

Tokens, Dates and Tenseless Truth Conditions

By

Heather Dyke

This is a preprint of an article whose final and definitive form is published in *Synthese* (Vol. 131 (2002): 329-351).

Abstract

There are two extant versions of the new tenseless theory of time: the date version and the token-reflexive version. I ask whether they are equivalent, and if not, which of them is to be preferred. I argue that they are not equivalent, that the date version is unsatisfactory, and that the token-reflexive version is correct. I defend the token-reflexive version against a string of objections from Quentin Smith. My defence involves a discussion of the ontological and semantic significance of truth conditions, and of the connection between truth and reality on the one hand, and that between truth and meaning on the other. I argue that Smith's objections to the token-reflexive theory stem from his confusing these two aspects of the notion of truth.

Heather Dyke
Department of Philosophy
University of Otago
PO Box 56
Dunedin
New Zealand

Tokens, Dates and Tenseless Truth Conditions*

According to the new tenseless theory of time there are no tensed facts. Our true tensed judgements are made true by tenseless facts. But the new tenseless theory of time comes in two versions, the date version, and the token-reflexive version. What is the relationship between these two accounts of tenseless time? Are they logically equivalent? If not, which is preferable? I will argue that they are not equivalent, and I will come down in favour of the token-reflexive version. But first, I will briefly explain how the two versions arose out of the old tenseless theory of time.

I Two versions of the old tenseless theory

According to the old tenseless theory of time, tense was eliminable from language: every tensed sentence could be translated without loss of meaning by a tenseless sentence. Two kinds of translation claim were made, each intending to show how the tenses of events were really disguised temporal relations between those events and something else. Thus, what appears to be a monadic property of an event (pastness, for example) is really a dyadic relation (being earlier than, for example) between that event and something else. The two kinds of translation claim differed from each other in the 'something else' they took to stand as the second relatum of the appropriate temporal relation.

According to the date analysis, tense ascriptions are disguised temporal relations between an event and the date at which that tense is ascribed to it. According to the token-reflexive version, tense ascriptions are disguised temporal relations that hold

* An earlier version of this paper was presented to the AAP(NZ) conference in Dunedin, 1999. I am grateful to all those present for their helpful comments and criticism. I am indebted also to Alan Musgrave, Colin Cheyne and an anonymous referee for Synthèse for suggesting many improvements.

between an event and token utterances about it. As is now well documented, both versions of the old tenseless theory failed in their attempt to show tense to be eliminable from natural language.¹ Neither of the proposed translations is synonymous with the original tensed sentence token. Equally well documented is the emergence of the new tenseless theory in response to this failure.² According to the new tenseless theory, tense is ineliminable from natural language and from thought, but nevertheless, it is not a feature of time itself since the truth conditions of any tensed sentence token are entirely tenseless. Two versions of the new tenseless theory were proposed, corresponding to the two versions of the old tenseless theory. According to the date analysis, a token of the tensed sentence 'Bertie raises his glass,' uttered at t is true if and only if Bertie *raises* his glass at t . According to the token-reflexive version, a token, u , of the same sentence type is true if and only if Bertie *raises* his glass simultaneously with u . The italicized verbs occurring on the right hand sides of these biconditionals are to be taken as tenseless, not present tense. This move does not beg the question against the tensed theory as the aim of this project is to see *whether* entirely tenseless truth conditions can be given for tensed sentences. Making this assumption at the outset does not guarantee that the project will be successful. So, according to the new tenseless theory, the truth conditions for tensed sentences are tenseless, so real tense is not required to satisfy them.

II The variable truth-value phenomenon

¹ Proponents of the old tenseless theory included Goodman (1951) Quine (1960) and Smart (1963). Work in the area of demonstratives by philosophers such as Castañeda (1967), Perry (1979), Kaplan (1979) Lewis (1979) and Wettstein (1979) precipitated the rejection of the thesis that tensed sentences could be translated without loss of meaning by tenseless sentences. Other opponents of this thesis who also support the tensed theory of time include Gale (1968) and Schlesinger (1980).

² The new tenseless theory of time was first developed and put forward by Smart (1980) and Mellor (1981). Oaklander and Smith (1994) tracks and develops the debate between the tensed and the new tenseless theories of time.

The crucial feature of tensed language is the fact that tensed sentences appear to change their truth-values over time. The tensed sentence 'Bertie raises his glass' seems to be true at some times and false at others. The tensed theory's explanation of this phenomenon is that the proposition expressed by this sentence is irreducibly present tense. All tensed sentences have tensed truth conditions, whose satisfaction requires the existence of tensed facts. The changing truth-value of tensed sentences is thus a reflection of the fact that tensed states of affairs are continually coming into and going out of existence. A tensed sentence is true if and only if the tensed state of affairs that must obtain in order to satisfy its truth conditions actually (and presently) obtains.

The tenseless explanation for the changing truth-values of tensed sentences is that it is a mere 'appearance' that can be dispelled once we appreciate the distinction between sentence types and sentence tokens. A sentence type has a 'changing' truth-value if and only if some of its tokens are true and others false. Two tokens of the sentence type 'Bertie raises his glass' might have different truth-values, but the truth-values they have are fixed and unchanging. The truth-value that any token of this type has depends on when it is produced. So, the claim that tensed sentences change their truth-values over time is wrong. The fact of the matter is that some tensed sentence types have some true and some false tokens. This gives the impression that the sentence type itself is a determinate object with a changing truth-value, but sentence tokens are the proper bearers of truth and falsity, and their truth-values are fixed and unchanging. The ontological claim advanced by the new tenseless theory on these grounds is that the satisfaction of the truth conditions of any tensed sentence token does not require the existence of any tensed states of affairs. Tenseless truth conditions only invoke the existence of tenseless temporal relations between the tokens themselves, the events they are about, and the dates at which those events and tokens occur.

The debate between the tensed and the new tenseless theory of time thus focuses on the (apparent) changing truth-value of tensed sentences. I will call this feature of tensed sentences the Variable Truth-Value phenomenon (VTV phenomenon for short). This name is to be taken as neutral between tensed and tenseless explanations of it. In the next section I will examine the date version of the new tenseless theory of time.

