ABSTRACT. Tenseless theories of time entail that earlier than, later than and simultaneous with (i.e., McTaggart’s ‘B-series’) are the only temporal properties exemplified by events. Such theories often come under attack for being unable to satisfactorily account for tensed language. In this essay I argue that tenseless theories of time are capable of two feats that critics, such as Quentin Smith, argue are beyond their grasp: (1) They can coherently explain the impossibility of translating all tensed sentences by tenseless counterparts; (2) They can account for certain obviously valid entailment relations between tensed sentence types. In analyzing tensed entailment relations tenselessly, I favor a date analysis of tensed language over a token-reflexive theory. The upshot is that tenseless theories of time are not undermined by the linguistic facts.

1. INTRODUCTION

Quentin Smith is one of the most able contemporary defenders of tensed theories of time and has perhaps done more than anyone in raising new semantic challenges to tenseless accounts. Of note is his recent charge that D. H. Mellor’s popular, tenseless theory of time cannot coherently explain the need for tensed sentences in our language. In what follows I argue that this charge cannot be sustained as it rests on a confusion. A similar confusion underpins Smith’s further argument to the effect that no tenseless theory of time can account for obviously valid entailment relations between tensed sentences. Drawing on the work of J. J. C. Smart and the direct theory of indexical reference, I propose a schema for tenselessly analyzing tensed entailment relations. Finally, I examine Smith’s attack on direct theories of reference and find it to be inconclusive at best. I conclude that tenseless theories of time are not threatened by the linguistic facts.

2. TENSED AND TENSELESS ACCOUNTS OF TIME

The defining feature of tenseless theories of time is their defense of the claim that earlier than, simultaneous with, and later than (i.e., McTaggart’s ‘B-series’) are the only temporal properties that events and times can have.
Accordingly, a complete description of time need and should employ only these relations. The B-series consists of relations whose extensions do not vary in time. For example, if an event, $e_1$, takes place one day earlier than another event, $e_2$, then at all times $e_1$ and $e_2$ (in that order) will stand in the relation of occurring one day earlier than. Since B-series relations are permanent, tenseless theories entail that past, present, and future are not objective properties of events (their extensions constantly vary) and that time does not flow or pass in any meaningful (i.e. non-metaphorical) sense.¹

Many tensed theories exist, so they are best defined negatively. What they share is the denial that B-series relations are sufficient for a complete description of time. Tensed accounts maintain that events exemplify temporal properties such as past, present and future (i.e., McTaggart’s ‘A-series’) and that passage is an objective feature of time. What impresses defenders of tensed theories is the apparently dynamic nature of reality, the continual change of events from future, to present to ever more distant past. Tensed theories include presentism, the view that only present events exist (see Prior 1970); the empty future view, according to which past and present events exist but nothing future exists (see Tooley 1997); and the tree model of reality, in which past and present events exist determinately while the future consists of unrealized possibilities (see McCall 1994). Quentin Smith (whose views are of particular importance in what follows) holds a mixed view of time, arguing that in addition to B-series relations events have transitory monadic properties whose gain and loss corresponds to the flow of time. Roughly, presentness is an objective property, but one that moves to later events (see Smith 1987).

3. THE NEW TENSELESS THEORY OF TIME AND TRUTH CONDITIONS

The popularity of tenseless accounts of time is due in large part to McTaggart’s persuasive arguments against the coherence of tense (McTaggart 1921)² as well as the pressure that is placed on the notion of an objective A-series by Einstein’s theory of relativity (Einstein 1961, Minkowski 1908). Few, however, follow McTaggart in denying the reality of time. Hence the recourse to tenseless theories. Early defenders of tenseless accounts argued that all tensed sentences can be translated into tenseless sentences without loss of content (Russell 1903, Smart 1963). In recent years, however, there has been wide-spread agreement that tensed sentences, particularly those containing temporal indexicals, cannot be eliminated from language. Much of this consensus is inspired by the work of John Perry who has argued persuasively that certain beliefs are essentially indexical, i.e., that
the cognitive significance of certain beliefs requires that they be irreducibly indexical in character. This includes beliefs about our relations to time (Perry 1979). ‘New’ tenseless theories of time, such as Mellor’s (Mellor 1981), accept the consequences of this claim, and willingly take on the challenge of explaining, in terms consistent with a tenseless ontology, both the semantics of temporal indexicals and our need for these indexicals.

It will be helpful here to review Mellor’s core arguments. Consider a token of,

(1) The movie starts now

said of a movie that begins at 1:00 p.m. (1) is true, Mellor argues, if, and only if, it is uttered at 1:00 p.m. (that is, if the utterance is simultaneous with the start of the movie), and this is all that one asserts upon uttering (1). So, on this account, the truth condition of (1) is given by,

(2) (1) is uttered at 1:00 p.m.,\(^3\)

which is an entirely tenseless truth condition, consisting of only a sentence token, a time and the relation of simultaneity (Mellor 1981, 73–88).

If (2) is true, then it is true at all times. Therefore, the belief that (1) is uttered at 1:00 p.m. cannot by itself move one to enter the theater at 1:00 p.m. rather than any other time. However, the tensed belief that the movie starts now, or that it is now 1:00 p.m., will, if it is held at 1:00 p.m., cause one to enter the theater at the right time (I assume, in both cases, that one has the desire to enter the theater at 1:00 p.m.). Hence, Mellor concludes, though objective reality is tenseless (since tensed sentences have only tenseless, token-reflexive truth conditions), psychological reality is tensed for we need beliefs whose truth values change with time, and this is precisely what tensed beliefs do. It follows that it is impossible to eliminate all tensed sentences in favor of tenseless translations if language is to continue as a useful tool in our interactions with the world (Mellor 1981, 89–102).

