia-Carpintero 2000; Forbes 2003, p. 107; Orilia 2010, § 1.10) and, moreover, it seems to be presupposed in much of the controversy between A- and B-theorists, in particular in the above mentioned Smith’s criticisms. We thus think that it is important to investigate whether the old B-theory can be defended within the token-oriented approach and accordingly we shall take this approach for granted in the following.<sup>5</sup>

We shall thus assume that propositions are expressed by sentence tokens. As regards sentence types, however, it is better not to take similarly for granted that they always express propositions, as their lexical meanings. We shall see below that there may be reasons (relevant for us here) to think that in at least some cases they do not express propositions, but rather something akin to propositions (structured items working as meanings), but devoid of truth value, which we may call *quasi-propositions*.

For brevity’s sake, in the following we shall often say that a certain sentence is uttered or that a certain proposition is expressed by a given sentence, even though we should more accurately say that a token of a certain sentence type is uttered or that the proposition in question is expressed by a token of the sentence type. However, we shall resort to the more verbose form of speech when any fear of important misunderstandings will call for more precision.

### 3 Tensedness and Tenselessness

Whether sentences are tensed or tenseless depends on whether they express tensed or tenseless propositions. *Tensed* propositions, involving somehow, one may say, a

‘nowness’ or ‘presentness,’ are subject to *alethic change*, that is, they are such that their truth value may change in time, or, to put it otherwise, they are such that their truth or falsehood depends (at least in paradigmatic cases or in principle) on which moment is present (Mellor 1983, p. 368). Correspondingly, the tensed sentences expressing such tensed propositions are also subject to alethic change. Hence, whether a tensed sentence is true or false depends, at least in typical cases, on the moment in which the sentence is uttered.<sup>6</sup> In contrast, *tenseless* propositions (and the tenseless sentences that express them) are not subject to alethic change, i.e., they do not change truth value in time. It is typically accepted that the English present tense may be used either to express a tensed or a tenseless proposition, or at least this is admitted by those who agree, or at least are willing to consider, that there are both tensed and tenseless sentences. Let us then use a subscript in the main verb of a sentence, either “td” or “ts,” to remind us, when appropriate, that we are dealing with a tensed or a tenseless sentence, respectively. Sentences that make for a *prima facie* case in favor of the existence of tensed sentences (*A-sentences*, in brief) are, e.g.,

- (1) the enemy is approaching  
or
- (2) the enemy was approaching  
Sentences that make for a *prima facie* case in favor of tenseless sentences (*B-sentences*, in brief) are
- (3) the death of Caesar is earlier than the death of Napoleon  
or
- (4) the French revolution starts in 1789

To illustrate our convention, those who think that (1) is tensed may highlight this by writing “the enemy is<sub>td</sub> approaching” and by taking [the enemy is<sub>td</sub> approaching] to be the corresponding proposition. Those who think that (3) is tenseless may highlight this by writing “the French revolution starts<sub>ts</sub> in 1789” and by taking [the French revolution starts<sub>ts</sub> in 1789] to be the corresponding proposition.

Once we admit that there are tensed propositions, it may seem natural to admit that there are tensed facts that make tensed propositions true (Dainton 2010, p. 31). The A-theorists are however divided over the nature of tensed facts. For example, according to presentists, if (1) is now true, this is because there is now a corresponding fact, {the enemy is<sub>td</sub> approaching}, which can be considered tensed in that it will soon cease to exist, when the enemy will no

<sup>5</sup> Paul (1997) has argued that a new B-theorist can reply to some of Smith’s criticisms by adopting the type-oriented approach, but Smith (1999) has rebutted this. We shall not take up this strand of the debate, since, given the perspective we adopted, we’ll rather be interested in showing that, from the point of view of the token-oriented approach, the old B-theorist can answer to Smith. Whether this is possible from the standpoint of the type-oriented approach is something one might also want to investigate, but it will not be pursued here.

<sup>6</sup> We may want to add that tensed propositions attribute to something, whether implicitly or explicitly, an A-property such as ‘present,’ ‘past,’ or ‘future,’ or even a metric A-property such ‘three hours ago,’ ‘yesterday’ and the like (Mellor 1983, p. 363).

longer be approaching. In contrast, according to non-presentist A-theorists, the fact {the enemy is<sub>td</sub> approaching} will never cease to exist. It will rather lose the property of being present that it now has and will acquire the property of being past. Hence, there is now also the tensed fact {{the enemy is<sub>td</sub> approaching} is<sub>td</sub> present}, but in due time it will be replaced by another tensed fact, namely, {{the enemy is<sub>td</sub> approaching} is<sub>td</sub> past}.

#### 4 Three Versions of the Old B-theory

Following Dyke (2007, pp. 432 ff.), we may say that the old B-theory is motivated by a conviction shared by both A-theorists and B-theorists in the early stage of the debate (before the new B-theory entered the picture): that one can read off ontological facts from semantic facts (according to Dyke, this is a fallacy, “the representation fallacy,” but whether this is the case need not occupy us here). More specifically (p. 435), the old B-theory is (implicitly) motivated by a thesis that is most naturally linked to it, namely the “Strong Linguistic Thesis” (“SLT,” in short), according to which “there is one privileged, true description of reality, the sentences of which (a) stand in a one-to-one correspondence with facts in the world, and (b) are structurally isomorphic to the fact with which they correspond.” As Dyke clarifies in a footnote, this is not meant to imply that there are no linguistically undescribed or undescrivable facts, but simply that, for any describable fact, there is at most one structurally isomorphic true description. In other words, the one-to-one correspondence is between described or at least describable facts and the sentences that perspicuously describe such facts. The idea is that, if there is a certain fact, there can be at most one true corresponding perspicuous sentence that reveals the ontological nature of this fact (thus deserving to belong in the one privileged true description of the world).

From this perspective, if there are true tensed sentences, they (or at least perspicuous versions of them) presumably belong in the true description of reality and thus there must be corresponding tensed facts that make such propositions true. It is thus imperative, for a B-theorist, who does not acknowledge tensed facts, to show that, despite appearances, there are no tensed sentences.<sup>7</sup> Conversely, for

A-theorists,<sup>8</sup> who acknowledge tensed facts, it is imperative to admit true tensed sentences.

The old B-theorist therefore proceeds to argue that A-sentences such as (1) and (2) are not really tensed in that they express propositions that could have been expressed by means of B-sentences, i.e., sentences that, being analogous to (3), (4) and the like, should be regarded as tenseless. In other words, A-sentences are translatable (without loss of meaning) into *prima facie* tenseless sentences, or to put it differently, the former can be paraphrased in terms of the latter.<sup>9</sup> Given this translatability, since B-sentences are assumed to be really (and not just *prima facie*) tenseless, inasmuch as they express tenseless propositions, A-sentences should themselves be acknowledged as tenseless (and thus as only *prima facie* tensed). Accordingly, even A-sentences express tenseless propositions (although, one may add, since they *prima facie* incline us to regard them as tensed, they are less perspicuous than the B-sentences that translate them and therefore the latter and not the former deserve to belong in the one true privileged description of reality). This is the point of view that can in general be attributed to the old B-theorist.<sup>10</sup>

There are however three versions of the old B-theory. They differ in the way they propose to implement the translation in question. Let us focus on (1) to illustrate this. According to the *date approach* (Russell 1906, pp. 256–57; Frege 1918–1919; Goodman 1951; Quine 1960), a sentence such as (1) is incomplete in the sense that it expresses a proposition only by taking into account the moment in which it is uttered.<sup>11</sup> By taking into account such a

<sup>8</sup> For instance, Gale (1968) and Schlesinger (1980), as noted by Dyke (2007, p. 429).