III The date version of the new tenseless theory

The new tenseless theory of time denies that time is tensed and that different tensed states of affairs obtain at different times, so it must explain the VTV phenomenon by appealing only to the existence of tenseless temporal relations. Crucial to the VTV phenomenon is not merely that some tokens of a tensed sentence type have different truth-values, but that what truth-value a particular token has depends on *when* it is produced. In order to account tenselessly for the truth-values of tensed sentence tokens, all that is needed is the tenseless temporal relations 'earlier than', 'later than' and 'simultaneous with' together with a system for identifying objectively the times at which sentence tokens are produced. Our conventional system of dates appears to fit the bill as we can use it to identify objectively the times at which events occur, and also to calculate the temporal separation between events.

This reasoning motivates the date version of the new tenseless theory of time. Dates are non-indexical expressions for referring to times, and hence they provide a means of identifying objectively the time of the context of utterance of a tensed sentence token. By using the system of dates we have an objective means of telling whether the event a tensed sentence is about stands in the appropriate temporal relation to the time at which a token of it is uttered, so we have an objective means of telling whether the sentence token is true or false.

How does the date theory ascribe truth conditions to tensed sentences? As I noted earlier, according to the tenseless theory, tensed sentence types do not have determinate truth-values, although their tokens do. It follows that we cannot provide truth conditions for tensed sentence types, since no one set of conditions can be necessary and sufficient for them to be true. However, all the tokens of a particular tensed sentence type must meet the *same type* of condition in order to be true. We can provide a truth-conditional formula for tensed sentence types that any token of that type must satisfy if it is to be true. So, I will provide a tenseless, date-involving, truth-conditional formula for a past, present and future tense sentence type, together with specific truth conditions yielded by these formulae for a particular token of each type.

The present tense

Truth-conditional formula

- (1) For any token u of 'The volcano is now erupting' uttered at t , u is true if and only if the volcano *erupts* simultaneously with t .

Truth condition of a token, a

- (2) a uttered at t_1 is true if and only if the volcano *erupts* simultaneously with t_1 .

The future tense

Truth-conditional formula

- (3) For any token u of 'The volcano will erupt' uttered at t , u is true if and only if the volcano *erupts* later than t .

Truth condition of a token, b

- (4) b uttered at t_2 is true if and only if the volcano *erupts* later than t_2 .

The past tense

Truth-conditional formula

- (5) For any token u of 'The volcano has erupted' uttered at t , u is true if and only if the volcano *erupts* earlier than t .

Truth condition of a token, c

- (6) c uttered at t_3 is true if and only if the volcano *erupts* earlier than t_3 .

The date version of the new tenseless theory of time, thus characterized, seems both extremely plausible and capable of meeting the semantic and ontological requirements of the tenseless theory. The truth-values of tensed sentence tokens depend on when they are produced. The date theory provides us with non-context-dependent means of referring to those times, so that once we have identified objectively the time at which a token is produced, we can establish objectively whether it is true or false. It thus delivers truth conditions in an epistemically valuable way. It accounts for the VTV phenomenon while remaining ontologically committed only to tenseless temporal relations, and not to tensed facts.

Despite this initial plausibility, there is a powerful argument against this theory that has been put forward by Smith (1993). Smith considers an utterance, U , of the tensed sentence type 'Henry is ill' which is produced on July 28, 1940. He states that its date-involving truth conditions would be:

- (7) 'Henry is ill' is true as spoken by John on July 28, 1940 if and only if Henry *is* ill on July 28, 1940.

Smith's aim is to establish that the clause which occurs to the right of the biconditional is not a necessary condition for the truth of *U*. If he succeeds it follows that (7) does not state the truth conditions of *U*, a conclusion that would signal the failure of the date theory. Smith presupposes the indirect reference theory, such that the date expression refers to a time via a propositional definite description of it, and then argues that to assert that (7) is a necessary condition for the truth of *U* is to assert that *U* is not true in any world in which Henry is not ill on July 28, 1940. He continues:

“But this is not the case. In the actual world, *U* occurs at a time that possesses the date-property of being 1,939 years, 6 months, and 27 days later than Christ's birth. Let us first suppose that the reductionist theory of times is true and that this time is a set of simultaneous events, two of which are *U* and Henry's illness. This set of events does not possess the aforementioned date-property in each possible world in which it exists. In one of these worlds, W_1 , Christ was not born at all; and in another world, W_2 , Christ was born 1,938 years earlier than the set of events that contains Henry's illness. In both of these worlds, *U* is true, since *U* is simultaneous with Henry's illness. But 'Henry is ill on July 28, 1940' is false in W_1 and W_2 , since, in these worlds, Henry is not ill at whatever set of events has the property of being 1,939 years, 6 months, and 27 days later than Christ's birth.

The same result follows if we assume the substantialist theory of times. In the actual world, *U* and Henry's illness occupy the moment that has the date-property of being 1,939 years, 6 months, and 27 days later than Christ's birth. But in W_1 and W_2 , the moment occupied by *U* and

Henry's illness does not possess this date-property; consequently, the date-sentence - but not U - is false in these worlds." (Smith (1993) 35)

Smith argues that, on either the substantialist or the reductionist theory of times, what occurs on the right hand side of the biconditional in (7) is not a necessary condition for the truth of U , and consequently does not state U 's truth conditions. Granted his assumption concerning the mechanism via which the date expression refers to a time, there are indeed many possible worlds in which U is true and the date-clause is false, and consequently (7) is not a statement of the truth conditions of U . But must we grant the assumption?

If date expressions are names of times, not definite descriptions of them, then Smith's argument fails. If the date expression is used referentially rather than attributively, then it directly refers to the set of simultaneous events or moment that is, in the actual world, 1,939 years, 6 months, and 27 days later than Christ's birth. The directly referential expression refers to this same set of simultaneous events or moment in every possible world in which it exists, irrespective of whether it possesses that date property in that world. Consequently, in every world in which U exists, Henry's illness also exists at the same time, so both U and the sentence containing the referentially used date expression are true. Specifically, they are both true in W_1 and W_2 .

