

Time, tense, truth

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1. Two distinctions

Let me start with two distinctions. First, temporal features of events can be characterised by two different sets of properties. The first set includes the relations of *earlier than*, *later than* and *simultaneous with*. These relations do not change over time: if an event is once earlier than another, it will always remain so. The other set of relations or properties includes the categories of *being past*, *present* or *future*. This categorisation changes over time: an event which was once future, later became present, and now it is past. Following McTaggart, we call the order of events formed according the relations of the first set the *B* series, and the order formed according to the categories of the second set the *A* series. A fact concerning the position of an event in the *B* series is a *B* fact, a fact concerning the position of an event in the *A* series is an *A* fact. One question in the philosophy of time concerns the reality of the two series. *B* theorists hold that only the *B* series and *B* facts are real; *A* theorists hold that the *A* series and *A* facts (possibly as well as the *B* series and *B* facts) are real.¹

Now to the second distinction. Temporal features of events can be reported by tensed and tenseless sentences. *Tensed* sentences are sentences whose truth-value depends on the time they are used (or so I say for the time being). Tensed sentences cannot be freely repeated over time without the possibility of a change in their truth-values. ‘The tree is now covered with green leaves’ may be true now, but false in six months’ time. Tensed sentences contain tensed verbs (‘was’, ‘will run’ etc.), and often contain temporal indexicals like ‘now’ or ‘at present’ or ‘tomorrow’. *Tenseless* sentences, by contrast, can be freely repeated and their truth-value remains the same. The verbs in tenseless sentences have to be understood tenselessly. Examples of tenseless sentences are sentences expressing relations in the *B* series: ‘The 45th Olympics is (tenselessly) earlier than the 46th Olympics’, or sentences giving the date of events: ‘The date of the battle of Waterloo is (tenselessly) 1815’.²

The first distinction – between *A* and *B* – is metaphysical: it is about temporal features of events. The second – between tensed and tenseless – is semantic: it is about sentences which describe or report temporal features of events. The two terminologies are occasionally mixed: for example the *B* theory is often called the ‘tenseless view of time’, and some philosophers call tensed sentences ‘*A*-sentences’. It is easy to see why this happens: there is a *prima facie* connection between the two distinctions. The truth-value of tensed sentences changes over time, and so does the position of events in the *A* series. The truth-value of tenseless sentences does not change over time, and neither does the position of events in the *B* series. This may tempt us to infer that tensed sentences express *A* states of affairs, and tenseless

sentences express *B* states of affairs. And from this it would follow that the *A* series is real, provided that any tensed sentence is ever true. For if the content of a tensed sentence is that an *A* states of affairs obtains, and the sentence is true, then there must be an *A* fact, and then the *A* series is real.

However, the situation cannot be so simple. Among the sentences which report locations, we can draw a distinction similar to that between tensed and tenseless sentences. The truth-value of spatial indexical sentences depends on the location of their use (or so I say for the time being). These sentences cannot be freely repeated at other locations without the possibility of a change in their truth-values. ‘The closest gas station is ten miles from here’ may be true at one location, and false at another. In English (or in any other language I know) there is no grammatical analogy of verb tense for location; these ‘placed’ sentences, as we may call them, contain spatial indexicals like ‘there’ or ‘ten miles from here’. In contrast, the truth-value of ‘placeless’ sentences does not depend on the place of their use; they can be freely repeated at any place without a change in their truth-value. Examples are ‘Budapest is in Hungary’ or ‘Paris is to the East of London’.

If the truth of some tensed sentences straightforwardly entailed the reality of *A* facts, then it seems that the truth of some placed sentences would entail the reality of an analogous feature of space. But most participants in the debate about the reality of the *A* series – on either side – would deny that the temporal *A* series has a spatial analogue. This means that we cannot readily infer from the phenomenon of some sentences changing their truth-value according to a certain parameter that the world has a corresponding *A* feature.³ Since there is no easy transition from the semantic phenomenon to the metaphysical one, in what follows, I shall proceed carefully, keeping the two terminologies apart: I use the expressions ‘tensed’ and ‘tenseless’ as semantic categories, to indicate these features of sentences, and the qualifications ‘*A*’ or ‘*B*’ (as in ‘*A* theory’ or ‘*A* series’ or ‘*A* fact’) as metaphysical distinctions, to indicate a view about the nature of time.