<sup>9</sup> Following the tradition, we are using “translation” and “paraphrase” as synonymous, although perhaps the latter term is preferable, since the former is best used when two different tongues, such as English and Italian, are involved.

<sup>10</sup> See e.g., Smith (1994, p. 18), where this view is attributed to Russell, Smart, Reichenbach and Goodman. It should be clear that this is a sort of rational or ideal reconstruction that does not correspond to the letter of what many old B-theorist would have said, for many of them (e.g., Goodman and Quine) explicitly rejected the existence of propositions. Moreover, the debate over whether *prima facie* tensed sentences are translatable into tenseless ones has typically focused on sentence types, rather than on sentence tokens (and perhaps has suffered sometime from some ambiguity in this respect), or at least it has not always clearly distinguished between talk of types and talk of tokens when it would have been appropriate. In the following, we shall try to do this explicitly.

<sup>11</sup> Frege (1918–1919, p. 309) expresses this idea in a well-known passage as follows: “The words ‘This tree is covered with green leaves’ are not sufficient by themselves to constitute the expression of thought, for the time of utterance is involved as well. Without the time-specification thus given we have not a complete thought, i.e., we have no thought at all. Only a sentence with the time-specification filled out, a sentence complete in every respect, expresses a thought.” Something similar is argued for by Broad (1921, pp. 147–148), although he accepts the token-reflexive approach (p. 149).

<sup>7</sup> The old B-theorists seemed to take a success in this enterprise as an argument for the B-theoretic ontology, but it is not necessary to do so. One can regard a defense of the eliminability of tensed sentences and propositions not so much as an argument for the B-theory, but just as a defense of the B-theory against A-theorists who argue against the B-theory by claiming that tensed sentences and propositions cannot be given up. Of course, to demonstrate that a certain argument or set of arguments against a view are invalid, is not to demonstrate that the view is true.

moment, the expressed proposition is the one that could be expressed by a sentence obtained from (1) by inserting in it a date that refers to the moment in question. Thus, e.g., if (1) is uttered at noon on May 1, 1944, the sentence obtained from (1) would be

(1a) the enemy is<sub>ts</sub> approaching at noon on May 1, 1944.

According to the *token-reflexive approach* (Broad 1921; Kneale 1936; Reichenbach 1947; Smart 1949, 1963),<sup>12</sup> a token *s* of (1) expresses a proposition that has *s* itself among its constituents, a proposition which we could represent as follows: [there is exactly a time *t* such that *s* is uttered at *t* and the enemy is approaching at *t*] (or, more briefly, [the enemy is approaching at the time of the utterance of *s*]). By assuming (following Reichenbach 1947) that a token of the indexical “this token” can be used to refer to the very sentence token that contains it, this proposition could have been expressed by saying:

(1b) the enemy is<sub>ts</sub> approaching at the time of the utterance of this token.<sup>13</sup>

This analysis quantifies over times and thus, by Quinean standards, commits one to their existence. It may thus be wondered why it should be preferred to an analysis, which also seems possible, that avoids this commitment. To illustrate, one may think that the token-reflexive approach should urge that the proposition expressed by (1) is something like: [the utterance of *s* is simultaneous with the approaching of the enemy].<sup>14</sup> Nevertheless, in answering some of Smith’s objections against the token-reflexive approach, the analysis that quantifies over times will turn out to be handy and we thus prefer it (in discussing the other objections by Smith and other matters in which it does not appear to be necessary, we shall avoid for simplicity’s sake this quantification over times). It should be noted however that, as is usually recognized, quantification over times does not in itself imply that times are to be viewed as primitive and irreducible entities as the substantialist view of time has it. They could also be viewed from the perspective of a relationalist approach to time. From this point of view, to say that the enemy is approaching at *t* is to say (roughly) that either the event of the approaching of the enemy is simultaneous with another event (represented by “*t*”), perhaps something like a “total” event understood as an all-encompassing state of

the universe, or that the event of the approaching of the enemy belongs in a gigantic class (represented by “*t*”) of simultaneous events.

The *psychological approach* (Russell 1915) is pretty much like the token-reflexive approach except that it relies on mental items such as percepts or thoughts of speakers and hearers, rather than on the sentence tokens uttered by speakers. Thus, according to this approach, when a certain speaker utters a token of (1), this token expresses a proposition such as [there is exactly a thinking of *t* and this thinking is simultaneous with the approaching of the enemy], where *t* is a certain thought. Here a thought is understood as privately existing in the mind of the speaker and accordingly this proposition is something that only the speaker can really grasp and is thus not really intersubjective. From the standpoint of a hearer, the meaning of the sentence in question is a slightly different proposition, say, [there is exactly a thinking of *t'* and this thinking is simultaneous with the approaching of the enemy], where *t'* is a certain thought in the mind of the hearer. Since the psychological approach can hardly allow for an intersubjective meaning that speakers and hearers can share, the token-reflexive approach may perhaps be preferred to the latter (Orilia 2010). On the other hand, it has also been argued, in line with the psychological approach, that speaker and hearer meanings are indeed (at least in some cases) distinct (Broad 1938, pp. 59–60; Kapitan 2006). Without taking a definite stand on this issue here, we shall focus in the following on the token-reflexive approach and set the psychological approach aside (we think that the arguments used below to rescue the token-reflexive approach can be used, *mutatis mutandis*, for the psychological approach, although for reasons of space we shall not dwell on this).

## 5 Two Arguments Against the Old B-theory

The new B-theorists grant that there are tensed sentences and propositions. But why? It seems that we can distinguish two arguments, although we often find them intermingled. Let us have a look at them.

### 5.1 The Sentence Type Translation Argument

The first argument is based on the acknowledgment, in the light of work in the philosophy of language (Castañeda 1967; Perry 1979), that tensed language is, in contrast to tenseless language, context-dependent just like indexical language (see Smith 1994, pp. 18–19; Dyke 2007, p. 433), so that the truth-values of tensed sentences depend on the time of utterance, whereas those of tenseless ones do not. Starting from that, the new B-theorists have come to hold that no A-sentence type can have the same meaning as a

<sup>12</sup> Interestingly, the token-reflexive approach is attributed by McTaggart (1927, Ch. 33) to Russell, without however referring to any work of the latter.

<sup>13</sup> Following current usage (see e.g., Smith 1993), we may also say, for brevity’s sake, “this utterance” rather than “the utterance of this token.”

<sup>14</sup> The first of these two analyses can be attributed to Reichenbach and the second to Smart (see Smith 1993, p. 72).



B-sentence type, insofar as no A-sentence type can be translated (paraphrased) without loss of meaning by a B-sentence type. Mellor (1981, p. 76) offers an argument to this effect that can be explicitly rendered as follows.

(M1) A sentence type *S* does not have the same meaning as a sentence type *S'*, if *S* has tokens whose truth values depend on the time at which they are uttered, whereas *S* does *not* have tokens of this sort.