Smith argues against this interpretation of the date theory:

"There are worlds in which U is true but the referentially used date-description is not. There is a world W_3 in which S [the set of simultaneous events that actually contains U] does not exist but in which U occupies a set S_1 that contains all and only the events that S contains except that S_1

contains a certain dust-like particle on the planet Venus hitting the ground, whereas *S* does not. In this world *U* is true since it is simultaneous with Henry's illness, but 'Henry is ill at *S*' is false, since Henry is ill at *S*₁, instead.

If we adopt the substantival theory, the direct reference theory will also fail to give necessary conditions for the truth of *U*. There is a world, *W*₄ in which *U* and Henry's illness and all the other events in *S* (or *S*₁) occupy *M*^{*}, rather than *M* [the moment at which *U* actually occurs]; consequently, *U* is true, but 'Henry is ill at *M*' is false." (Smith (1993) 36)

Smith's arguments involving worlds *W*₃ and *W*₄ seem compelling. *W*₃ is a world in which *U* and Henry's illness are members of a different set of simultaneous events, to which the directly referential date description does not apply. *W*₄ is a world in which the set of events containing *U* and Henry's illness occupies a different moment from the one it occupies in the actual world, and consequently the directly referential date description does not apply to that moment. It is my belief that these two arguments succeed provided we allow Smith one crucial assumption. This is that the utterance, *U*, that is a member of *S*₁ in *W*₃ and the utterance, *U*, that occupies *M*^{*} in *W*₄ is the *same* utterance, *U*, that occurs in the actual world. If this is not the case, then it is possible for *U* in *S*₁ and *U* in *M*^{*} to have their own date-involving truth conditions. The fact that the directly referential date-involving truth conditions for *U* in the actual world are not necessary conditions for the truth of *U* in *W*₃ or of *U* in *W*₄ would be irrelevant. The point is arguable, but I will not pursue it here as there is another, more decisive objection to the date theory.

The date theory requires that the time of the context of utterance is specified in the truth-conditional formula of a tensed sentence type, and in the statement of the truth conditions of a tensed sentence token. Consequently, there is an extra term on the left-hand side of the biconditional. It is this deviation from the standard format of truth-conditional formulae that explains the failure of the date theory. If we let Sxy represent the relation 'x is simultaneous with y', Tx represent the predicate 'x is true', and e represent the event referred to by the sentence in question, the date theory can be written:

(1) For any token u of 'The volcano is now erupting' uttered at t , u is true if and only if the volcano *erupts* simultaneously with t .

(1*) $(u)(t)(Sut - (Tu \neq Set))$

(2) a uttered at t_1 is true if and only if the volcano *erupts* simultaneously with t_1 .

(2*) $Sat_1 - (Ta \neq Set_1)$

The requirement of the date theory to specify the time of utterance in the statement of truth conditions results in the biconditional occurring as the consequent of another conditional. It follows that it is possible for the antecedent of (2*) to be false and the consequent true, while the statement as a whole is true. In other words, it is possible for a not to be simultaneous with t_1 , while the biconditional is true. So, a could be true because the requirements laid down by the biconditional are satisfied, even though a is not simultaneous with t_1 . Therefore, date-involving truth conditions do not state the correct truth conditions for tensed sentences, since they leave it open for the tensed

token to be true while the appropriate relation between the token and the date specified does not obtain.

Smith's arguments against the date theory exploit this flaw in its ascription of truth conditions to tensed sentences. In each of the possible scenarios he sketches, the tensed token was true because the event it reported occurred simultaneously with the token itself. What failed to obtain in each case, thus rendering the truth conditions inadequate, was the ascription of the correct date to the time at which the two simultaneous events occurred. Times, however conceived, have the dates they do only contingently. They might have had other dates. Smith exploits this feature of the date theory by showing that there are possible worlds in which *U* and Henry's illness occur simultaneously, and hence, *U* is true, but in which the date ascribed to the time at which they both occur is not the same as the date at which they occur in the actual world. Similarly, *a* in (2) could be true because it occurs simultaneously with the volcano's eruption, while not occurring at the date specified in the truth conditions. Thus, the truth conditions do not state what is necessary for the truth of *a*.

My analysis of why the date theory fails reveals what is crucial to the truth of tensed sentence tokens. It is the tenseless temporal relation that obtains between the event a sentence token is about and the production of the token itself. It would thus be sensible to specify the truth conditions of a tensed sentence token by appealing only to these two events. There is no need to invoke the system of dates which alone is responsible for the date theory's difficulties. The token-reflexive account of the truth conditions of tensed sentences is thus motivated by the same reasons that motivate the date theory, but is capable of avoiding the pitfalls facing the latter theory.

IV The token-reflexive version of the new tenseless theory

The token-reflexive account of the truth conditions of tensed sentences, like the date theory, seeks to explain the VTV phenomenon while remaining ontologically committed only to tenseless temporal relations. In the token-reflexive version the token itself constitutes part of the truth conditions of the tensed sentence token. It appears as one of the relata of a dyadic temporal relation occurring after the biconditional, the other relatum being the event referred to by the token. To illustrate the token-reflexive mechanism at work here I will construct token-reflexive formulae for a past, present and future tense sentence type, and give an example of the token-reflexive truth conditions of a token of each type.

The present tense

Truth-conditional formula

(8) For any token u of 'The volcano is now erupting' u is true if and only if the volcano *erupts* simultaneously with u .

(8*) $(u)(Tu \neq Seu)$

Truth conditions of a token, a

(9) a is true if and only if the volcano *erupts* simultaneously with a .

(9*) $Ta \neq Sea$

The future tense

Truth-conditional formula

(10) For any token u of 'The volcano will erupt' u is true if and only if the volcano *erupts* later than u .

(10*) $(u)(Tu \neq Leu)$

Truth conditions of a token, b

(11) b is true if and only if the volcano *erupts* later than b .