Smith has two objections to this account. First, he argues that it is inconsistent to maintain both that (2) completely specifies the truth condition of (1) \textit{and} that temporal indexicals are nevertheless needed in language. Second, he argues that certain inferential relationships between tensed sentences can be captured neither by Mellor’s token-reflexive account nor any tenseless theory on the market. I will take up these criticisms in turn.
Mellor combines the claim that (2) completely specifies the truth condition of (1) with the claims that a token of (2) is true any time it is uttered and that a token of (1) is true if and only if uttered at 1:00 p.m. But, Smith objects, how can two sentences that ‘state the same fact’ differ in this way? This violates what Smith calls the principle of the identity of truth conditions,

\[(\text{PITC}) \text{ If two tokens of the same sentence or two tokens of different sentences state the same fact, } F_1, \text{ they have the same truth conditions, i.e., are true iff } F_1 \text{ and every fact implied by } F_1 \text{ exists (Smith 1987, 377).}\]

(\text{PITC}) follows from the claims (endorsed by Mellor) that (i) facts are what make sentences true and (ii) if a sentence token states a given fact, $F_1$, the token is true if and only if $F_1$ and every fact implied by $F_1$ exists (Smith 1987, 376). In other words, there can be no difference in the truth conditions of two sentences that ‘state the same fact’.\textsuperscript{4} But (1) and (2) do differ in their truth conditions since (1) is true if and only if it is tokened at 1:00 p.m. while tokens of (2) are always true. Hence, Smith concludes that (1) and (2) cannot state the same fact.

Smith suggests that the only way for Mellor to resolve this difficulty is to concede that tokens of (1) and (2) have the same truth condition. Indeed, Smith argues that, construed tenselessly, (1) and (2) do have the same truth condition since they are each made true by the same fact, i.e. the fact that (1) occurs at 1:00 p.m. Mellor might think that (1) and (2) have different truth conditions, Smith continues, because the fact that (1) occurs at 1:00 p.m. is a fact that is about a token of (1), not about any token of (2). Therefore, only occurrences of (1) are restricted by the fact statement while occurrences of (2) are left unaffected. However, Smith concludes, these claims have the effect of reducing Mellor’s theory to the old tenseless theory of time, which insists on the eliminability of tensed sentences,

Mellor’s only grounds for holding that tokens of tensed sentences cannot be translated by tokens of tenseless sentences are that these tokens have different truth conditions, and once these truth conditions are seen to be the same, Mellor is deprived of his reasons for subscribing to the thesis of the new theory that tensed tokens are untranslatable (Smith 1987, 378).

Thus Smith concludes that the only way to rescue Mellor’s theory is to reduce it to a position that Perry and others have shown to be untenable.

However, Smith’s argument rests on a confusion. Mellor is concerned with the truth conditions of dated, particular utterances of (1); that is what
makes his account token-reflexive. What makes an utterance of (1) true, Mellor contends, is that the movie it refers to starts at the same time as the utterance. Furthermore, we can utter a sentence token that captures this fact by uttering a token of (2). In other words a token, a dated, particular utterance, of (2) has the same truth condition as the 1:00 p.m. token of (1), namely the simultaneity of the utterance of (1) and the movie.

Now, what does it mean to claim that a token of (1) can be uttered truly only at one time while tokens of (2) can be uttered truly at any time? This simply means that at any time other than 1:00 p.m., a dated, particular utterance of (1) is false, but there are no times at which any utterance of (2) is false. But this does not violate (PITC). (PITC) says that for two tokens to ‘state the same fact’ they must have the same truth conditions. Therefore, so long as any two sentence tokens have the same truth conditions, they state the same fact. And this is surely the case with certain tokens of (1) and (2). It does not matter, so far as (PITC) is concerned, that there exist other utterance pairs of the same types as (1) and (2) that differ in their truth conditions. In such cases, the two utterances do not state the same fact. For instance, an utterance of (1) that occurs at 1:00 p.m. states a different fact than an utterance of (1) that occurs at 2:00 p.m. What this does not mean, however, is that the token of (1) that occurs at 1:00 p.m. has a different truth condition from any token of (2) said any time. So, if a dated, particular utterance of (1) shares a truth condition with all utterances of (2), then that token of (1) when conjoined with any of the tokens of (2) forms a pair that satisfies (PITC).

The truth condition of any particular utterance of (1) never changes. However, different utterances of (1) can indeed differ in their truth conditions since (1) is a sentence type whose tokens can have different truth conditions, while (2) is not such a type. Smith, then, is simply trading on a type/token equivocation in his attack on Mellor.⁵ Mellor’s position is that we need tensed sentences (i.e. tensed sentence types) in our language because they are such that their tokens will have different truth values depending on when they are uttered, something that is not true of tenseless sentence types. But, he insists, any particular token has a tenseless truth condition, a different truth condition than that of a later token of the same type. In this way, tensed language is reconciled with tenseless reality.

Consider the textual evidence,

[L]et \( R \) be any token of ‘Cambridge is here’ and \( S \) be any token of ‘It is now 1980’ . . . Then \( R \) is true if and only if it occurs in Cambridge, and \( S \) is true if and only if it occurs in 1980. If a sentence giving another’s truth conditions means what it does, \( R \) should mean the same as ‘\( R \) occurs in Cambridge’ and \( S \) should mean the same as ‘\( S \) occurs in 1980’. But these sentences have different truth conditions. In particular, if true at all, they are true everywhere and at all times’ (Mellor 1981, 74, italics added).
The highlighted sentence cannot be referring to the token pairs $R$ and (a Cambridge occurrence of) ‘$R$ occurs in Cambridge’ or $S$ and (a 1980 occurrence of) ‘$S$ occurs in 1980’. For one thing, Mellor insists that the latter in each of these pairs gives the truth condition of the former, so that the tokens in each pair have the same truth condition (Mellor 1981, 40–42). Secondly, how can a token, a dated, particular, be true at all times or at all places? A token is a temporally and spatially localized event. The type can be true at all times, but this simply means that tokens of that type can be truly uttered at any time, as Mellor goes on to write,

You need not be in Cambridge in 1980 to meet true tokens of ‘$R$ occurs in Cambridge’ and ‘$S$ occurs in 1980’. But you do need to be in Cambridge in 1980 to meet the true tokens $R$ and $S$. . . . At all other places and times those tensed sentences would have been false (Mellor 1981, 74).