(M2) All tokens of an A-sentence type have truth values that depend on the time at which the tokens are uttered.

(M3) All tokens of a B-sentence type have truth values that do *not* depend on the time at which the tokens are uttered.

Therefore,

(M4) No A-sentence type has the same meaning as a B-sentence type.<sup>15</sup>

We might call this the *sentence type translation argument*. It, or close variants thereof, has gained currency<sup>16</sup> and thus seems to be responsible for a good deal of the popularity of the new B-theory. Indeed, the argument might seem to show that there are tensed propositions. For, granted that B-sentence types are indeed tenseless, so that they and their tokens express tenseless propositions, (M4) might suggest that the meaning of an A-sentence type, and/or of any of its tokens, is a tensed proposition. We might perhaps concede that (M4) follows from the premises and also take (M1) for granted. The crucial premises (M2) and (M3), however, need to be established and whether (M4) really implies that there are tensed propositions must be carefully considered.

As regards (M2), this premise takes for granted that A-sentence types and all of their tokens are items with a truth value. But this begs the question against the date approach. According to the supporter of the date approach, a sentence type or token by itself does not express a proposition, for it is something like an “incomplete symbol” that at best expresses a quasi-proposition in need of completion, an item devoid of truth value and thus not a proposition, let alone a tensed proposition. The completion is provided by the time of utterance and this is why different tokens of the same sentence type can have different truth values (Russell 1906; Frege 1918; Broad 1921). They can, because they express different propositions, depending on the time of utterance. Moreover, given this dependence on the time of utterance, the same A-sentence type, e.g., (1), could be translated by

different “dated sentences,” e.g., (1a) or perhaps “the enemy is approaching at noon on May 1, 2011.” These dated sentences express propositions, one may concede, just like their corresponding tokens, but these propositions are tenseless, as shown precisely by the fact that, at least according to the B-theorist, they are not subject to alethic change. Despite rejecting (M2), the date old B-theorist might accept (M4), since, from her point of view, an A-sentence type, such as (1), considered apart from any time of utterance, expresses a quasi-proposition devoid of truth value, whereas the corresponding dated sentence, e.g. (1a), expresses a (tenseless) proposition. Therefore, they cannot have the same meaning. But, clearly, to accept (M4) for this reason does not commit one to tensed propositions, but rather to quasi-propositions.

Let us now consider (M3). Token-reflexive sentences such as (1b) seem to provide immediate counter-examples to it. According to the token-reflexive old B-theorist, the tokens of these sentences express tenseless propositions, and yet their truth values depend on the time of their occurrence. This is because these tokens express different propositions rather than propositions that change truth value in time. Thus, one cannot accept (M3), unless one begs the question against the token-reflexive version of the old B-theory.<sup>17</sup> And, having rejected (M3), the token-reflexive old B-theorists may reject (M4) as well and still claim that, despite appearances, A-sentences express propositions that can also be expressed by (token-reflexive) B-sentences. This tells us, in their view, that such propositions are tenseless.<sup>18</sup>

<sup>17</sup> As we shall see below, Gale and others have tried to argue that token-reflexivity amounts to tensedness, but not in a convincing way.

<sup>18</sup> How is it the case that Mellor reaches a different result? He takes (M3) for granted by ruling out the use of token-reflexive terms in tenseless sentences (see below) and argues for (M2) in a way that disregards the possibility that *prima facie* tensed sentences do not express propositions. Let us see how. Thesis (M2) is supported by taking a paradigmatic example of a *prima facie* tensed sentence type in order to show that any attempt to translate it with a tenseless sentence is doomed to fail. This is the example:

(ME) it is now 1980.

Mellor then looks for the best candidate in an attempt to translate (ME) in tenseless terms. Potential candidates are not allowed to involve “token-reflexive names or indexicals” (p. 74), as noted above. Mellor thus appeals to a singular term “*S*” that is supposed to refer to a certain token of (ME) without being a token-reflexive name or description and comes up with this best candidate:

(ME') *S* occurs in 1980.

Clearly, for a token of (ME) to be true, it must occur in 1980; a token of (ME) occurring, say, in 1990, is false. In contrast, all tokens of (ME') have the same truth-value: if *S* was uttered in 1980, then any token of (ME'), no matter when uttered, is true. And, if *S* was uttered at another time, say in 1979, any token of (ME') is false, no matter when uttered. Mellor generalizes as follows: “Obviously, nothing tenseless will translate tokens *R* and *S*, if ‘*R* occurs in Cambridge’ and ‘*S* occurs in 1980’ do not. And if simple tensed sentences such as these have no tenseless translation, then no tensed sentence does. The fact, I think, needs arguing no further, least of all to opponents of

<sup>15</sup> (M1), (M2) and (M3) are put in terms of truth conditions by Mellor as follows. Corresponding to (M1), there is Mellor’s claim that having the same truth conditions is a necessary condition for two sentences’ having the same meaning, and, corresponding to (M2) and (M3), there is Mellor’s claim that tenseless and tensed sentences have different truth conditions.

<sup>16</sup> See, for instance, Smith (1987, p. 236), Oaklander (2004, Chs. 24 and 25, p. 271, in particular), Dyke (2007, pp. 433 and 448).

In sum, the no translation argument does not succeed and something else is needed if one wants to attack the old B-theory.

## 5.2 The Cognitive Value Argument

The second argument that new B-theorists have endorsed can be traced back to Gale (1962). We may call it the *cognitive value argument*.<sup>19</sup> According to it, a token of an A-sentence *S* may express a proposition with a certain *cognitive value*, a value that can hardly be attributed to the proposition expressed by any token of whatever B-sentence *S'* the old B-theorist presents as a translation or paraphrase of *S*, at least if she follows the date approach. If this is so, the old B-theorist (who follows the date approach) cannot claim that the tokens of *S* and *S'* express the same proposition and that, in general, tokens of A-sentences are translatable without loss of meaning into tokens of B-sentences. To see the point, let us focus on (1), which we repeat here, for the reader's convenience.

(1) The enemy is approaching.

Suppose a sentinel sees the enemy approaching at noon on May 1, 1944 and accordingly utters a token of (1). His companions thus get into a belief state that, let us suppose, causes them to *immediately* get ready to fire.

If, on the other hand, the sentinel had produced a token of the “date-theoretical” sentence (1a), he would not have induced the same belief state in his companions. For upon hearing this token, his companions would get ready to fire, if ever, only *after* realizing that the time of the token's utterance is May 1, 1944 at noon (which they may even fail to realize, if no watch is available for them). Thus, one may conclude, the proposition expressed by the token of (1) has a cognitive value that the proposition that the token of (1a) would have expressed does not have. The two tokens therefore express different propositions.

The cognitive value argument that we have just seen is directed in effect against the date approach version of the old B-theory. An A-theorist could go on arguing that the special cognitive value that the proposition expressed by the token of (1) has depends precisely on its being tensed and thus subject to alethic change: the soldiers get ready to fire, because they consider the proposition true at the particular moment in which they hear the token and false at preceding and succeeding moments, in which, accordingly, do not have the same reaction (getting ready to fire) but are rather, say, first resting and then celebrating their victory. But this move should not be convincing, at least from the B-theoretical perspective, unless the cognitive value argument also strikes against the psychological and token-reflexive approaches. But this is not the case. To see this, let us focus on the latter.