(11*) $Tb \neq Leb$

The past tense

Truth-conditional formula

(12) For any token u of 'The volcano has erupted' u is true if and only if the volcano *erupts* earlier than u .

(12*) $(u)(Tu \neq Eeu)$

Truth conditions of a token, c

(13) c is true if and only if the volcano *erupts* earlier than c .

(13*) $Tc \neq Eec$

In this notation Lxy represents the relation ' x is later than y ' and Exy represents ' x is earlier than y '.

The token-reflexive version of the new tenseless theory of time achieves its semantic goal of explaining and accounting for the VTV phenomenon by making perspicuous the token-reflexivity of tensed sentences. In achieving this semantic goal it invokes only the existence of tenseless temporal relations, thus satisfying the ontological requirements of the tenseless theory of time.

V Objections to the token-reflexive version

Quentin Smith (1993) presents a number of arguments against the old tenseless token-reflexive theory each of which suggests a corresponding argument against the new token-reflexive theory. These arguments attempt to show that what is expressed by tensed sentences can be true or false independently of whether or not tokens of them are produced. If their truth conditions are token-reflexive, so that the token itself constitutes part of its truth conditions, then the truth or falsity of what a tensed sentence expresses seems to depend on whether or not tokens of it are produced. In other words, the token-reflexive account, Smith argues, makes truth token-dependent, whereas he thinks it is token-independent. The first argument is directed at showing that it is not possible to give such truth conditions for tensed sentences about past or future truths concerning times when no language users exist.

Consider the sentence:

(14) It was true that the era devoid of linguistic utterances is present.

Smith thinks that this sentence cannot have tenseless token-reflexive truth conditions because it 'is a past tensed ascription of a truth-value *true* to the truth vehicle expressed by the clause following the operator "It was true that".' (Smith (1993) 73) He proposes that during the era devoid of linguistic utterances, a proposition, or some other truth vehicle, existed which expressed the presentness of that era.

I disagree with Smith's explanation. The token-reflexive theory has the conceptual equipment to deal with sentences such as (14). Consider, first, the core sentence 'The era devoid of linguistic utterances is present.' Any token, *u*, of this sentence type is true if

and only if u occurs simultaneously with the era devoid of linguistic utterances. Clearly, no uttered token of this sentence type can satisfy this formula, so no true tokens of this type can be uttered. The token-reflexive analysis explains why this is so. The content of the sentence type denotes the era in which no linguistic utterances occur. The truth-conditional formula requires that an utterance occur simultaneously with this era. If such an utterance were to occur, the state of affairs denoted would not be the era devoid of linguistic utterances. Thus, the token-reflexive analysis shows how the meaning of the sentence depends on the meanings of its parts, and how there can be no true tokens of this sentence type.

When that sentence type is prefixed with a past tense sentential operator, as in (14), its token-reflexive truth-conditional formula can be given as follows. Any token, u , of 'It was true that the era devoid of linguistic utterances is present' is true if and only if the era devoid of linguistic utterances is earlier than u . Clearly, there can be true tokens of this sentence type, since its truth-conditional formula requires only that the era devoid of linguistic utterances occurs earlier than any token of the type. There is no need to invoke mysterious, abstract truth vehicles which come into and go out of existence depending on what the world is like to account for the truth of tokens of this type. Smith's aim here was to prove that a token-reflexive account of the truth conditions of (14) requires a token utterance of the core sentence of (14) to exist simultaneously with the era devoid of utterances, which of course is logically impossible. However, the token-reflexive analysis is not forced to meet this impossible challenge.

A similar claim is made by Craig (1996) when he argues that 'The New B-theory can give no coherent account of the truth conditions of tensed sentences which are not tokened.' (Craig (1996) 18) He asks what truth conditions are to be given for a sentence

like 'There are no tokens.' On my account the truth-conditional formula for this sentence type is:

Any token, u , of 'There are no tokens' is true if and only if u is simultaneous with there being no tokens.

No tokens of this sentence type can satisfy this formula, so there can be no true tokens of this type. But that 'There are no tokens' is self-refuting is just what we should expect. And the token-reflexive analysis explains why it is the case.

The next argument also rests on the contention that the tenseless token-reflexive account renders truth token-dependent when in fact it is not. Smith remarks that the sentence

(15) I am not uttering anything

is logically contingent. If uttered aloud it is false, but it can be thought silently to oneself, and thereby be true. The argument is that a token-reflexive analysis cannot account for the possibility of true tokens of (15), since that analysis needs a token of (15) to be uttered so that it can occur in its own truth conditions. This claim depends on a restricted notion of what can count as a token of a sentence type, to which a proponent of the token-reflexive analysis need not be committed. According to the analysis I gave above, the truth-conditional formula for the sentence type (15) is as follows:

(16) Any token u of 'I am not uttering anything' is true if and only if I am not uttering anything simultaneously with u .

Clearly this truth-conditional formula can only be satisfied by tokens of (15) that are not uttered. Smith states that he is taking 'utterance' to mean 'a spoken token or the earliest time-slice of an inscribed token, this time-slice being the period during which the token is being written down.' (Smith (1993) 79) It follows that (16) can only be satisfied by silent, mental tokens of (15), which are just the sorts of tokens that Smith uses to illustrate how tokens of (15) can be true. Smith remarks that the token-reflexive theory 'disallows the possibility that these sentences refer in some instances to *unuttered tokens* of sentences, to mental tokens.' (Smith (1993) 82) He does not make it clear what reasons he has for making this assertion, but it seems to me to be a dubious one. What reason could there possibly be for limiting the legitimate application of the term 'sentence token' to spoken and written tokens? Smith gives none, and I can think of none. Indeed, in a vigorous defence of the tenseless token-reflexive theory of time, D. H. Mellor, writes:

Thoughts can be tokens of sentence types just as written or spoken specimens can be - in particular, they can just as easily be true or false. I need not say 'It's raining', or write it, to generate a true or false token of that sentence type. A token of it occurs each time I think it. My making a mental judgment may not be a very audible or visible event, but it is an event nonetheless, and quite able to be a token of a sentence type. (Mellor (1981) 37)