The final sentence must refer to additional utterances of the tensed sentence types, for a given token cannot find itself any place other than when and where it is uttered.6

There is a more fundamental difficulty with Smith’s argument. Kaplan has argued persuasively that the truth conditions of an indexical expression are determined by two things: (i) the linguistic meaning or ‘character’ of the indexical; and (ii) the context of utterance (Kaplan 1989). Therefore, two utterances of the same indexical expression type can differ in content (i.e. have different truth conditions) while two tokens of different sentence types (i.e., types that differ in character) can have the same truth conditions. It follows that two utterances with identical truth conditions can resist intertranslation. To see this, imagine a conversation between two friends, John and Kathy, in which John utters,

(3) I am six feet tall

and Kathy replies,

(4) You are six feet tall.

Now, (3) and (4) have the same truth condition, but we could not eliminate sentence type (4) from our language in favor of (3) (nor vice versa) for that would leave Kathy (John) with no way of conveying the information she (he) wishes to convey. Indexicals allow persons with different perspectives to communicate the same information. Identity of truth conditions may be necessary for translatability, but it is not sufficient.7 Even if Smith had not equivocated on the type/token distinction, his argument would be inconclusive.
A deeper criticism leveled by Smith against Mellor’s account and tenseless theories of time in general is that they cannot explain obviously valid inferences between tensed sentences. Consider that

(5) It is now 2000

entails that

(6) 2000 is present

and vice versa. Smith, quite rightly, takes it that for two sentences to entail each other, their truth conditions must entail each other. Unfortunately for Mellor, a token-reflexive account of the truth conditions of tensed sentences won’t live up to this requirement. For the truth conditions of any tokens of (5) and (6) would, on his account, be given by,

(5') (5) is uttered in 2000

and,

(6') (6) is uttered in 2000

respectively. But these sentences fail to entail each other. It is quite possible for (5) to be uttered in 2000 and not (6), and vice versa. Smith concludes that (5) and (6) must ‘state facts’ other than their tenseless truth conditions, facts that account for the entailment relation (see, also, Smith 1994a). The most plausible explanation, he suggests, is that each sentence states the tensed facts it is now 2000 and 2000 is present respectively. These clearly entail each other; indeed they are the same fact (Smith 1987, 379). Hence, Smith concludes, only a tensed account of time can do justice to the semantics of our language.

Now, I think that Smith’s criticism is important, and highlights a difficulty in Mellor’s token-reflexive account. But the implications Smith sees for tenseless accounts of time in general are dubious since he has not shown that a tenseless account of the entailment relation between (5) and (6) cannot be found. I believe that such an account exists, and I turn now to a sketch of its details.
6. TENSELESS ENTAILMENT RELATIONS

Consider J. J. C. Smart’s tenseless account of time, sometimes called the ‘date-sentence theory’ of time: ‘When \( P \) says at \( t \) “time \( t \) is now” his assertion is true if and only if \( t \) is at \( t \), so that if \( P \) says at \( t \) “\( t \) is now” his assertion is thereby true’ (Smart 1980, 5). Let’s summarize this account as follows,

\[(DS) \text{ When } P \text{ says at } t \text{ ‘time } t \text{ is now’ his assertion is true iff } t \text{ is at } t.\]

Rather than casting the truth conditions of tensed sentences in token-reflexive terms, (DS)’s truth conditions are relations between dates. At first glance, then, the entailment problem noted above seems not to arise since dates and the relations between them clearly exist whether or not there exist sentence tokens of any kind.

However, Smith rejects (DS) because it sets up tautologies as the truth conditions of sentence tokens that are, he argues, contingent. Consider again an utterance of

\[(5) \text{ It is now 2000}\]

that is made in 2000. If we plug this into (DS) we get the following (with a few minor changes),

\[(7) \text{ When } P \text{ says in 2000 ‘It is now 2000’ her utterance is true if and only if 2000 is at 2000.}\]

But, Smith argues, (5) is a contingent sentence type so the truth conditions of its tokens must also be contingent. As a result, Smith adds, (DS) cannot explain the logical equivalence of ‘It is now 2000’ and ‘2000 is present’, for each is a contingent sentence type and a tautology can’t make two contingent sentences (i.e. their tokens) true in all and only the same circumstances (Smith, 1987, 386).

Smith argues that so far as the tenseless theory of time is concerned, the truth condition of an utterance of (5) is its occurrence in 2000, something that is specified on the left hand side of (DS). The fact that 2000 is at 2000 is no part of the truth condition of any utterance of (5); it is a tautology that is trivially implied by the ‘real truth condition’ of (5), namely its occurrence in 2000. Hence, (DS) is not really a truth condition schema at all (Smith 1987, 385–6).

However, Smith’s claim that (5) is a contingent sentence type (and, therefore, that all its tokens must be contingent), is asserted without substantial defense. What does it mean to say that a sentence type such as
(5) is contingent? Normally, contingency and necessity attach to the truth conditions or content of a sentence. So, for example, ‘snow is white’ is contingently true because it is not (say, logically) necessary that snow is white. Similarly, ‘2 + 2 = 4’ is necessarily true because it is (logically) necessary that 2 + 2 = 4. Therefore, there could be false tokens of ‘snow is white’; they occur in any logically possible world where snow is not white (of which there are plenty). The same is not true of ‘2 + 2 = 4’, whose tokens are true in all logically possible worlds, at all times. Smith would be right to point out that ‘it is now 2000’ is like ‘snow is white’ in that there are worlds (indeed, times) at which its tokens are false. But this is insufficient to show that tokens of ‘it is now 2000’ are contingent, for that depends on their truth conditions. In fact, there is good reason to deny, as does (DS), that tokens of this sentence have contingent truth conditions.