Let us suppose that, in uttering a token *s* of (1), the sentinel expressed this proposition: [the utterance of *s* is simultaneous with the enemy's approaching]. This proposition is the one believed by the other soldiers (and would have been expressed just as much, if the sentinel had uttered (1b) instead of (1)). If this is so, arguably they are in an appropriate cognitive state, one capable of causing their action of getting ready to fire. For to do this they need not know by means of a watch or otherwise that it is noon on May 1, 1944 when they hear the sentinel uttering his token of (1). All they need to know is that his uttering this token is simultaneous with the approaching of the enemy. Similarly, a sufficient condition for Tom's getting to a 1 p.m. meeting on time could be his believing the tenseless proposition that the utterance of *s* is roughly simultaneous with the clock's striking 1 p.m., where *s* is Tom's mental token of “the clock strikes 1 p.m.” (which surfaces to his mind upon looking at the clock). Or, a sufficient condition for Tom's being relieved that he will never have to give another lecture again could be his believing the tenseless proposition that the utterance of *s* is later than his giving his very last lecture, where *s* is his mental token of “finally I gave my last lecture.” In sum, although it might seem at first glance that believing tensed propositions is needed to allow us to react to dangers, keep our appointments or have emotional responses, one can see that appropriate token-reflexive tenseless propositions are also fit for this role.<sup>20</sup>

Footnote 18 continued

tenseless time” (1981, p. 75; in order to draw an analogy between temporal and spatial indexicals, Mellor considers, in addition to (ME), “Cambridge is here” and takes “*R*” to denote a token of this sentence). There is a shift in this quotation from the issue of translating sentence types to that of translating sentence tokens. And it also seems as if a token (e.g., the token *S* of (ME)) is meant to be translated by a type (“*S* occurs in 1980”). But we can assume that Mellor means to say that the sentence type (ME) cannot be translated by the sentence type (ME') and, correspondingly, no token of (ME) can be translated by a token of (ME').

<sup>19</sup> Versions of it, whether or not they are attributed to Gale, can be found at various places (see, e.g., Mellor 1981, p. 83 and Beer 1988, p. 89).

<sup>20</sup> Analogous considerations can be made on behalf of the psychological approach, and perhaps some might even urge that the latter is more appropriate to characterize tacit beliefs that do not involve communication. From this perspective, for example, what moves Tom to get to the lecture is a belief to the effect that, *this perception* of the clock's striking 1 p.m. is simultaneous with the clock's striking 1 p.m. Here, however, as noted, we focus on the token-reflexive approach. Oaklander (2004, p. 286) seems to see that this approach does not fall prey to the cognitive value argument but, rather than pressing this point and accordingly defending the old B-theory, proposes a “massive error theory,” to be discussed below.

Gale (1962, p. 213) implicitly recognizes this, but he considers tensed a sentence involving a token-reflexive term, for the reason that, whenever used, this term allows one to refer to a different moment of time. However, as we saw, the real point is that tokens of token-reflexive sentences always express different propositions, which may well have different truth values, so that there is no reason to view such propositions as tensed, i.e., as subject to alethic change.

Gale (1968, p. 28), citing Broad (1928, p. 187), has insisted against this by claiming that “this token” means “the token which I am uttering or inscribing at present” and accordingly arguing that the token-reflexive analysis does not eliminate reference to A-properties of events, thereby failing to explain the meaning of A-sentences in tenseless terms. More recently, Ludlow (1999, p. 90) has made a similar point in the following passage:

Still more perplexing for the B-theorist, the indexical element in “this utterance” looks an awful lot like a temporal indexical predicate... It looks for all the world as if the extra indexical element just means *now*, and as if the expression “this utterance” means something akin to “the utterance happening now”!

Smart (1963, p. 194) has already replied to this line of thinking by noting that “it is simply a dogmatic rejection of the analysis in terms of token-reflexiveness. On this analysis ‘now’ is elucidated in terms of ‘this utterance’, and not vice versa.” This elucidation, notes Smart, relies on taking a token of “this utterance” (or “this token,” as we prefer to say) as referring to itself *directly*, i.e., without recourse to properties that identify it. And thus, in particular, without recourse to an A-property of presentness or nowness. Gale and the other objectors appear to claim precisely the opposite, but we can rejoinder with Smart (1963, p. 195) that “it is not at all evident why the objector should think that an utterance like ‘this utterance’ cannot be *directly* self-referential. We hear a token of the form ‘this utterance’ and simply understand that this token utterance is the one referred to.”<sup>21</sup> That the objector thinks otherwise and insists on bringing an A-property into the picture may well

be a byproduct of a presupposed allegiance to the A-theory, but the B-theorist will of course disavow this.

In conclusion, token-reflexivity is sufficient to explain how A-sentences can convey beliefs that allow for timely actions and the like and there is no reason for the B-theorist to think that it does so, because it overtly or covertly involves tensedness.

## 6 The New B-theory

In spite of the problems we have seen in the criticisms to which it has been subjected, the old B-theory has faded in the background and the new B-theory has become dominant, at least among B-theorists (Smart 1980; Mellor 1981, 1998; Oaklander 1984, 2004; Beer 1988, 2007; Dyke 2002, 2003, 2007; Mozerky 2000, 2001). According to the new B-theory, there are tensed sentences and corresponding tensed sentence tokens that express tensed propositions (semantic tensionalism), but there are no tensed facts (ontological tensionalism). To support this, the new B-theorist typically argues that it is possible to offer tenseless truth-conditions for tensed tokens.<sup>22</sup> These truth-conditions have been offered either in token-reflexive terms or by recurring to dates, so that we can distinguish a token-reflexive and a date version of the new B-theory. For example, according to the first version (defended in Mellor 1981), a token *s* of (1) is<sub>ts</sub> true iff the uttering of *s* is<sub>ts</sub> simultaneous with the approaching of the enemy; and according to the date version (defended in Mellor 1998), a token of (1) is<sub>ts</sub> true at a certain time *t* iff the enemy is<sub>ti</sub> approaching at time *t*.

The idea seems to be this: the proposition expressed by a token of (1) at a certain time *t* may well be tensed, but it is made true by a tenseless fact, i.e., assuming the date version, {the enemy is<sub>ts</sub> approaching} occurs<sub>ts</sub> at time *t*,<sup>23</sup> the very same fact that makes true the sentence that offers the truth-condition for the token, namely “the enemy is<sub>ts</sub>

<sup>21</sup> It is nowadays fashionable to take all indexicals to be directly referential, along the lines of proposed by Castañeda (1967, p. 86) as follows: “Reference to an entity by means of an indicator is purely referential, i.e., it is a reference that attributes no property to the entity in question.” It is worth noting however that one can take a token-reflexive term such as “this token” to be directly referential, without thereby being committed to a directly referential approach to the indexical terms commonly encountered in natural language, such as “I,” “you,” “here,” etc. One could still provide for them a descriptivist account, as attempted, e.g., in Orilia (2010). In fact, Reichenbach (1947) himself provided descriptivist analyses of these expressions by relying on the direct referentiality of “this token.”