Mellor allows all sorts of things to count as legitimate sentence tokens. According to him, the face of a clock with the minute hand pointing at 12 and the hour hand pointing at 2 is a token of the sentence type 'It is now 2 o'clock'. This unrestricted view of what can count as a sentence token seems to me to be perfectly reasonable, and I am quite happy to adopt it. It then follows that (16) is the correct tenseless token-reflexive truth-

conditional formula for the sentence type (15). Any token of (15) that satisfies this formula will be true. Because of the content of (15) only unuttered tokens will satisfy it, so only unuttered tokens of it will be true. L. A. Paul (1997) puts forward a tenseless account of the truth conditions of tensed sentence types precisely in order to avoid the problem of accounting for the truth of tokens that would be false if uttered. For the reasons I gave earlier I do not think we can provide truth conditions for tensed sentence types as they do not have determinate truth-values. For the reasons given here I do not think this is an insurmountable problem for the account that I am offering.

Although Mellor defends the token-reflexive version of the tenseless theory of time in *Real Time* (1981), he rejects it in *Real Time II* (1998) in favour of the date version. His reason for doing so is that he is persuaded by the argument that I discussed above and rebutted. He says that the token-reflexive view “cannot cope with propositions like ‘there are no tokens now’, which can be true even though they can have no true tokens.” (Mellor (1998) xi-xii) As I argued above, this objection does not defeat the token-reflexive version of the tenseless theory of time. The sentence type ‘there are no tokens now’ has a token-reflexive truth-conditional formula, and no tokens of it can satisfy that formula. Thus, not only is the token-reflexive theory not defeated by this objection, it provides an explanation of why such sentence types are self-refuting if tokened.

The next argument is designed to reinforce the argument I have just rebutted, but it is worth considering it separately. Smith suggests that the truth of all ‘normal’ tensed sentences is utterance-independent, and that token-reflexive truth conditions cannot account for this. By ‘normal’ tensed sentences, he is referring to those tensed sentences that are not ‘token-mentioning’; sentences unlike ‘This utterance is present’. He uses as an example the ‘normal’ tensed sentence,

(17) The forest is now burning

and remarks that it is possible silently to think to oneself a true token of (17). The argument is that a token-reflexive account of the truth conditions of (17) would be unable to account for the truth of such a silent token because it requires the existence of an utterance of the sentence type. However, as we saw above, a token-reflexive truth-conditional formula can account for the truth of silent, mental tokens just as well as for written or spoken tokens. I suggest that the tenseless token-reflexive truth-conditional formula for (17) is:

(18) Any token *u* of 'The forest is now burning' is true if and only if the burning of the forest *is* simultaneous with *u*.

If we assume that a person, *A*, thinks to herself a silent token of (17), and we call that token *a*, then the truth conditions of *a* are:

(19) *a* is true if and only if the burning of the forest *is* simultaneous with *a*.

Once more, provided mental tokens are allowed to count as tokens of sentence types, the truth conditions of *a* can quite easily be satisfied. All of the arguments considered so far can be rebutted.

The next argument against the token-reflexive theory rests on the claim that normal tensed sentences express sentence-token-independent truth vehicles, but no token-reflexive sentence expresses such a truth vehicle.³ If the claim is true, there is some

³ Smith presents essentially the same argument in his (1987).

aspect of the truth of tensed sentences that cannot be captured by a true token-reflexive sentence. In particular, it cannot be captured by the token-reflexive sentence that purports to state the truth conditions of a tensed sentence token. These truth conditions would then be inadequate to account for the truth of tensed sentences. Smith provides reasons in support of this claim by showing that it is borne out by the ordinary rules of usage to which tensed sentences adhere. The particular rule that Smith wishes to employ to this end is:

“If a normal *A* [tensed] sentence is used on some occasion to express something true, what the *A* sentence expressed on that occasion would have been true then even if it had not been expressed.” (Smith (1993) 83)

I think that this ‘rule’ represents a natural intuition that we have about the concept of truth, but that this intuition is better explained without appealing to the existence of abstract truth vehicles. The intuition that Smith is trying to convey is that the way the world is as a matter of contingent fact does not depend on there being utterances expressing that the world is that way. Smith’s mistake is to convey this intuition in terms of the semantic aspect of truth, rather than in terms of its ontological aspect. An example will illustrate my point here.

Suppose the forest burns between t_1 and t_2 , and that during that period of time no one utters any sentence that expresses that the forest is now burning. Because the forest actually burns during this period of time, our intuition concerning the concept of truth is that if someone had uttered such a sentence it would have been true. Smith interprets this intuition by postulating an abstract truth vehicle, a proposition that exists between t_1 and t_2 , and that expresses that the forest is now burning. It is the existence of this proposition that, according to Smith, explains our belief that the sentence ‘The forest is

now burning' is true between t_1 and t_2 whether or not any token of it is actually uttered. I would explain it by putting forward the following counterfactual: between t_1 and t_2 , if someone had uttered a token of the sentence type 'The forest is now burning', that token would have been true. The reason why it would have been true is that its tenseless token-reflexive truth conditions would have been satisfied. The truth-conditional formula for that sentence type is, as we have seen,

- (18) Any token u of 'The forest is now burning' is true if and only if the burning of the forest *is* simultaneous with u .

In order for this truth-conditional formula to be satisfied two events must occur simultaneously: the burning of the forest and the production of a token of the sentence type in question. Between t_1 and t_2 the forest burns so if, during that period of time, a token of the sentence type is produced, its truth conditions would *ipso facto* be satisfied. However, if no such token is produced, the forest still burns during that period of time, but there is no token the truth or falsity of which we have to account for.⁴

My response to Smith depends on a particular understanding of the notion of truth conditions which I will briefly explain. Talk of truth conditions is commonplace throughout the philosophy of language, and much of metaphysics, and it is thought that its significance is well understood.⁵ One intuition that we have about truth conditions is captured by statements like 'to know the meaning of a sentence is to know under what conditions it is true,' and 'to give the truth conditions of a sentence is to

⁴ Craig (1996) presents a similar objection to the new tenseless theory when he says 'in order for what a tensed sentence expresses to be true or to be the case, there need not be a token at the appropriate time.' (Craig (1996) 14) My response to Smith is equally effective against Craig.