2. Some connections between temporal indexicals and the nature of time⁴

A theory of time is a theory of the nature of temporal reality. Temporal reality determines the truth-value of temporal sentences, and temporal language provides a medium to share our conception and knowledge about time with others. Therefore it is reasonable to ask how a theory of time can account for the way the truth of temporal sentences is determined. This poses a challenge for both the *B* theorist and the *A* theorist.

The obvious question to the *B* theorist is this: how is it possible that the relations determining temporal reality are permanent, but the truth-values of some temporal sentences are not? In some earlier versions of the *B* theory, it was suggested that tensed sentences can be translated to tenseless ones, and since *B* states of affairs are sufficient to account for the truth-value of tenseless sentences, we don’t need to posit *A* facts. However, many philosophers have subsequently become convinced that tensed sentences are not always translatable to tenseless ones⁵, so the question

became of how we can explain that *B* facts are sufficient to determine the truth-value of tensed sentences. Of course, the claim that we do not need to posit *A* facts may not be a decisive argument for the *B* theory in itself; however, assuming that there are independent arguments, this move would protect the *B* theory from a serious objection. Various theories have been proposed, these theories have been extensively criticised, the criticisms were answered, and challenged again.

While there is an obvious challenge to the *B* theory in accounting for temporal language, perhaps less attention has been paid to the fact that the *A* theory is compatible only with a certain view of indexicals and tensed sentences. Suppose there are genuine *A* states of affairs. If *A* states of affairs may cease or come to obtain with the passage of time, and if there are sentences which report *A* states of affairs, then these must be sentences whose content genuinely changes truth-value. In other words, it has to be the case that some content *C* is true at a time, and *the very same content C* is false at another. McTaggart himself has made this connection. In discussing what is required for genuine change, he considers Russell's view that propositions which express the position of events in the *A* series, such as 'It is now raining', or 'The Battle of Waterloo is in the past' are ambiguous, and "to make them definite, we must substitute propositions which are always true or always false – 'The Battle of Waterloo is earlier than this judgement', 'The fall off rain is simultaneous with this judgement'" (McTaggart 1927, 459). McTaggart then continues as follows;

If he is right, all judgements are either always true, or always false. Then, I maintain, no facts change. And then, I maintain, there is no change at all. (ibid.)

We may disagree with the last sentence; I will not consider the question of whether the *B* theory is really unable to account for change, as McTaggart suggested. However, I think McTaggart is right on another point: that if we want a genuine *A* series, we cannot accept the view that tensed sentences ambiguously express propositions with unchanging truth-values. The view had defenders before and after Russell. Frege for example held that if the sentence 'This tree is covered with green leaf' is true at one time and false at another, then it expresses different thoughts on the two occasions, and these thoughts are true or false timelessly (Frege 1918, 103). But if what is really expressed by such sentences – the 'complete thought', as Frege calls it – is true or false timelessly, it is hard to see how it could express an *A* states of affairs. The Frege-inspired doctrine of propositions, which holds that the content of a sentence is a proposition, and propositions have a fixed truth-value within a world, would have similar implications.⁶

The *A* theorist has to show that there is a viable alternative to these views. Of course, one could hold that the *A* series is real, that there are irreducible *A* states of affairs, but it is not possible for the same content to be once true and then false – but in that case, we would have to admit a serious limitation of our linguistic expressive powers: even though the *A* series is real, and even though we may have some way of

experiencing the passage of time, we can never express in a language an event's position in the *A* series.