<sup>22</sup> Dyke (2007) distinguishes two versions of the new B-theory, on the basis of how the strategy of offering tenseless truth-conditions is understood. According to what she calls the *truth-conditional* version, which she chastises because guilty of the representational fallacy just like the old B-theory, the strategy aims at proving ontological tensionalism in an attempt to draw ontological conclusions from linguistic facts. According to what she calls the *truthmaker* version, which she approves, the strategy has a mere ancillary role, for ontological tensionalism is reached by other means, such as appealing to McTaggart’s argument or to the special theory of relativity (pp. 449–452). Dyke attributes the truth-conditional version to all the B-theorists cited above except the Mellor of *Real Time II*, to whom she attributes the truthmaker version (p. 437, p. 442, p. 444).

<sup>23</sup> Mellor prefers to say “is simultaneous with *t*,” rather than “occurs at *t*.” At any rate, in talking of times Mellor does not intend to be committed to primitive irreducible times and allows for the option of considering them as depending on events and their mutual B-relations, in line with a relationalist view of time (1998, p. 34).



approaching at time  $t$ .” The token of (1) and a token of this tenseless sentence can thus be said to be equivalent in the sense that they are made true by the same fact, yet they express two different propositions, a tensed and a tenseless one, respectively.<sup>24</sup>

Smith (1987) has accused Mellor’s view of being internally inconsistent in its attempt to associate tenseless truth-conditions to tensed sentences. We shall not dwell on this however<sup>25</sup> and rather concentrate on another point. To the extent that tenseless truth conditions for tensed sentence tokens can be provided, it might seem that the new B theory can still stick to SLT and allow for the one true perspicuous description of reality. This description would contain the tenseless sentences used to offer truth conditions for tensed ones, rather than the tensed sentences themselves, for the former and not the latter are taken to represent perspicuously the tenseless nature of reality. Oaklander (2004, p. 278) puts it as follows:

According to the new theory, the need for tensed sentences, while necessary in ordinary language and thought, does not imply the existence of tensed facts in the world. The new theory thus distinguishes two languages, one necessary for communication and timely action and the other necessary for a correct description of temporal reality. The former requires tensed sentences; the latter eliminates them, since in an ontologically perspicuous language where [McTaggart’s] paradox is to be avoided, the sentences or propositions that represent temporal reality are B-sentences or B-propositions.

In contrast, however, Dyke (2007) argues that the new B-theorist had better abandon STL. The reason seems to be that, once it is admitted that two sentences (and corresponding propositions) as diverse as a tenseless and a tensed one are made true by the same fact, there is little room for arguing that only one of them perspicuously represent reality and, more specifically, is structurally isomorphic to the fact that makes it true. Thus Dyke (p. 444) favors a new B-theory that may well accept that there is a true description of reality understood merely as “the collection of all the

truths that there are,” but “denies that the sentences of that description stand in a one-to-one correspondence with the facts of the world, or that those sentences need be structurally isomorphic to the facts that make them true.” For, Dyke goes on, “[t]he ratio of true sentences to facts in the world can instead be many-to-one. For each fact there can be many ways of accurately describing it.”

But is it really credible that two supposedly very different propositions, a tensed and a tenseless one, can be made true by the same fact? Oaklander (2004) recognizes that there is a serious problem here and goes on to propose a new version of the new B-theory, according to which all tensed propositions are false, for the very simple reasons that, since they are tensed, they would need tensed facts to make them true; but, since (given ontological atensionalism) there are no such facts, the tensed propositions are all false. In sum, according to Oaklander, there are tensed propositions and thus, inasmuch as we believe them, there are tensed beliefs. But these propositions and beliefs are systematically false. In spite of their falsehood, however, claims Oaklander, a belief can be pragmatically useful. For example, when the soldiers acquire the belief that the enemy is approaching, this belief, though false because of its tensed nature, is pragmatically useful, because it allows the soldiers to get ready to fire. This is Oaklander’s *massive error theory*, which can be considered a further variant of the new B-theory.

Clearly, this version can save STL, but at a high price. It is natural to think, in fact, that, at least in typical cases, beliefs are pragmatically useful precisely because they are true. A theory that takes beliefs to be systematically false and yet distinguishes between the useful and the useless ones, can hardly explain in a satisfactory way how some beliefs turn out to be useful whereas some do not. Perhaps, this explanation might be given somehow, but a theory that has no need to search for it, would certainly be more natural and preferable. The B-theorist can have it at her disposal if she manages to establish that there are no tensed sentences, propositions and beliefs after all.

Since, as we have seen, the token-reflexive approach can resist the traditional arguments against the old B-theory, it can perhaps succeed in vindicating the old B-theory. But to do this, Smith’s objections against token-reflexivity must be countered. We turn to them in the next section.

## 7 Smith’s Arguments Against the Token-Reflexive Approach

Smith (1993), Ch. 3, contains a sustained attack against the token-reflexive version of the old B-theory of time.<sup>26</sup> We

<sup>24</sup> Tensed propositions are characterized by Mellor as “tc-functions,” (1998, p. 59) i.e., functions that, given a moment (at which a certain sentence token occurs) yield as value a tenseless truth-condition (of the sentence token in question). However, he also sees propositions, in line with the tradition, as truth-bearers, meanings of sentences and contents of propositional attitudes (pp. 23–24). As noted by Oaklander (2004, p. 282), it is problematic to view propositions, so understood, as functions. See, however, Mellor (1998, p. 60).

<sup>25</sup> Some lack of precision in Mellor’s statement of his view and of the arguments for it in *Real Time* (1981) have provided the input for Smith’s attack, but a careful use of the type/token distinction may perhaps allow for a coherent description of Mellor’s position (Oaklander 2004, Ch. 24).

<sup>26</sup> Most of Smith’s arguments can also be found in his earlier 1987; for present purposes, it will suffice to refer to Smith (1993).

can identify four main objections against it, centered around four examples, (S1)–(S4), below. Let us proceed to review them.<sup>27</sup>

Smith (1993, § 3.2) asks us to focus on

(S1) the era devoid of linguistic utterances was present.<sup>28</sup>

According to Smith, the token-reflexive old B-theory does not distinguish between “present” and “now.” Accordingly, since “now” is understood by this theory in token-reflexive terms, pretty much like the present tense, Smith, while setting aside other options that need not concern us here, considers that, according to the theory in question, (S1) expresses a proposition that could have been conveyed by

(S1a) this utterance is<sub>ts</sub> earlier than that the era devoid of linguistic utterances.

Unfortunately, notes Smith, this sentence is false or even contradictory, since it says that the utterance of a certain token is earlier than the long period of time preceding the first occurrences of linguistic tokens (perhaps, for all we know, the period going from the Big Bang to the birth of language in our ancestors). This is in fact the period of time that the phrase “the era devoid of linguistic utterances” is meant to refer to. In contrast, (S1) is true. However, one may reply that the old B-theorist can very well distinguish between “present” and “now.” The latter is indeed to be understood token-reflexively, whereas the former can be seen as a way of expressing the co-presentness relation that links an event to a time, or two events, or two times. That is, what we may express by “occurring at” or “simultaneous with.” One of the two items involved in this relation may only be implicitly referred to. This is the case with (S1), which, once “is present” enters the stage, can be taken to involve an implicit anaphoric reference to the era devoid of linguistic utterances. Thus, (S1) amounts to the true

(S1b) the simultaneity of the era devoid of linguistic utterances with the era devoid of linguistic utterances is<sub>ts</sub> earlier than this utterance.