⁵ There are dissenters: Baker and Hacker (1983) argue that talk of truth conditions is ultimately unintelligible.

give its meaning.' The intuition here is that there is some significant connection between the meanings of sentences, our grasp or understanding of those sentences, and their truth conditions. Thus, the notion of truth conditions is taken to have some kind of semantic, or cognitive significance.

A second intuition that we have can be captured by statements like 'a sentence is true if and only if its truth conditions obtain or are satisfied,' and 'the truth conditions of a sentence state what the world must be like if that sentence is to be true.' Here the intuition is that there is some significant connection between truth conditions and the ontological commitments of a sentence. So, stating the truth conditions of an ordinary language sentence seems to have, on the one hand, some kind of semantic or cognitive significance, and on the other, some kind of ontological significance. Donald Davidson recognizes both intuitions when he says 'The truth of an utterance depends on just two things: what the words as spoken mean, and how the world is arranged.' (Davidson (1986) 309) This seems right to me. Any complete and satisfactory account of the nature of truth conditions ought to do justice to both kinds of intuition.

However, Quentin Smith (1993) distinguishes the new tenseless theory of time from what he calls the 'nonsemantic tenseless theory of time.' That he sees a distinction here at all implies that he has taken each of the two aspects of the notion of truth conditions to be significant only to the exclusion of the other. He characterizes the new tenseless theory of time as 'the theory that tenseless truth condition sentences provide a "logically adequate representation of ordinary temporal language."' (Smith (1993) 13) He then remarks that one of its proponents (Smart (1980)) 'is concerned with the logical structure of ordinary language and is interested in how the meaning of ordinary expressions should be understood or represented in theories of meaning for ordinary language.' (Smith (1993) 13) Thus, according to Smith, the aim of the new tenseless

theory of time is purely to satisfy the semantic intuitions regarding the nature of truth conditions, and not at all concerned with the ontological commitments of tensed language. Indeed, he criticizes Oaklander (1991) for saying that the new tenseless theory of time serves the 'ontological function of representing the metaphysical nature of time.' (Smith (1993) 13) Thus, Smith sees the new tenseless theory of time as offering an account of the meaning of tensed language, but not an account of its ontological commitments. If this were the case, it would be guilty of severing the connection between truth and reality. On such a view, there would be no tenseless theory of *time*, just an account of what tensed language means.

Smith describes a nonsemantic tenseless theory of time as a theory that 'considers the meaning or semantic content of ordinary tensed discourse as irrelevant - or at least as not crucial to the truth or falsity of the tenseless theory of time.' (Smith (1993) 14) It merely represents the metaphysical nature of time, and has no significance for the meaning of the tensed language whose truth conditions it states. If this were the case, it would be guilty of severing the connection between truth and meaning.

Thus, Smith isolates the semantic and ontological aspects of truth conditions from each other to the extent of constructing two distinct tenseless theories, one 'semantic', the other 'ontological'. I remark here that it is Smith who has constructed these distinct theories, although he attributes them to various tenseless theorists. These philosophers do not consider themselves to be supporting distinct versions of the tenseless theory of time. I will shortly argue that there is both a semantic and an ontological significance to any satisfactory account of the truth conditions of tensed language. Smith's attempt to force these theorists into distinct camps is his own, not theirs, and is unjustified. William Lane Craig (1996) seeks to drive a similar wedge between the semantic and the ontological function of providing truth conditions for tensed sentences. He writes:

“The giving of truth conditions is a semantic exercise; specifying grounds for a statement’s truth concerns ontology. One can lay out the semantic conditions which will permit one to determine for any sentence whether that sentence is true or false without saying anything at all about the ontological facts which make that sentence true.” (Craig (1996) 22)

This suggests that we are able to determine whether a sentence is true or false just by examining its truth conditions, but clearly this is only half of the process. Examining the truth conditions will tell us *what must be the case* for the sentence to be true. Once we know that, we must then turn to the world to determine whether or not the truth conditions are satisfied; we must determine *what is the case*, and then see whether what is the case fulfils the requirements for the sentence to be true. A true sentence token has truth conditions that are satisfied. Reality is as they say it should be.

I think this separation of semantics and ontology is wrong. The new tenseless theory’s project of providing tenseless truth conditions for tensed sentence tokens has both a semantic and an ontological function. To state the truth conditions for a tensed sentence token is to specify what the world must be like in order for that token to be true. This is its ontological function. If the truth conditions only require the existence of tenseless facts, then the project will have shown that tensed facts are not needed to account for the truth of tensed sentence tokens. In addition, the truth conditions explicate how the truth or falsity of a sentence token depends on what its semantic constituents mean when produced in a given context. This is its semantic function. If the project is successful it will show that the world need not be tensed to account for the fact that we sometimes utter true tensed sentence tokens, and it will also explain why the true tensed sentence tokens we utter are true. The provision of truth conditions makes

perspicuous both the relationship between truth and reality on the one hand, and that between truth and meaning on the other.

To return to Smith's argument concerning the truth conditions of unuttered tensed sentences, we can now see that the concept of truth is connected both to meaning and to reality. We might even say that it is ambiguous as it has two distinct domains of application. Linguistic entities are capable of being true or false, and the world is that which makes true or false our utterances about it. To make the distinction even more stark, it is instructive to consider the difference between the predicate 'true' and the operator 'It is true that'. The predicate 'true' applies to linguistic entities. It is sentence tokens that can correctly be described as true or false. However, if we prefix a sentence with 'It is true that' we are making a claim about the world, not about the sentence. For example, I can describe the sentence 'That chair is blue' as true or false. But if I say 'It is true that the chair is blue' I am making a claim about what the world is like; I am describing reality, not a sentence about it.