The *B* theory is compatible with the doctrine of propositions, but notice that – at least with certain assumptions added – it is also compatible with the view that a sentence expresses the very same content at different times. We would simply have to assume in this case that the same content is made true or false by different (*B*) facts on different occasions. Similar assumptions may be accepted in other cases. For example, it is true that there are women Nobel-prize winners in physics. This is made true by the fact that Marie Curie and Maria Goeppert-Mayer won a Nobel-prize in physics. In another possible world, different women may have won the Nobel-prize, and thus the facts concerning the gender of different individuals would make the same sentence true. We could say that as far as the issue of female Nobel-prize winners is concerned, there are no facts beyond the gender of each individual Nobel-prize winner – and these make true or false the sentences that there are female Nobel-prize winners, that there are two female Nobel prize winners in physics, and so on. Yet the content of the sentence 'There are female Nobel-prize winners in physics' or 'There are fewer than five female Nobel-prize winners in physics' could be the same even if the underlying particular facts varied. The suggestion is to treat the case of tensed sentences analogously: the same content is made true by different *B* facts on different occasions.

But wouldn't this raise a similar worry as before – that *B* facts are not expressible, since the unchanging contents wouldn't track the changing *B* facts? The answer is no, because we have tenseless language at our disposal to express *B* facts (similarly, we could express the particular facts that made true the sentence 'There are female Nobel-prize winners' by using names of individuals).

3. The truth of sentences

Let us see then whether the *A* and the *B* theory can answer the challenges described in the previous section; whether the two theories can account for how temporal reality determines the truth of temporal sentences. First let me ask how the truth-value of a sentence is determined in general. By a sentence here I mean an interpreted sentence; some syntactically identifiable symbol endowed with a certain meaning. Obviously, a lot more could be said about how symbols get endowed with meaning, or about what sorts of things meanings are, and the answers may have a bearing on how truth-values are determined. For example, suppose one accepts the Fregean theory that sentences have a meaning because they express thoughts, and thoughts are the bearers of truth-values, having their truth-values eternally – this theory, as I mentioned in the previous section, is incompatible with the claim that genuine *A*-facts are expressible in the language. Any attempt to give a theory of meaning would exceed the scope of this paper, so I would like to remain as neutral on these issues as I can. I will, however, end up disagreeing with the Fregean theory.⁷

So how is the truth-value of a sentence determined? Undoubtedly, whether a sentence is true or not, depends on how the world is. This means that strictly

speaking, no sentence is true or false in itself, but only in, or together with, or with respect to a certain state of the world.⁸ As customary, I shall use the parlance of possible worlds to talk about various states of the world.

What does it mean that the truth of a sentence is determined or evaluated *with respect* to a possible world, or that the sentence has a truth-value *in* a world? One could try to unpack this idea in the following way: if I say ‘The number of planets is nine’, this is true if things are as the sentence says they are. As it happens, the sentence *is* true, for the number of planets *is* nine. However, the sentence is contingent, and there are worlds where it is false. Had I been placed in another world, and I said *there* ‘The number of planets is nine’, the sentence would be false.

What we have done here is that we *fixed the world* which contributes to the determination of truth-value by means of tying the sentence to an event of an *utterance*. We imagined an utterance as a dated and located event taking place in a certain world; so when we evaluated the truth of the utterance of a sentence, so conceived, we didn’t need to ask any further question as in the case of sentences: ‘well, with respect to which world?’, for the question was settled. And this may suggest that the proper bearers of truth-values are utterances, for in an utterance, we find all the ingredients which are necessary and also sufficient for determining a truth-value: a sentence with a meaning, plus a certain state of the world. The idea would then be that a sentence is true if the world where it is uttered is such that things are as the sentence says they are.

Such an event taking place would surely be *sufficient* for the truth of the sentence, but I don’t believe it is necessary for it. I think that we can make perfect sense of the idea that a sentence is true of a world, or in a world, even if it is never uttered there. Things could be in a world the way the sentence says they are, even if no-one ever utters the sentence.