Recent work on indexicals (Kaplan 1989, Kripke 1980, Perry 1979, Putnam 1975) suggests that indexicals are devices of direct reference, i.e. they refer directly to an object (or event) as opposed to referring to it via a sense. In other words, all that an indexical like ‘now’ contributes to a proposition is a time. The remainder of the sentence expresses an incomplete sense that provides a complete thought or proposition only when combined with the time (Perry 1977, 493). The insights provided by these new theories of reference have been startling, so I take it as a strength of any account of temporal indexicals that it is in alignment with the recent work. But then it follows that ‘now’ rigidly designates its time of utterance. Hence, a t-token of ‘it is now t’ ought to express a tautology, and a t*-token of ‘it is now t’ ought to express a contradiction. This is perfectly consistent with the claim that sentence types such as (5) are such that their tokens can be uttered both truly and falsely, depending on the context of utterance. Tokens of ‘it is now t’ uttered at t are (necessarily) true (tautologies), tokens of the same sentence type at t* are (necessarily) false (contradictions). Smith’s argument would, on the other hand, only go through if the following conditional were true: if a token of a given sentence type is a tautology or a contradiction, then all tokens of that sentence type must express the same tautology or contradiction. But this is utterly implausible in the case of indexical expressions.

Smith protests that even if now is a rigid designator, it does not follow that t-tokens of ‘it is now t’ express tautologies. Smith writes: ‘Now for any tautologically true sentence-token, the truth of the token is entailed by premises stating the relevant tautological fact and that the token occurs’ (Smith 1987, 386). This certainly seems right. For example, the tautological fact that $P \rightarrow P$ plus the fact that a token of ‘$P \rightarrow P$’ occurs are sufficient to entail that the token is true. But, Smith counters, (i) ‘2000 is
at 2000’ and (ii) ‘S occurs’ (where S is any 2000 token of ‘it is now 2000’) do not entail that (iii) ‘S is true’. So a 2000 token of S is not a tautology (Smith 1987, 386).

The problem here is that Smith assumes that one can individuate or refer to a particular 2000 token of ‘it is now 2000’ (i.e., S above) without presupposing that the token occurs in 2000. He takes it that ‘S occurs’ makes no temporal commitment, i.e., does not refer to S’s time of occurrence. He admits that the entailment goes through if the premise, (iv) ‘S occurs in 2000’, is added to the argument, but this suggests that he assumes that this premise is not already contained in (ii) above. However, it is contained there for otherwise S is not a 2000 token of ‘it is now 2000’, but is in fact not a token at all. Since a token is a dated, particular event, there is no such thing as a token without a time of occurrence. Tokens have their spatiotemporal properties essentially: change the properties and we have a different token (recall that ‘now’ is a rigid designator). Any argument that assumes one can refer to a token, S, of ‘it is now 2000’ assumes that that token has a time of occurrence. Since S can only designate a real token if it is given a time of occurrence, premise (ii), ‘S occurs’, is simply shorthand for (ii*), ‘a 2000 token of S occurs’, i.e. ‘S occurs in 2000’. Therefore, the argument consisting of (i), (ii) and (iii) does indeed go through, and Smith’s claim that even if ‘now’ is a rigid designator ‘it is now 2000’ said in 2000 is only contingent, is properly denied.

Smith has a second, modal objection to (DS). If we assume ‘now’ is a rigid designator, then a 2000 occurrence of ‘it is now 2000’ rigidly designates ‘the set of all and only those events that, in fact, possesses the property of being the twelve-month period that is [1999] years later than the birth of Christ’ (Smith 1987, 387–8). Since, Smith argues, the sense expressed by ‘2000’ is ‘the twelve-month period that is 1999 years later than the birth of Christ’, ‘it is now 2000’ rigidly refers to a particular set of events (call it A) and asserts its identity with the twelve month period that is 2000 years later than Christ’s birth. But, Smith argues, this identity is contingent for there are possible worlds in which A exists but in which Christ isn’t born, or is born a year earlier than in the actual world (though the people of that world don’t realize it) and hence A is actually 2000 years later than Christ’s birth. Therefore ‘it is now 2000’, which is equivalent to ‘A is the twelve-month period that is 1999 years later than the birth of Christ’, is only contingently true.

There are a number of ways to block this argument. First, one could deny that what one refers to by using ‘now’ is a set of events. Rather, one could insist that ‘now’ refers to a time, an entity in its own right that contains events but is not identical to them, and that what one asserts with
a 2000 token of ‘it is now 2000’ is that a particular time has a particular place in the timeline, a place that it could not fail to have while retaining its identity. In other words, ‘it is now 2000’ does not relate a set of events to other events, but a time to another time (namely, to itself). This latter relation remains intact across possible worlds no matter how the name for the time in question might change and no matter what events fill that time or any others. This is a substantive view of time, which Leibnizians will surely balk at, but it is not incoherent. Hence, on this account, any worlds in which the set of events, \( A \), bears a different set of temporal relations to other events are not germane to the analysis at hand. For if time is substantive, any worlds that contain time are worlds in which for any \( t \):

\[
 t \text{ is at } t. 
\]

However, one might wish to refrain from committing to substantive time. Another alternative is not to follow Smith in asserting that ‘2000’ expresses the sense ‘the twelve-month period that is 1999 years later than the birth of Christ’. Rather, one might suppose that ‘2000’ is simply a (Millian) name for a certain set of events, a name that picks out the same set as a 2000 token of ‘now’. Since names are rigid designators (Kripke 1980), ‘it is now 2000’ said in 2000 expresses an identity that holds in all possible worlds. Since speakers can use and understand sentences such as ‘it is now 2000’ even if they have no knowledge of who Christ is or when Christ was born, it is plausible to suppose that ‘2000’ does not in fact abbreviate ‘the twelve-month period that is 1999 later than the birth of Christ’ but, rather, functions simply as a name for a particular year.