It is important to be clear, when expressing one's intuitions about truth, whether those intuitions are about the connection between truth and meaning or that between truth and reality. It is the connection between truth and reality that generates our intuition that the concept of truth is independent of the production of any sentence tokens. The world is the way it is independently of what anyone happens to say about it. Smith seeks to explain this intuition by appealing to the connection between truth and meaning. His example constitutes a sentence type, a token of which would have been true if it had been uttered at a certain time, but no such token was uttered. He posits an abstract truth vehicle, a proposition that exists just when that sentence would have been true, and claims that it is the existence of this abstract truth vehicle that explains our intuition that what was expressed by a sentence would have been true then even if it

had not been expressed. As I have illustrated, this intuition can be explained perfectly well without the existence of such entities. If a sentence token is produced it is determinately either true or false, depending on whether its truth conditions obtain. If no sentence token is produced there is no truth or falsity to account for, but reality remains the same whether or not sentences about it are produced.

My position entails that sentence tokens, rather than propositions, statements or sentences, are the legitimate bearers of truth. Considerations of space prevent me from arguing for that view here. In place of an argument I will briefly mention one or two advantages that I think this position has. Unlike propositions, there is no dispute that sentence tokens exist. Also, sentence tokens are not abstract entities, but determinate physical objects or events. Finally, there is some disagreement over whether two distinct propositions (or statements) are expressed when I say 'I am ill', and then again 'I'm ill', but there is no disagreement over how many sentence tokens there are.

Lastly, Smith argues that certain logical relations obtain between certain tensed sentences, and that these relations cannot be explained if these sentences have tenseless token-reflexive truth conditions.⁶ He uses as an example the logically equivalent sentences:

(20) The hurricane is occurring now,

and

⁶ There have recently been two responses to this argument of Smith's. Le Poidevin's (1998) response does not differ significantly from mine. Paul's (1997) response is presented in terms of her account of the truth conditions of tensed sentence types, which, for the reasons already given, I disagree with.

(21) The hurricane is now occurring.

The tenseless token-reflexive truth conditions for a token *a* of (20) and a token *b* of (21) are as follows:

(22) *a* is true if and only if the hurricane *is* simultaneous with *a*,

(23) *b* is true if and only if the hurricane *is* simultaneous with *b*.

Smith argues that (22) and (23) cannot state the conditions necessary and sufficient for the truth of tokens of (20) and (21), because (20) and (21) are logically equivalent, but (22) and (23) cannot account for this equivalence. If (20) and (21) are logically equivalent, they entail each other, so whenever one of them is true, so must be the other. This means that whenever the truth conditions of (20) are satisfied, so must be the truth conditions of (21), and vice versa. However, in order for the truth conditions of a token of (20) to be satisfied, a token of (20) must be uttered, but this will not serve to satisfy the truth conditions of a token of (21). The truth of a token of (20) does not depend on a token of (21) being produced, and vice versa. L. Nathan Oaklander recognizes the gravity of this problem when he says

“[I]f one sentence logically implies a second, then we should be able to justify the inference on the basis of truth conditions; we should be able to show that what makes the first true must make the second true. If we cannot do this there would seem to be grounds for concluding either that we are mistaken about the putative entailment relations or that we have not got the right truth conditions for the sentences in question.” (Oaklander (1991) 32).

In another article⁷ Oaklander responds to this problem by arguing that it only constitutes an objection to the old tenseless theory of time, and is irrelevant to the new theory. He argues that it is not part of the goal of the new theory, in giving the truth conditions of tensed sentences, to account for the logical status and relations of these sentences. The aim of the new theory, according to Oaklander, is merely to provide an ontologically adequate representation of what temporal reality is like. I argued earlier that the truth-conditional project has both semantic and ontological aims, and that these are not separable from each other. The new tenseless theory of time cannot evade this argument simply by denying the responsibility for responding to it. The challenge must be met.

To recap briefly, Smith argues that (20) and (21) are logically equivalent, but that this fact cannot be accounted for if their truth conditions are tenseless and token-reflexive. Such truth conditions make explicit reference to the particular tokens of the sentence types that are produced. Thus, it appears to preclude the logical equivalence of (20) and (21) because the truth of one does not depend on a token of the other being produced.

The token-reflexive theory has the resources to account for the logical equivalence of (20) and (21). Consider the truth-conditional formulae for (20) and (21):

(24) Any token u of 'The hurricane is occurring now' is true if and only if the hurricane *is* simultaneous with u ,

(25) Any token u of 'The hurricane is now occurring' is true if and only if the hurricane *is* simultaneous with u .

⁷ Oaklander (1990).

What occurs to the right of the biconditional in these truth-conditional formulae is the same in each case. So, if a token, u , of (20) is produced simultaneously with the hurricane, it will satisfy this truth-conditional formula. Given that (21) has the same truth-conditional formula, it follows that a token, v , of (21) produced simultaneously with u will also satisfy *its* truth-conditional formula. The production of a token of (20) does not entail that a simultaneous token of (21) is also produced, but it does entail that if such a token is produced it will be true.

There is one remaining objection to the token-reflexive theory that Smith puts forward as a variation on the previous objection. What is the logical relation between two distinct simultaneous tokens of the same tensed sentence type? Clearly they are synonymous as they are tokens of the same type. Consider a token, c , of 'It is now 1999' uttered by Chloë, and a token, d , of 'It is now 1999' uttered by Daphne, where c and d are uttered simultaneously. The tenseless token-reflexive truth conditions of c are that it is true if and only if c is simultaneous with 1999, while d is true if and only if d is simultaneous with 1999. The truth conditions of each token appear to have no bearing on the truth-value of the other token, and yet they are synonymous. So whatever accounts for the truth of one token should also account for the truth of the other. In Smith's terminology, the fact stated by c , that c is simultaneous with 1999 is not logically equivalent to the fact stated by d , that d is simultaneous with 1999, whereas c and d themselves, being simultaneous tokens of the same sentence type, are logically equivalent. However, it was stipulated by Smith that c and d are simultaneous tokens. It is this relation of simultaneity, conjoined with their common truth-conditional formula that explains why c is true if and only if d is true and *vice versa*. The sentence type is (of course) logically equivalent to itself, and hence, two simultaneous tokens of it are synonymous.