This idea is compelling enough in itself, but it can also be further supported by two sorts of familiar considerations. It seems that the sentence ‘There are no utterances’ could be true of a world – that is, there could be a world where there are no utterances. But it is clear that this sentence cannot be uttered in that world. Maybe this example does not convince those who believe that if there are no utterances (or at least thought-episodes which are expressible by utterances), then there is no truth. The idea would be that the existence of truth essentially requires some representative device: thought or language. But even if we accept something like this, it still does not seem necessary for the truth of a sentence that it is uttered. It is sufficient for the truth of a certain English sentence in a certain world that an utterance of the French sentence ‘Le nombre de planètes est neuf’ is true in the world in question. If in that world, things are in the way as ‘Le nombre de planètes est neuf’ says they are, then the appropriate English sentence is going to be true, even if it is never used.

I suppose these considerations could be resisted. One could insist that the question of truth arises only with respect to utterances, or actual thought episodes. It can be suggested then that our judgements about counterfactual situations require the appropriate evaluation of an actual utterance of a modal statement – ‘The number of

planets could have been eleven’, or ‘It could have been the case that there are no utterances’ – with respect to the world of its utterance, that is, our world. And as for the second kind of example, if someone digs his heels and holds that only utterances can be true or false, then the question of whether the English sentence which translates the French sentence ‘Le nombre de planètes est neuf’ is true or false simply does not arise until it is uttered; and once that happens, there is an utterance to be evaluated.⁹

Arguing against this view would require a more extensive study of the nature of truth and meaning than I can supply here. I will assume, as I find it overwhelmingly plausible, that there are many unsaid truths and falsehoods about this world as well as about others, truths which nonetheless could be expressed by sentences; and therefore a sentence could have a truth-value in a world even if it isn’t uttered there. If this is right, then we must have some notion of ‘evaluation with respect to a world’ which is different from seeing how things are in the world where the sentence is uttered.¹⁰

4. The truth of indexical sentences

In the case of contingent but non-indexical sentences, truth is determined by two factors: the meaning (or content) of the sentence, which is the same throughout all its uses, plus the world with respect to which the sentence is evaluated. Such sentences are not true in themselves, but only within or with respect to a world. The truth of a contingent *indexical* sentence depends on these factors – meaning and the world of evaluation –, and it *also* depends on the context of its use (or so I say for the time being) that is, on who, when, where etc. uses it. In order to determine the truth-value of such a sentence, we need something more besides the sentence and a world: a certain feature of a context. This may suggest something like the following line of thought, formulated here by Nathan Oaklander:

Now consider the sentence-type

(1) It is now 1980

and call it “*S*”. What are the truth-conditions of *S*? Insofar as *S* is construed as a tensed sentence-type, it does not strictly speaking have truth-conditions; only its tokens do. As a consequence, we should say that, strictly speaking, tensed sentence-types have no truth-value. Nevertheless, we can speak of the “truth conditions” of *S* in a Pickwickian sense, in which case they will vary from time to time; that is, they will depend on when a token of *S* is thought or uttered or written down. (Oaklander 1994, 59-60)

Utterances or tokens are dated and located events which are produced in some particular circumstances; an utterance always takes place at some time, at some place, in some world. When we are evaluating the truth of the *utterance* of a sentence, we need not ask any further question as in the case of sentences: ‘well, with respect to

which time?’ (place, etc.), for the question is settled by the very nature of the utterance. Just as before, when we come to considering utterances, we find all the ingredients which are necessary and also sufficient for determining a truth-value. And this may suggest that *only* tokens or utterances can be properly considered as bearers of truth, as indeed it is stated in the above quotation.

We have seen, however, that this line of thought can be questioned. It’s true that an utterance does have everything which is needed for the determination of a truth-value; but we are not forced to accept that *only* utterances do. If we can assess the truth of sentences with respect to worlds without assuming that they have to be uttered in that world, why couldn’t we assess the truth of indexical sentences with respect to indices, without assuming that they are actually uttered at that index? This choice would be supported by similar considerations as before. Of any time, of any place, there could be many unsaid truths or falsehoods which nonetheless would be expressible in a language; so there are sentences which have a truth-value with respect to that time or place without being actually uttered. This thought, plausible in itself, also suggests a way of dealing with the question of how the sentence ‘There are no utterances now’ could have been true once upon a time; and would help to understand how an utterance of the French sentence ‘Personne ne parle anglais maintenant’ could be sufficient for the truth of a certain English sentence, even if the English sentence is never uttered at that time.