Of course, we can describe 2000 as ‘the twelve-month period that is 1999 years later than the birth of Christ’, but this does not mean that ‘2000’ is not a directly referential name. After all, I can describe Aristotle as ‘the most eminent philosopher of the ancient world’ even though ‘Aristotle’ rigidly refers to a particular individual. Moreover, by naming a year ‘2000’ we can immediately make certain inferences, like ‘this year is 40 years later than 1960’, or ‘in 200 years in will be 2200’. This is because ‘2000’ bears to the names of other years the same arithmetic relations that the number 2000 bears to other numbers. But just as ‘2000’ can be the name of the number 2000, so it can be the name of the year 2000. Hence, ‘it is now 2000’ said in 2000 can serve to identify a set of events or a time much as ‘he is Aristotle’ could serve to identify a certain man without employing a sense of ‘Aristotle’. There are, in sum, good reasons to reject Smith’s modal argument.

Let me offer a purely speculative diagnosis of Smith’s mistaken insistence that (5) and (all of) its tokens are contingent. Kripke (1980) famously argues that the \( a \) priori and the necessary are not coextensive. For example,
water is necessarily \( \text{H}_2\text{O} \) in that anything that differed in chemical composition from water would be a different substance. However, that water is \( \text{H}_2\text{O} \) is not something that can be known \textit{a priori}, it is an empirical discovery. Now, it is clear that one cannot know \textit{a priori} that it is now 2000. Learning that it is now 2000 is an informative, empirical discovery. But it does not follow that what one learns is thereby contingent. Not, certainly, if indexicals are rigid designators. So perhaps Smith, focusing on the \textit{a posteriori} nature of our knowledge of the time, conflates the way we learn about the time with what it is that we learn.

Whether or not this is correct, there is no reason to suppose that tokens of a sentence type that can be used to make both true and false utterances are neither tautologies nor contradictions as the case may be. This rebuts one of Smith’s arguments against (DS). Can (DS) explain the entailment relation between (5) and (6)? Smith, as noted above, thinks not, writing: ‘no tautological fact (such as 2000 is at 2000) can make two logically contingent sentences or tokens true in all and only the same circumstances’ (Smith 1987, 386). But it is now clear that (5) and (6) are not ‘contingent’ sentence types in any meaningful sense. Furthermore, just as ‘now’ directly refers to its time of utterance, so does ‘present’ (at least in ‘2000 is present’) refer directly to its time of utterance (it functions here as an indexical). So, consider again an instance of (DS) with a 2000 token of (5) substituted into it,

\[
(7) \quad \text{When } P \text{ says in 2000 ‘It is now 2000’ her utterance is true if and only if 2000 is at 2000.}
\]

Because (5) is said in 2000, ‘now’ rigidly designates 2000 and we get the tautological truth condition noted in (7).\(^9\) Now consider a 2000 utterance of (6),

\[
(7') \quad \text{When } P \text{ says in 2000 ‘2000 is present’ her utterance is true if and only if 2000 is at 2000.}
\]

This follows from the indexical nature of ‘present’. Hence, the truth condition of this token of (6) is the same as that of the token of (5). Indeed, it is clear that tokens of either sentence type will be true or false in all and only the same circumstances. In other words, all tokens of either (5) or (6), when uttered in 2000, have the same tautologous truth condition, namely \( \text{that } 2000 = 2000 \). On the other hand, tokens of either will each express the same contradiction at any other time of utterance. So, given any temporal context, all actual and potential utterances of (5) and (6) will have the same truth value and truth condition. The obvious conclusion is
that (5) and (6) are *logically equivalent* sentence types. And it is clear that logically equivalent sentences entail each other (see Paul 1997).

So the allegedly troublesome entailment relation has been explained using only the resources available to tenseless accounts of time. It is easy, furthermore, to see how to apply this strategy to other tensed sentence types. For example, the entailment of

(8) The day before today it rained

by

(9) Yesterday it rained,

and vice versa. Since ‘yesterday’ directly refers to the day before the day of utterance, and ‘today’ directly refers to the day of utterance, ‘the day before today’ and ‘yesterday’ share a character, and always refer to the same time in a given context. Hence, actual and potential utterances of (8) and (9) will be true on all and only the same occasions. Cases of other tenses can be handled accordingly.

7. TRUTH CONDITIONS, MEANINGS AND PROPOSITIONS

It is clear that in order for two sentences to express the same proposition, the sentences must have both the same truth value and the same truth conditions. What remains under dispute is whether or not these are sufficient for propositional identity (see Austin 1990). While a detailed analysis of this issue is outside the scope of this essay, some comments are in order here.

Since a 2000 token of ‘it is now 2000’ is true if and only if 2000 is at 2000, it follows that ‘2000 is at 2000’ and a 2000 token of ‘it is now 2000’ are logically equivalent. Some philosophers will be tempted to argue that these sentences do express the same proposition since they have the same content (truth conditions) and hence are each used to, as one might put it, ‘say the same thing’. On the other hand, it is clear that the sentences differ in cognitive significance. One could believe that 2000 is at 2000 without believing that it is now 2000. Perhaps, then, they express different but logically equivalent propositions.

For the purposes of this essay, this disagreement needn’t be settled. One thing, however, must be noted. To believe that it is now 2000 (even when this belief is tokened in 2000) is to be in a different *mental state* than to believe that 2000 is at 2000 (tokened at any time, including 2000).
Accordingly, even though ‘it is now 2000’ uttered in 2000 and ‘2000 is at 2000’ said anytime are identical in content, to believe one involves a different state of mind than believing the other. (Recall Kaplan’s (1989) distinction between the cognitive significance of an indexical expression, which he equates with its character, and the propositional content of such an expression, which he equates with its truth conditions).