Smith's objections to the token-reflexive theory are not effective against it. Given the considerable advantages of this theory, together with the lack of any successful objections to it, I conclude that it does indeed provide the correct account of the truth conditions of tensed sentences. Of course, it must be adopted in conjunction with a sensible adherence to the distinction between sentence types and tokens. Furthermore, it may be that more justification is needed for the position that only sentence tokens are legitimate truth bearers. It seems to me that the tenseless token-reflexive analysis constitutes a complete, coherent, and eminently sensible account of the truth conditions of tensed sentences.

VI Conclusion

I have examined both the date version and the token-reflexive version of the new tenseless theory of time, particularly with respect to Quentin Smith's arguments against each. I argued that his arguments against the date version succeed in virtue of an internal fault in its mechanism for assigning truth conditions to tensed sentences. I then defended the token-reflexive version against each of his arguments, which were all variations on his objection that truth is token-independent, but the token-reflexive version renders it token-dependent. Smith's arguments were designed to show that the tenseless token-reflexive account of the truth conditions of tensed sentences fails because what occurs on the right hand side of the biconditional does not give the right truth conditions for the tensed sentence in question. He proposed counterexamples where the tensed sentence in question was true, but the tenseless token-reflexive truth condition failed to obtain. If he had been successful he would have shown that tenseless token-reflexive truth conditions are not necessary conditions for the truth of tensed sentences. But he was not successful, so I maintain that they are necessary conditions for the truth of tensed sentences. However, there is a further objection to the theory that I

defend, according to which tenseless token-reflexive truth conditions are necessary but not sufficient conditions for the truth of tensed sentences.⁸ Addressing this objection is beyond the scope of this paper, but it will have to be addressed, so there is more work to do in defence of the tenseless token-reflexive theory of time. That tensed sentences have token-reflexive truth conditions is necessary, but not necessarily sufficient, for the truth of the tenseless theory of time.

My rebuttal of Smith's arguments illustrated that he had conflated the semantic and ontological aspects of truth, and that this was the source of many of his worries. Recognizing and respecting this distinction is also the path to the resolution of his worries. Truth, I argue, is token-dependent, but that does not mean (as Smith takes it to mean) that the way the world is depends on what we happen to say about it. On the contrary, the world is the way it is regardless of what we say about it, but it is only when sentence tokens are produced that the question of truth or falsity arises; only then do we have to ask whether the world makes true or false what we say about it.

⁸ Variations on this objection have been offered by Lowe (1987 and 1998) and Tooley (1997)

References

- Baker, G. and Hacker, P. M. S.: 1983, 'The Concept of a Truth-Condition', *Conceptus* **17**, 11-18.
- Castañeda, H-N.: 1967, 'Indicators and Quasi-Indicators', *American Philosophical Quarterly* **4**, 85-100.
- Craig, W. L.: 1996, 'Tense and the New B-Theory of Language', *Philosophy* **71**, 5-26.
- Davidson, D.: 1986, 'A Coherence Theory of Truth and Knowledge', in Ernest LePore (ed.), *Truth and Interpretation*, Basil Blackwell, Oxford, pp. 307-19.
- Gale, R. M.: 1968, *The Language of Time*, Routledge and Kegan Paul, London.
- Goodman, N.: 1951, *The Structure of Appearance*, Harvard University Press, Cambridge.
- Kaplan, D.: 1979, 'On the Logic of Demonstratives', *Journal of Philosophical Logic* **8**, 81-98.
- Le Poidevin, R.: 1998, 'The Past, Present and Future of the Debate about Tense', in Robin Le Poidevin (ed.), *Questions of Time and Tense*, Clarendon Press, Oxford, pp. 13-42.
- Lewis, D.: 1979, 'Attitudes De Dicto and De Se', *The Philosophical Review* **88**, 513-43.
- Lowe, E. J.: 1987, 'The Indexical Fallacy in McTaggart's Proof of the Unreality of Time', *Mind* **96**, 62-70.
- Lowe, E. J.: 1998, 'Tense and Persistence', in Robin Le Poidevin (ed.), *Questions of Time and Tense*, Clarendon Press, Oxford, pp. 43-59.
- Mellor, D. H.: 1981, *Real Time*, Cambridge University Press, Cambridge.
- Oaklander, L. N.: 1990, 'The New Tenseless Theory of Time: A Reply to Smith', *Philosophical Studies* **58**, 287-92.
- Oaklander, L. N.: 1991, 'A Defence of the New Tenseless Theory of Time', *The Philosophical Quarterly* **41**, 26-38.

- Oaklander, L.N. and Smith Q.: 1994, *The New Theory of Time*, Yale University Press, New Haven.
- Paul, L. A.: 1997, 'Truth Conditions of Tensed Sentence Types', *Synthèse* **111**, 53-71.
- Perry, J.: 1979, 'The Problem of the Essential Indexical', *Noûs* **13**, 3-21.
- Quine, W. V. O.: 1960, *Word and Object*, MIT Press, Cambridge.
- Schlesinger, G. N.: 1980, *Aspects of Time*, Hackett, Indianapolis.
- Smart, J. J. C.: 1963, *Philosophy and Scientific Realism*, Routledge and Kegan Paul, London.
- Smart, J. J. C.: 1980, 'Time and Becoming', in Peter van Inwagen (ed.), *Time and Cause*, Dordrecht, Boston, pp. 3-15.
- Smith, Q.: 1987, 'Sentences About Time', *The Philosophical Quarterly* **37**, 37-53.
- Smith, Q.: 1993, *Language and Time*, Oxford University Press, New York.
- Tooley, M.: 1997, *Time, Tense and Causation*, Clarendon Press, Oxford.
- Wettstein, H. K.: 1979, 'Indexical Reference and Propositional Content', *Philosophical Studies* **36**, 91-100.