The idea, to repeat, is this: while it is true that a temporal indexical sentence has a truth-value only with respect to a time, and while it is also true that an utterance of the sentence does deliver the required parameter of time, still, having an utterance of the sentence is not the *only* way in which the elements required for the determination of a truth-value – sentence and time – may come together. For we can also make sense of the idea that an untokened sentence is true or false with respect to a certain time – just as we could make sense of the idea that an untokened sentence is true or false with respect to a certain state of the world.

5. Truth at a time

In the debate about the theory of temporal indexicals, numerous attempts were made to supply truth-conditions for temporal indexical sentences. Truth-conditions are provided by biconditionals whose left hand side states that something is true, and the right hand side is supposed to give necessary and sufficient conditions:

... true iff ...

If the left hand side states that something is true, we better make sure that what we find there does actually determine a truth-value. We saw that a contingent temporal indexical sentence is not true in itself, but only with respect to a world and a time; so all these factors are needed on the left-hand side. So we may provisionally start the biconditional as:

‘The forest is burning’ is true with respect to a world w , and a time t , iff ...

We could – but need not – also start as

An utterance U of ‘The forest is burning’ is true iff ... “

since an utterance is a dated and located event, and the very nature of the utterance contains everything which is needed for the determination of a truth value. But if I may be pedantic, I do not think it is helpful to formulate the biconditional for example in the way Nathan Oaklander does (Oaklander 1994, 63):

...any token S of [‘It is 1980’] is true with respect to the context in which it is produced (...) *iff* the year of that context is 1980

since this could subtly suggest that *in addition* to the utterance, we *also* need its context, and perhaps that the truth-value of a certain token may be evaluated with respect to *another* context. In fact, once we have a token, it has a context of production coming with it, and of course its truth is evaluated with respect to that context and no other. The time of the utterance makes a difference to its truth-value, and we may need to incorporate this in the truth conditions (as it is done in the above schema on the right hand side). But if we need to record the time of the utterance, I suggest it is better to do it for example in this way:

...any token S of ‘It is 1980’ (tokened at t) is true iff ...

We have to have sufficient factors to determine a truth-value on the left hand side – it will not do, however, to have something which comes short of determining a truth-value (at least for our purposes). Laurie Paul’s theory is similar to the present proposal, in that she suggests to evaluate the truth of sentence types with respect to times, instead of evaluating tokens (though Paul’s theory is rather different in the final conclusions, see Paul 1997). She offers the following:

‘It is now 1980’ is true iff the time of its context of evaluation is 1980

The left hand side here is not something that can be true or false; it lacks the specification of time. (I am not sure why Paul chooses this formulation, but this seems to me the reason why she becomes subject of quite legitimate criticism by William Lane Craig, in Craig 1999. More on this in section 8.) Once we are clear about the fact that the truth of a sentence is to be evaluated with respect to a certain time, we should move all the truth-value determining factors to the left hand side of the biconditional.

In what follows, I will tacitly assume world-dependence, and will be largely concerned with what it is for a sentence to be true with respect to a time t , or put it

more simply, what it is to be *true at t*. Now this, I believe, depends to a large extent on what *t* is – or what it is to occupy a certain position in time. We have at least two theories about this. *B* theorists believe that a position in time is fully characterised by its position in the *B* series; so either giving a date, or specifying *earlier than*, *later than* and *simultaneous with* relations to other positions exhausts what it is to occupy that position in time. *A* theorists, in contrast, hold that there is something more involved in occupying a certain position in time: for each position belongs to the changing categories of *past*, *present* and *future*. Saying merely that *t* equals to 09.34, 30 August 2004 leaves out something essential that pertains to the nature of *t*: that *t* was, or is, or will be.

These views affect the way we may want to start the biconditional. Suppose we say:

‘The forest burning’ is true at *t* iff ...