The next problem (Smith 1993, § 3.3) comes from adapting an argument by Castañeda against a token-reflexive approach to the meaning of “I”.<sup>29</sup> Smith considers:

(S2) I am not uttering anything.

The token-reflexive old B-theory takes the proposition expressed by (S2) to be the same as the one expressible by

(S2a) my not uttering anything is simultaneous with the utterance of this token.

But this, urges Smith, cannot be true, because (S2) expresses a contingent proposition, which is false when Smith utters (S2), but could have been true, had Smith not uttered (S2). In contrast, the proposition expressed by (S2a) is self-contradictory. The existence of this proposition depends on Smith’s uttering a certain token, but, when Smith utters the token, he is not silent, and thus this uttering of his *cannot* be simultaneous with his not uttering anything. But this, we reply, simply proves that (S2a) expresses a self-defeating proposition (Orilia 2010), i.e., a proposition that must be false, once it is expressed. The proposition expressed by (S2) is however similarly self-defeating. The self-defeating nature of a proposition should be sharply separated by its contingency, which has to do with the fact that a certain corresponding possibility could have been realized. In other words, the proposition expressed by (S2a) is contingent, because there is another proposition about this possibility which is true. This “corresponding possibility proposition” could be expressed by Smith thus:

(S2′) I might not have uttered anything.

In sum, (S2) expresses a contingent proposition, because (S2′) expresses a true proposition. But we can say something parallel about (S2a). It expresses a contingent proposition, because (S2a′) below expresses a true proposition:

(S2a′) the possibility of my not uttering any token is simultaneous with my uttering this token.

It may not be immediately evident that (S2a′) can be taken to express a true proposition. But this is something one can agree upon, once it is seen that what (S2a′) is

<sup>27</sup> Smith’s arguments, to the extent that have token-reflexivity as target, also apply to the new B-theory in its token-reflexive guise and thus Dyke (2002, 2007) has tried a systematic response to these objections that bear some analogies to the one we propose here. However, for the most part we have to follow different strategies, for Dyke replies to Smith from a point of view according to which sentence tokens are the primary truth-bearers and there are no language independent propositions. In contrast, we are assuming propositions as main truth-bearers.

<sup>28</sup> Actually Smith focuses on “it was true that the era devoid of linguistic utterances is present,” but bringing in the word “true” leads to irrelevant complications that we can set aside for present purposes.

<sup>29</sup> In discussing this problem, Smith lets his case rest on a restricted notion of uttering, according to which it does not apply to silently thought mental tokens. But there is no good reason to take uttering in this narrow sense and by seizing on this Dyke (2002, pp. 297–299) has too easy a job in countering Smith. Here however I reconstruct Smith’s objection in a way that does not depend on the restricted notion of uttering. As a matter of fact, as we shall see in discussing the next problem, Smith himself recognizes that uttering can be understood in a broad sense that allows for the utterance of silent mental tokens.

telling us can be better conveyed in a way that explicitly gives wide scope to “my uttering this token.”

(S2a'') there is exactly a time  $t$  such that my uttering this token occurs at  $t$  and it is possible that my not uttering anything occurs at  $t$ .

Torre (2009, p. 342) challenges the B-theorist to preserve the intuition that the sentence type (S2) can be true at a time in which he is not uttering anything. But here Torre begs the question against the token-oriented approach, by presupposing the type-oriented approach, according to which a pragmatic meaning can be assigned to sentences in a context. We decided to set this approach aside, but we can recognize that there is an intuition regarding truth that Torre is trying to seize, i.e., the intuition that there is a certain truth concerning Torre's not uttering anything at a time  $t$  in which he utters nothing. However, by appealing to propositions we can capture this intuition. We can in fact admit that, given a time  $t$  at which Torre is uttering nothing, there is a corresponding true proposition such as this: [Torre's not uttering anything is simultaneous with  $t$ ]. There is no reason to further add that there is a true sentence type involving the indexical “I” that somehow expresses this or a similar proposition.

Smith's third objection has to do with the alleged fact that the propositions expressed by A- sentences have entailment conditions that certify that these propositions do not involve linguistic tokens (unless of course the sentences in question are explicitly about linguistic tokens; Smith's example of such a sentence is “this utterance is present”). Thus, argues Smith, the propositions expressed by A-sentences cannot be propositions that are also expressible by token-reflexive sentences. Smith (1993, p. 81) focuses on this A-sentence:

(S3) the forest is now burning.

A token of (S3) cannot express, urges Smith, the same proposition that could have been expressed by a token of

(S3a) the forest's burning is simultaneous with the uttering of this token.

For one, say Smith, can silently think to himself a token of (S3) that expresses a true proposition (if the forest is really burning), whereas he cannot do the same with (S3a). For, if Smith silently thinks to himself a token of (S3a), he does not utter any token for “this token” to refer to. This problem however can be easily circumvented, since “uttering” can be taken in a broad sense that also applies to cases in which one thinks to oneself rather than talking out loud, as Smith himself recognizes (1993, § 3.6, p. 82). However, according to Smith, troubles are not over, for the proposition expressed by a token of (S3) is “token independent,” whereas the one expressed by a token of (S3a) is

not. The evidence for this claim is that the proposition expressed by the token of (S3) is taken by normal speakers of English (i) as capable of being true independently of whether or not any token has been uttered and (ii) as confirmed by observations that have nothing to do with the utterance of tokens. A normal speaker understands that when the token of (S3) is uttered while the forest is burning, the expressed true proposition would have been true even if the token had not been uttered and that observing the burning forest suffices to confirm the proposition. The same however cannot be said about (S3a). The proposition expressed by a token of it could not be true, if no token had been uttered. And, to confirm the proposition, it is not sufficient to observe the burning forest; we need also observe the simultaneity of the uttering of a certain token and the burning of the forest.

There are then a “counterfactual problem” and a “confirmation problem.” Let us take them in turn. As regards the former, Smith is in effect telling us the following. A token of (S3\*) below, uttered in the presence of a burning forest, is false, but the token-reflexive approach predicts that is true.

(S3\*) the forest would not now be burning, if no token had been uttered.

But is it really so? From the point of view of the token reflexive approach, (S3\*) can be interpreted as follows:

(S3\*\*) the time  $t$  simultaneous with the utterance of this token (or, the time  $t$  at which the uttering of this token occurs) is such that: had there been no tokens at  $t$ , the forest would not be burning at  $t$ .

In (S3\*\*), the definite description “the time  $t$  simultaneous with the utterance of this token,” which provides the token-reflexive interpretation of the “now” of (S2\*), is given wide scope. If we focus on (S3\*\*), we see that there is no reason to consider it true. Any account of counterfactuals in the literature should certify this. To illustrate, let us take the well-known Stalnaker (1968)–Lewis (1973) theory, according to which, roughly, a counterfactual “if  $A$  had been the case, then  $B$  would have been the case” is true just in case  $B$  happens in the possible world  $w$  such that  $A$  happens in  $w$  and  $w$  is otherwise most similar to our world. Clearly, we should admit that a possible world which is pretty much like ours (in particular, with respect to the causes that lead to the burning of the forest at  $t$ ), except that at  $t$  no token is uttered, is a world in which the burning of the forest occurs at  $t$  (for these causes have nothing to do, we can assume, with the uttering of tokens). And thus, from this perspective, (S3\*\*) is false.