That this is the case follows from the fact noted above that the belief that it is now \( t \) will (\textit{ceterus paribus}, perhaps), when combined with, say, one’s desire to do \( x \) at \( t \), move one to do \( x \). On the other hand, one’s belief that \( t \) is at \( t \), combined with one’s desire to do \( x \) at \( t \) will not move one to do \( x \). So if we insist that both beliefs are beliefs in the same proposition, then we shall have to distinguish the proposition believed from the state of believing that proposition (see Perry 1979). That is, we shall have to explain the noted differences in behavior by appeal to the difference in cognitive significance between ‘it is now \( t \)’ and ‘\( t \) is at \( t \)’. Or we could, on the other hand, distinguish the propositions believed (on some basis other than their truth conditions). Either way, tensed propositions that are logically equivalent to tenseless propositions, or else tensed modes of presentation of tenseless propositions are required for timely action. This is why indexicals cannot be eliminated from language. However, the tenseless account of time is not threatened here for even if the object of belief is construed as the tensed proposition \textit{that it is now 2000}, this proposition has a tenseless truth condition.

It is certainly the case that knowing that an utterance of ‘It is now 2000’ is true in and only in 2000 allows one to use that sentence properly (this is a genuine insight of the token-reflexive account). Nevertheless, it does not follow that the proposition one expresses, in uttering a true token of (5), is \textit{that one utters a token of (5) in 2000}. It is clear that the linguistic meaning of an utterance is not the same thing as the proposition expressed by that utterance since the character of ‘it is now 2000’ does not change from occasion to occasion, but the proposition expressed does change because not all tokens will have the same truth conditions (they depend on the context of utterance) and identity of truth conditions is necessary for propositional identity.\(^{10}\) (Sentence types whose linguistic meanings are constant but that express different propositions on different occasions of use are useful for communication. In using such sentences we need only remember a handful of unchanging meanings (characters) in order to be able to understand tensed utterances in any temporal context. It is more efficient to make use of a few tensed sentence types whose tokens vary in truth value, than to utter a different sentence type in every con-linebreak text.\(^{11}\)
Similarly, Perry notices that the proposition that is expressed by an utterance is not the same thing as the proposition that the utterance’s truth conditions are satisfied. For example, imagine that a speaker says to \( P \): ‘You dropped your wallet’. The proposition expressed is that \( P \) dropped her wallet, which could be true whether or not anything was uttered at that time. On the other hand, the utterance ‘You dropped your wallet’ would have been true even if someone other than \( P \) had been addressed. In the latter case, a different proposition is expressed by the same true utterance (see Perry 1988, 235–6). So, to utter ‘it is now \( t \)’ at \( t \) is to express (a proposition equivalent to) the proposition that \( t \) is at \( t \). This differs from the proposition that ‘it is now \( t \)’ is true. Of course, to believe that it is now \( t \) is to be logically committed to the belief that ‘it is now \( t \)’ is true, but these do not express the same proposition. These considerations favor the date analysis of tensed sentences provided above over the token-reflexive account.

Token-reflexive accounts suffer from other weaknesses as well. Consider the following counterfactual claim: 2000 would still be present even if no one were here to say so. According to the token-reflexive analysis, to say that 2000 is present is just to say that 2000 is simultaneous with a particular utterance. But if so, then what one says in uttering ‘2000 is present’ would be false if there were no sentence token at that time. On the view I have defended, all that is required for the truth of the counterfactual statement is that in the relevant possible world 2000 is at 2000, which is true of all logically possible worlds. It is, I believe, a strength of the view defended here that temporal statements are about times and not about utterances. It is not required that 2200 be 200 years later than a particular utterance for ‘In 200 years 2200 will be present’ to state something which is the case. All that is required is that 2200 be 200 years later than 2000, which is necessarily true.

8. THE REFERENTIAL-ATTRIBUTIVE DISTINCTION AND THE PRESENT TENSE COPULA

I have taken the direct theory of indexical reference as given. Smith, however, believes this theory to be inadequate. He asks us to consider the following sentences,

(10) The meeting starts now

and

(11) Now is when the meeting starts
and to notice that in (10) ‘now’ functions as an adverb and is paraphrased by ‘at the present time’ but that in (11) ‘now’ functions as a pronoun paraphrased by ‘the present time’ (Smith 1990, 137). Smith argues that the direct reference theory works well for pronominal uses but not adverbial uses of ‘now’.

According to the direct theory of reference, an utterance of (11) at, say, noon, 1 June 2000 expresses the following (singular) proposition,

(12) 〈Noon, 1 June 2000, the sense of ‘is when the meeting starts’〉

which suggests that the following translation of (11) will preserve its content,

(13) Noon, 1 June 2000 is when the meeting starts

which is a well formed English sentence. Of course, (11) and (13) differ in character, but at Noon, 1 June 2000 they express the same proposition.15

However, if we try the same move with (10) we get the following expressed proposition,

(14) 〈Noon, 1 June 2000, the sense of ‘the meeting starts’〉

which leads to the following content-preserving translation,

(15) The meeting starts noon, 1 June 2000,

which is syntactically incomplete. Smith’s conclusion is that in its adverbial use, ‘now’ contributes a sense to a sentence, namely, the sense of ‘at’ or ‘simultaneously with’ (Smith 1990, 138). Therefore, the direct reference theory is incomplete.

Two comments are in order here. First, as far as Smith’s argument might go, it has no bearing on the debate over the status of tense. If we suppose ‘now’ does introduce a sense such as ‘at’ or ‘simultaneously with’, these are senses that are in tenseless terms. So, even if the direct reference theory were to be modified as Smith’s criticism suggests, the temporal debate would remain unaffected. Smith recognizes this point and only uses the distinction between pronominal and adverbial uses of ‘now’ as a stepping stone to his more fundamental point, which is that ‘now’ also serves to ascribe the property of presentness to events (the initial distinction simply softens the blow of this more radical maneuver; more on this below).

Second, while Smith’s argument is suggestive it is not decisive. To see this, imagine a crime novel in which a murder occurs at a faculty meeting and that the fateful meeting is introduced by the very first lines of the novel as follows,
Noon, June 1 2000. The meeting starts. Professor Jones coughs nervously then begins her opening remarks . . .