If the ‘is’ on the left hand side is read tenselessly, and we regard this as telling one half of the story about what it is for a certain sentence to be true at a time, then it may look as if we already committed ourselves to the claim that tenseless truth exhausts what there is about the truth of temporal sentences. But we haven’t, at least not in our present considerations, seen any reason to make such an assumption. If we thought it was unproblematic to start the biconditional in this way, we could follow simply by repeating it on the other side:

‘The forest burning’ is true at *t* iff ‘The forest burning’ is true at *t*

How could anyone object to this? But here we have an easy victory for the *B* theory: for on the right hand side we have a *B* fact – the tenseless fact of the truth of a sentence with respect to a certain time – and so we would apparently have shown that a *B* fact is sufficient for the truth of the sentence. This is hardly satisfactory.

Therefore it seems that we have to make provisions for the view of those who think that it is essential to the nature of *t* whether it was, is or will be – that is, whether it is past, present or future. In which case we would start the biconditional in the following way:

The sentence ‘The forest is burning’ was/is/will be true at *t* iff ...

At this stage of the inquiry, since we are undecided about the nature of *t*, we should issue truth-conditions in two different formats. If *t* has a position in the *A* (possibly as well as in the *B*) series, then the truth-conditions can be given as:

- (A) The sentence ‘The forest is burning’ was /is/will be true at *t* iff the forest was/is/will be burning at *t*.

depending on whether t is past, present or future at the time of formulating the truth-conditions.¹¹

If t has a position only in the B series, then

(B) The sentence ‘The forest is burning’ *is* true at t iff the forest *is burning* at t .¹²

will do, where ‘is’ and ‘is burning’ are to be read tenselessly. If we had a way of reading the verbs which was neutral between reading them as tensed or tenseless, then we could choose that reading to state the truth-conditions. In that case, the formulation would not make it clear whether the right hand side states an A or a B states of affairs.

I argued that the fundamental truth-value bearers are sentences (types) evaluated with respect to a certain time. The theory can also offer truth-conditions for tokens or utterances. Suppose that a token of a certain sentence is produced at t ; the truth-value of the token is determined by the truth-value of the sentence evaluated with respect to t . Since these truth-conditions again mention positions in time, and since there are at least two views (A and B) about what it is to occupy a certain position in time, the truth-conditions of utterances again have to be issued in two versions:

(uA) If a token U of the sentence ‘The forest is burning’ was/is/will be produced at t , then U was/is/will be true if the sentence ‘The forest is burning’ was/is/will be true at t

depending on whether t is past, present or future at the time of formulating the truth-conditions; or alternatively:

(uB) If a token U of the sentence ‘The forest is burning’ *is* produced at t , then U is true if the sentence ‘The forest is burning’ *is* true at t .

The question of the truth of an utterance arises only conditional on an utterance actually being produced; the truth or falsity of a sentence with respect to a time t does not in itself imply anything about the truth of any utterance, unless of course the sentence itself says something about utterances.

6. Truth in 1896

We said earlier that a theory of time should explain how temporal reality determines the truth-value of temporal sentences. If the explanations offered are found wanting, this is bad news for the theory. And if in the present case, either one of (A) or (B) would prove superior to the other, this would help the case of their corresponding theories.

Quentin Smith has offered an argument (in Smith 1999), which, applied to our present suggestion, would show that (B) style truth-conditions are not acceptable, and

we should instead prefer (A). (In what follows, I use my own examples.) Suppose we want to provide truth-conditions for the sentence ‘Today is All Fools’ Day’. The (B) style truth-conditions would be:

‘Today is All Fools’ Day’ is true at t iff it is All Fools’ Day at t .

For the sake of simplicity, we give ‘ t ’ as a date. Consider two applications of the tenseless schema:

‘Today is All Fools’ Day’ is true on 1 April 1896 iff it is All Fools’ Day on 1 April 1896.

‘Today is All Fools’ Day’ is true on 1 April 2005 iff it is All Fools’ Day on 1 April 2005.