Note that this analysis grants that there are token-independent propositions such as: [the forest is not burning at  $t$ ]. But to admit such propositions is compatible with also

admitting that these propositions are not what sentences such as (S3) express. The token-reflexive analyst theorizes that these sentences express token-dependent propositions and to simply insist that they don't is to beg the question against her.

Let us now turn to the confirmation problem, which leads us to consider what it could possibly mean that a certain observation confirms a proposition such as the one expressed by (S3). For simplicity's sake, assume that the observation in question is visual and thus involves a certain visual perceptual content  $v$ . There are at least two aspects to be taken into account. First of all, the visual content must be of a certain *appropriate* kind, of the kind that typically occurs when one is in the vicinity of a burning forest, rather than, say, of a peaceful lake not surrounded by trees, let alone burning trees. It must, that is, be as of a burning forest, rather than, e.g., as of a calm lake. Let us say that in this case we have a *matching* observation. A matching observation is not all that is needed, however, and here the second aspect comes in. The observation must also be *timely*. In other words, it must occur *when* the proposition asserts that the burning occurs. The proposition expressed by (S3) says that the burning is presently occurring and this is why a *present* observation with an appropriate content confirms it. If the proposition had been the one expressed by, say, "the forest was burning," the observation would have been equally matching, but, *qua* presently occurring, it would not have been timely, for the expressed proposition would have located the burning in the past. Similarly, if the observation had occurred in the past, though still matching with respect to the proposition expressed by (S3), it would not have been timely, since this proposition locates the burning in the present.

But how should we understand the presentness and pastness that have been just evoked in this rough account of the confirmation relation between a proposition and an observation? According to the B-theorist they must be understood by appealing to B-relations. Moreover, if the B-theorist supports the token-reflexive approach, one must also appeal to B-relations involving token-reflexivity, at least as far as linguistically expressed propositions go. Thus, the proposition expressed by (S3) locates the burning in the present precisely because it says that it occurs at (is simultaneous with) the time at which a certain token is uttered. And the observation with the visual content as of a burning forest is present for similar reasons and thus, we may say, because it also occurs at the time of utterance of the token in question. In sum, the presentness of the observation is relevant to its capacity to function in a confirmatory role, but this in itself does not tell us whether this presentness must be understood in A-theoretical or B-theoretical (token-reflexive) terms and to merely assert that it must be understood in the former way begs the question against the (token-reflexive) B-theorist.

Finally, we should face this objection (Smith 1993, p. 89). Alongside (S3), consider also

(S4) The forest is burning now.

Smith urges that the two sentences<sup>30</sup> express logically equivalent propositions.<sup>31</sup> But this cannot be accounted for if the propositions expressed by these sentences are token-reflexive. Suppose for example that, while the forest is burning, someone utters at  $t$  a token  $T_3$  of (S3) and that someone else utters at the same time a token  $T_4$  of (S4). The expressed propositions are:

(S3') the forest's burning occurs at the time of the uttering of  $T_3$ ;

(S4') the forest's burning occurs at the time of the uttering of  $T_4$ .

The problem is that these two propositions do not mutually entail each other. For it is logically possible that  $T_3$  had been uttered without  $T_4$ 's being uttered or vice versa. In the first case (S3') would be true and (S4') false and in the other case it would be the other way around.

But where does the intuition that (S3) and (S4) express logically equivalent propositions come from? In fact we can say that this is the case only if the two sentences are uttered at the same time. In other words, we assent to the logical equivalence of the propositions expressed by two tokens of (S3) and (S4), on the conditions that we also assent to the fact that the times of utterance are the same. Thus, in our case, we must take for granted that the time at which  $T_3$  is uttered is the same as the time at which  $T_4$  is uttered. And of course, under this assumption, the propositions expressed by (S3') and (S4') entail each other.

Following the approach in Orilia (2010, § 7.9), it can also be added that the two tokens in question have, in addition to their primary official meanings, which we take to be token-reflexive, "referentialist meanings." Indeed, they have the same referentialist meaning. This can be appealed to in order to further account for the intuition invoked by Smith, without abandoning the token-reflexive approach. According to Orilia (2010), in view of problems due to intensional contexts and empty terms, proper names and indexicals must be understood as descriptions, i.e., they have descriptive contents rather than individuals in flesh and blood as their primary meanings. Thus, for

<sup>30</sup> Actually, at the page we have indicated, Smith focuses on a different example, involving a hurricane rather than a burning forest, but this is of course immaterial.

<sup>31</sup> An account of entailments of this kind is provided from the perspective of the type-oriented approach to semantics by Paul (1997) [along lines previously hinted at by Oaklander (2004, Ch. 24)]. Here, however, we need to look at the matter from the standpoint of the token-oriented approach.



example, the propositions expressed, as their primary meanings, by “Cicero is an orator” and “Tully is an orator,” are two different propositions involving two distinct descriptive contents, say, the person “baptized” with the name “Tully” at time  $t$  at place  $p$  and the person nicknamed “Cicero” at time  $t'$  at place  $p'$ . However, since these two descriptive contents happen to correspond to one and the same person, we can say that there is one “Russellian” proposition, with this person in flesh and blood as a constituent, which functions as the referentialist meaning of both “Cicero is an orator” and “Tully is an orator.” Similarly, we can say that (S3') and (S4') have the same referentialist meaning, namely a proposition having as constituent the single time  $t$  corresponding to the two different descriptive contents, the time of the uttering of  $T_3$  and the time of the uttering of  $T_4$ . In other words, from the point of view of their referentialist meaning, (S3') and (S4') express propositions that entail each other for the simple reason that they express the same proposition.

## 8 Conclusion

The A-theorist takes A-sentences as specifying a time irreducibly characterizable as *now* or *present*, an *A-time*, as we may say, which appears to make them susceptible to truth value change. There is a line of argument adopted by some old B-theorists, according to which these sentences *seem* to change their truth value, but do not really do so, because, as they stand, they are incomplete and thus do not express definite propositions with a truth value. In order to express such propositions, these sentences must be supplemented by specifying through a date the time at which they are used, a *B-time*, as it is often called. For other old B-theorists there is a third alternative: A-sentences are not so much incomplete, but rather in need of an appropriate interpretation that lets us see how they specify the time by a B-relation linking the event that the sentence is about to another event identified either in psychological terms or token-reflexively.

How then is time to be specified? By an A-time, by a B-time or by this third alternative? Here we are looking at the matter from the point of view of the B-theorist. The first option is then of course not open, as it will be found at odds with current scientific theorizing (in particular, the special theory of relativity) and/or imbued with dialectical problems such as McTaggart's paradox. On the other hand, there are cognitive significance problems with the second option. The third alternative, however, is not subject to either of these shortcomings. The B-theorist should therefore find it fully palatable and maintain both semantic and ontological atensionalism, without resorting to the new B-theory.

If this is right, the old B-theory is vindicated and the B-theorist, by sticking to it, can collect a number of benefits. In particular:

- (A1) She can dispense with the worry that it is incoherent, as Smith (1987) has argued, to interweave ontological atensionalism and semantic tensionalism.
- (A2) She does not risk being pressed into a position very difficult to digest, namely Oaklander's massive error theory, according to which we normally have a bunch of false and yet useful beliefs.
- (A3) She can coherently accept, if desired, SLT, the idea that there is one privileged, true description of reality.