It is perfectly clear what is said by the first two sentences in this passage; any competent speaker of English who reads what is written above will understand that the author is expressing the proposition that the meeting starts at noon, June 1 2000. To what are we to look for the contributed sense? I suggest we look to ‘starts’, as Perry suggests (Perry 1977, 494). No other word is a candidate. If the first sentence had been left out of the above passage, the reader would assume that the meeting starts at some time or other; ‘The meeting starts’ would be understood as ‘The meeting starts (at some time or other)’, a time to be determined by subsequent, contextual revelations. It is not, therefore, at all far-fetched to attribute the sense of ‘at’ to ‘starts’, even though, as Smith complains, this would make ‘Noon is when the meeting starts’ and ‘Noon is when the meeting starts at’ truth-functionally equivalent in extensional contexts, which he believes they cannot be since the latter is syntactically ill-formed (Smith 1990, 138). However, though the latter sentence may be syntactically ill-formed, it is easily understood, and one can conceive of English evolving so that sentences ending in indefinite articles become grammatically acceptable. Smith is simply taking surface grammar as decisive; but surface grammar is constantly changing and ought not to be a final court of appeal.

However, the real point of Smith’s attack, as mentioned above, is that once we have accepted that indexicals are more than devices for merely introducing referents, we have less reason to reject the subsequent move to ‘introduce the sense of “is present” or “has presentness” into the adverbial and pronominal uses of “now”’ (Smith 1990, 143). But his argument for this conclusion turns out to be question-begging. Smith again draws our attention to an entailment relation, that between

(16) The meeting is starting

and

(17) The meeting starts now.

Tenseless time plus direct reference can’t explain this relation, Smith contends, because (17), uttered at noon, 1 June 2000 would then express the following,

(18) The meeting starts at noon, 1 June 2000
which does not entail (16) since (18) can be uttered truly when (16) would be false (say on 2 June 2000). The natural move for the tenseless theorist is to paraphrase (16) as,

(16’) The meeting is now starting

which is clearly equivalent to (17). Note that (as argued in section 5 above) even though (17) and (18) are different sentence types, the noon, 1 June 2000 token of (17) is equivalent to any token of (18). Similarly, the noon, 1 June 2000 utterance of (16) is equivalent to all tokens of (18) (assuming the equivalence of (16) and (16’)). Hence, on any given occasion, (16) and (17) have tokens whose truth values are the same so they are indeed equivalent sentence types, whose mutual entailment relations can be understood tenselessly (obviously, any utterances of (16) and (17) that occur at times other than noon, 1 June 2000 are equivalent to a different tenseless sentence type than (18), but they are equivalent to a tenseless sentence nonetheless).

Smith insists, however, that (16) is not equivalent to (17). He claims that while a sentence containing a temporal indexical refers to its time of utterance, and hence expresses a different proposition on each occasion of use, the present tense copula ‘is neutral with respect to dates; it does not refer to the date of its utterance or any other date’ and, therefore, sentences such as (16) ‘express the same proposition on each occasion of use’ (Smith 1990, 141). Smith also puts the point by saying that the present tense of the copula ‘has a constant semantic content’ (Smith 1990, 141).

On the face of it, this claim is extremely implausible. How can two different utterances of ‘The meeting is starting’, said at the start of different meetings, perhaps years apart, each express the same proposition? After all, the respective utterances have different truth conditions, and tokens with different truth conditions cannot be understood as expressing the same proposition. But it is precisely this claim that is essential to Smith’s position. Smith argues that only the attribution of presentness to the meeting in question is a plausible candidate for the constant semantic content of the various utterances of (16). In other words, Smith claims that every utterance of (16) ascribes presentness to a meeting, and this attribution is invariant from occasion to occasion. But, if that is the case, then the only way to explain the entailment relation between (16) and (17) is to claim that ‘now’, in (17), also attributes presentness to the meeting (in addition to its referential role). Therefore, the direct theory of indexical reference is incomplete (Smith 1990, 142–4). So it is obvious that without the ‘constant semantic content’ claim, the argument does not go through. Unfortunately for Smith, the claim is not supported.

What the claim of constant semantic content amounts to is the assertion that on each occasion of use, sentence type (16) expresses the proposition...
that a meeting is present understood as the proposition that ‘nowness’ inheres in a meeting, without specifying when presentness inheres in a meeting. However, even if, despite my reservations, this claim were true, it could hardly serve to justify Smith’s conclusion that the constant semantic content of (16) (and the hidden content of (17)) derives from its attributing presentness to an event, for that has been assumed to be the constant semantic content from the start.

One ought, then, to refrain from following Smith in asserting that present tense uses of ‘is’ are ‘neutral with respect to dates’. How could this claim be true? When one says,

(19) It is raining outside

how could a listener understand this phrase appropriately if she didn’t assume the speaker meant,

(20) It is now raining outside

or something equivalent? If we accept Smith’s position, and view (19) as not implicitly temporally indexed, then why would the listener take the utterer of (19) to be referring to the rainstorm that is outside her window then (which she presumably would do)? After all, each rainstorm is present while it occurs (i.e., simultaneous with its time of occurrence), so how does the listener know (19) refers to the storm she sees at the same time as she hears (19)? Only by taking (19) as equivalent to (20) can we explain this successful act of communication. There is certainly nothing besides the copula, i.e., the speaker’s setting her phrase in the present tense, that would single out the rainstorm that is simultaneous with her utterance. I can see no harm, then, in paraphrasing instances of the present tense ‘is’ as ‘is now’.

Smith objects. He argues that at noon, 1 June an utterance of,

(21) It will be true tomorrow that the meeting starts now

is true, but an utterance, at the same time, of,

(22) It will be true tomorrow that the meeting is starting

is false, hence the embedded sentences must have different semantic contents (Smith 1990 142). However, this argument lacks force as shall become clear upon closer inspection. Smith believes that the utterance of (21) is true because he accepts the claim that a sentence token such as ‘the meeting starts now’ does refer to its time of utterance and therefore he
assumes that the ‘now’ in (21) refers to the time of utterance of (21). Since (21) is uttered at \( t \) and the embedded sentence in (21) also refers to \( t \), then what (21) says is that it will be true, even a day after \( t \), that the meeting and \( t \) coincide – for the B-theorist ‘coincide’ is tenseless while Smith would take it to be past tense; the difference is not important here – which is true.