## References

- Beer M (1988) Temporal indexicals and the passage of time. *Philos Q* 38:213–222 (repr. in Oaklander and Smith 1994, pp 87–93)
- Beer M (2007) A defense of the co-reporting theory of tensed and tenseless sentences. *Philo* 10:59–65 (repr. in Oaklander 2008, Vol. I, pp 374–386)
- Bergmann G (1960) *Meaning and existence*. University of Wisconsin Press, Madison
- Broad CD (1921) Time. In: Hastings J et al. (eds) *Encyclopedia of religion and ethics*, vol 12. T. & T. Clark and Scribners, New York, pp 334–339, 345 (online: <http://www.ditext.com/broad/time/timeframe.html>; repr. in Oaklander 2008, Vol. I, pp 143–173; refs. to this repr.)
- Broad CD (1928) Time and change. In: *Proceedings of the Aristotelian Society*, Supplementary vol 8. Harrison and Sons Ltd., London, pp 175–188
- Broad CD (1938) *Examination of McTaggart's philosophy*, vol II. Cambridge University Press, Cambridge (repr. in Oaklander 2008, Vol. I, pp 36–68; refs. to this repr.)
- Castañeda H-N (1967) Indicators and quasi-indicators. *Am Philos Q* 4:85–100
- Dainton B (2010) *Time and space*, 2nd edn. Acumen, UK
- Dyke H (2002) Tokens, dates and tenseless truth conditions. *Synthese* 131:329–351 (repr. in Oaklander 2008, Vol. I, pp 287–309)
- Dyke H (2003) Tensed Meaning: a Tenseless Account. *Journal of Philosophical Research* 28:65–81
- Dyke H (2007) *Metaphysics and the representational fallacy*. Routledge, London (partial repr. in Oaklander 2008, Vol. I, pp 426–455; refs. to this repr.)
- Forbes G (2003) Indexicals. In: Gabbay DM, Guenther F (eds) *Handbook of philosophical logic*, vol 2, 2nd edn. Kluwer, Dordrecht, pp 87–120
- Frege G (1918–1919) *Der Gedanke—Eine logische Untersuchung*. *Beiträge zur Philosophie des deutschen Idealismus*, 2, pp 58–77 (English translation: Quinton A, Quinton M (1956) *The thought: a logical inquiry*. *Mind* 65: 289–311; refs. to this transl.)
- Gale R (1962) Tensed statements. *Philos Q* 12:53–59 (repr. in Oaklander 2008, Vol. I, pp 210–217; refs. to this repr.)
- Gale R (1968) *The language of time*. Routledge Kegan & Paul, London
- Garcia-Carpintero M (2000) A presuppositional account of reference fixing. *J Philos* 97:109–147
- Goodman N (1951) *The structure of appearance*. Harvard University Press, Cambridge, MA
- Kapitan T (2006) Indexicality and self-awareness. In: Kriegel U, Williford K (eds) *Consciousness and self-reference*. MIT Press, Cambridge, MA, pp 397–408

- Kaplan D (1989) Demonstratives. In: Almog J, Perry J, Wettstein H (eds) *Themes from Kaplan*. Oxford University Press, Oxford, pp 481–563
- Kneale WC (1936) Is existence a predicate? In: *Proceedings of the Aristotelian Society, Supplementary vol 15*. Harrison and Sons Ltd., London, pp 154–174
- Lewis D (1973) *Counterfactuals*. Harvard University Press, Cambridge, MA
- Ludlow P (1999) *Semantics, tense, and time: an essay in the metaphysics of natural language*. MIT Press, Cambridge, MA
- McTaggart JEM (1927) Time. In: Broad CD (ed) *The nature of existence*, vol 2. Cambridge University Press, Cambridge, pp 9–31
- Mellor DH (1981) *Real time*. Cambridge University Press, Cambridge
- Mellor DH (1983) Tense's tenseless truth conditions. *Analysis* 46:167–172 (repr. in Oaklander 2008, Vol. I, pp 363–369; refs. to this repr.)
- Mellor DH (1998) *Real time II*. Routledge, London
- Mozersky J (2000) Tense and temporal semantics. *Synthese* 124:257–259 (repr. in Oaklander, 2008, Vol. I, pp 265–286)
- Mozersky J (2001) Smith on times and tokens. *Synthese* 129:405–411 (repr. in Oaklander 2008, Vol. I, pp 248–254)
- Oaklander LN (1984) *Temporal relations and temporal becoming*. University Press of America, Lanham, MD
- Oaklander LN (2004) *The ontology of time*. Prometheus Books, Amherst, NY
- Oaklander LN (ed) (2008) *The philosophy of time* (4 vols). Routledge, London
- Oaklander LN, Smith Q (eds) (1994) *The new theory of time*. Yale University Press, New Haven
- Orilia F (2010) *Singular reference. A descriptivist perspective*. Springer, Dordrecht
- Paul L (1997) Truth conditions of tensed sentence types. *Synthese* 111:53–71 (repr. in Oaklander 2008, Vol. I, pp 310–329)
- Perry J (1979) The problem of the essential indexical. *Noûs* 13:3–21
- Quine WVO (1960) *Word and object*. MIT Press, Cambridge, MA
- Reichenbach H (1947) *Elements of symbolic logic*. McMillan, New York
- Russell B (1903) *The principles of mathematics*. Cambridge University Press, Cambridge
- Russell B (1906) Critical Notice of *Symbolic Logic and Its Applications* by Hugh MacColl. *Mind* 15:255–260
- Russell B (1915) On the experience of time. *Monist* 25:212–233 (repr. in Oaklander 2008, Vol. I, pp 174–187)
- Schlesinger G (1980) *Aspects of time*. Hackett, Indianapolis
- Smart JJC (1949) The river of time. *Mind* 58:483–494 (repr. in A. G. N. Flew, ed., *Essays in Analysis*, London: Routledge, pp 213–227)
- Smart JJC (1963) *Philosophy and scientific realism*. Routledge & Kegan Paul, London (partial repr. in Oaklander 2008, Vol. I, pp 188–197; refs. to this repr.)
- Smart JJC (1980) Time and becoming. In: van Inwagen P (ed) *Time and cause*. Reidel, Boston, MA, pp 1–15
- Smith Q (1987) Problems with the new tenseless theory of time. *Philos Stud* 52:371–392 (repr. in Oaklander 2008, Vol. I, pp 233–251; refs. to this repr.)
- Smith Q (1993) *Language and time*. Oxford University Press, Oxford
- Smith Q (1994) Introduction: the old and new tenseless theory of time. In: Oaklander LN, Smith Q (eds) *The new theory of time*. Yale University Press, New Haven, pp 17–22
- Smith Q (1999) The sentence-type version of the new tenseless theory of time. *Synthese* 119:233–251 (repr. in Oaklander 2008, Vol. I, pp 330–347)
- Stalnaker R (1968) A theory of conditionals. In: Rescher N (ed) *Studies in logical theory*. Blackwell, Oxford, pp 98–112
- Torre S (2009) Truth-conditions, truth-bearers and the new B-theory of time. *Philos Stud* 142:325–344