However, Smith takes the embedded sentence in (22) not to refer to the time of utterance of (22) but only to predicate presentness of the meeting in a way that is ‘neutral with respect to dates’. But now it is hard to see why (22) is false when uttered at \( t \). If ‘the meeting is starting’ simply predicates presentness of the start of the meeting without specifying the date of the presentness, then it is correct to say that it will be true tomorrow that the meeting is starting, for one is saying quite truthfully that that the start of the meeting is present at some time or another obtains tomorrow as well. If, on the other hand, ‘the meeting is starting’ asserts that the meeting is now present then (22) is not false as it is equivalent to (21) (this is the reading that I recommend based on the arguments above).

What reading of (22) could render its token at \( t \) false? If (22) were paraphrased as ‘it will be true tomorrow that the meeting is starting then’, or ‘it will be true tomorrow that the meeting is present tomorrow’ (in both cases the ‘is’ is tensed) then clearly (22), uttered at \( t \), is false. But this interpretation would come at a high cost to Smith’s argument. First, it would contradict his claim that the present tense copula is neutral with respect to dates since it specifies the times at which presentness inheres in the meeting. More importantly, since ‘the meeting is starting then’ and ‘the meeting starts now’ are obviously non-equivalent sentences, the difference in truth value between (21) and (22) would not, on the above understanding, be telling in the way Smith wants since it could not be used to show that ‘the meeting starts now’ and ‘the meeting is starting’ are not equivalent (the latter sentence has dropped out of the analysis). There is, then, no reading of (22) that can be used to support Smith’s claim concerning the present tense copula. Smith’s arguments against the direct theory of reference for temporal indexicals are inconclusive.

9. CONCLUSION

The tenseless theory of time can account for the semantic properties of tensed language, at least those brought to light by Quentin Smith. I do not claim that it is the account of temporal language presented above that settles the dispute in favor of tenseless time, only that a tenseless ontology is compatible with the semantics of tensed sentences. It is important that one’s metaphysics be consistent with the way language works for surely
language has developed in response to the world around us and will, therefore, generally reflect its structure. So even if there is no reason to expect the study of language to be the highest court of appeal for philosophical disputes, it is usually fruitful, as I believe it has been here, to examine the linguistic elements of an important metaphysical issue.

ACKNOWLEDGEMENTS

I would like to thank Krister Bykvist, Ali Kazmi, Storrs McCall, Patrick Moran, Calvin Normore, Anthony Speca and two anonymous referees for helpful comments and criticism. Special thanks are due to Jim Brown and Bernard Katz, whose input improved this essay and whose encouragement and support made it possible.

NOTES

1 Recent accounts include Mellor 1981, 1998 and Smart 1980.
3 Note that (2) should read ‘(1) is uttered at 1:00 p.m. and 1:00 p.m. is when the movie starts’. However, since I have assumed we are talking about a movie that begins at 1:00 p.m., I have left the second conjunct implicit.
4 I am not committing to any substantial understanding of facts. I am simply using the phrase of Smith and Mellor. I consider facts to simply be truth conditions, but nothing here rests on the issue.
5 Oaklander 1991 also draws attention to the equivocation here. However, his response to Smith’s attack on the date analysis of tensed sentences is different from mine (see section 6 below). In particular, my account avoids the objections to Oaklander raised in Smith 1994b and 1994c.
6 These passages are at odds with the reading of Mellor offered in Smith 1994b. Indeed, I find Smith’s interpretation of Mellor on this point to be quite puzzling.
7 See also Oaklander 1991.
8 However, see Oaklander 1990 for an alternative point of view.
9 Similarly, if (5) is uttered in, say, 1999, then one utters a contradiction.
10 David Lewis argues that we might not want to call the combination of sentence meaning with context the proposition expressed; he simply calls it the ‘semantic value’ (Lewis 1980, 34). Lewis also distinguishes the context from the index of an utterance and notes that the truth value of an utterance depends on both (and that, on an alternative, equally valid construal, the proposition expressed depends on both). I prefer Kaplan’s way of putting things, but, of course, one of Lewis’ points is that there is no substantive difference between his explication and Kaplan’s.
11 So I prefer what Lewis (Lewis 1980) calls ‘variable yet simple’ semantic values to ‘constant yet complicated’ semantic values. Though he might be right that there is no philosophical difference, the former seems to be a better portrayal of actual usage.
12 See also Williams 1990.
13 For this and other reasons, Mellor’s new book (Mellor 1998) defends a position much like the date account outlined above. I have no serious disagreements with Mellor’s new stance concerning tensed language (though I did not have access to it until after this essay was composed). It remains worthwhile, however, to examine the weak points of his older account.
14 Smith’s claim that ‘“being present” does not mean (even roughly) “being simultaneous with my utterance”’ (Smith 1994, 114) rings true. I hope to have explained this intuition by arguing that one does not express the proposition that (5) in uttering a token of (5), even if the former gives the correct rule of usage for the latter. In Kaplan’s terminology, (5) is not what was said by an utterance of (5).
15 I am following Smith and writing ‘the meeting’ even though, as he notes, it is an improper definite description and cannot serve to introduce a sense (see Smith 1990, fn. 3). ‘The meeting’ should be understood as short for something like ‘the one and only 2000 admissions meeting of the University of Toronto department of philosophy’.
16 Recall that, as Quine points out (1960, 118), some languages, such as Russian and Polish, have no articles, and the French phrase ‘Il est medecin’ translates ‘He is a doctor’. Different yet successful grammars are possible.
17 Indeed, one might want to identify truth conditions with propositional content (see Boghossian 1990), a move I find plausible.
18 Bernard Katz suggested this interpretation to me.
19 Though it is worth drawing attention again to Oaklander 1990 for a different perspective.

REFERENCES