When I am writing this, on the 1st of April 2005, it is All Fools’ day. By the time anyone reads this, 1 April 2005 will be in the past; just as 1 April 1896 is already in the past. Smith thinks that it is simply inappropriate to say that anything *is* true with respect to a time which is in the past; we could of course ask what *was* true in 1896, but it makes no sense to ask what *is* true in 1896. So whereas I can *now* say that something *is* true on 1 April 2005, my readers will not be able to say this, and we should all be saying that

‘Today is All Fools’ Day’ *was* true on 1 April 1896 iff it *was* All Fools’ Day on 1 April 1896.

That is, we should give truth-conditions in the style of (A). If Smith intends this as an argument for the *A* theory, then the justification for preferring this version cannot be, as it was in *my* reasoning above, that we assume the *A* theory of time. That would be question-begging. Instead, there should be an independent semantic fact which licenses saying that a sentence *was* true at a past t , but does not license saying that a sentence *is* true at a past t .

Undoubtedly, Smith has a point: it does sound more natural to say ‘a sentence was true in 1896’ than to say ‘it is true in 1896’. Or as Prior put it, “to say in 1955 or 6 that X and Y (not ‘were’ but) ‘are’ identical in 1807, is to say something that grates upon the ear and the mind intolerably” (Prior 1968, 82). Actually, I see the point about the ear, but I am not so sure about the mind. That is, I am not convinced that this observation about usage is strong enough to carry sufficient philosophical burden. It is a fact that when we believe that some events were in the past, we tend to express their temporal relations by using past tense verbs. For example, in an ordinary context, we would say that

The First World War *was* earlier than the Second World War.

rather than saying that

The First World War *is* earlier than the Second World War.

I have, however, no difficulty in understanding that the ‘earlier than’ relation is such that once it held between events, it still holds; that ‘earlier than’ relations between events do not change over time. I do not need to puzzle, just because the first version is more familiar than the second, over the question of how it could *still* be true that the First World War stands in the ‘earlier than’ relation to the Second World War. Unless, of course, I believe for example that the past does not exist, or doubt that things existing in time could ever stand in tenseless relations – but then my choice is motivated by a prior metaphysical conviction about the nature of time, and we are suspending those considerations for the moment. Furthermore, in some contexts, stylistic conventions easily license the use of present tense even with respect to events we know to be in the past. For example, in a chronology of Descartes’s life, we may read something like ‘in 1606, Descartes begins as a boarder at the Jesuit college of La Flèche’.

I do not therefore regard Smith’s argument as decisive. Maybe the language of philosophical theory requires a departure from ordinary usage – it wouldn’t be the first time. There is no weighty independent reason to prefer (A) style truth conditions to (B) style truth-conditions. The main reason to choose one over the other would be a prior preference for the *A* or the *B* theory.

7. Answering the challenges

I have said earlier that it can be expected from a theory of time that it accounts for how the truth of temporal sentences is determined, and that this poses specific challenges for both the *A* and the *B* theory. If these challenges cannot be met, we have an argument against the theory. To this extent a theory of temporal language can, in principle, be used to argue for or against a metaphysical theory of time. I cannot claim that the challenges listed here exhaust all the possible ones; there may be further connections between a theory of time and a theory of temporal language. But at least as far as these challenges are concerned, the theory of temporal language I find most plausible – the one outlined on the preceding pages – answers them all. This means that as things stand, what we know about temporal language remains neutral between the *A* and *B* theory of time.

The main idea, to remind, was this: the truth-value of a tensed sentence is determined with respect to a time. In order to raise the question of whether a sentence would be true or false with respect to a time, we do not need to assume that the sentence is uttered at that time, for the content of the sentence, together with the specification of time and world, simply determines truth-values together. When we establish the conditions for a tensed sentence being true at a time *t*, we have to make provisions for the various views concerning the nature of *t*. Depending on whether *t*’s

nature is determined by a position in the *A* or *B* series, we have to issue truth-conditions in two different formats.

The *A* theory needed an accommodation of the idea that the very same content can be true at some time, and false at others. The theory outlined here can do this. It is widely accepted that a sentence can express the same content in two possible worlds, while being true in one, and false in the other. On the present suggestion, the contribution of time to the determination of a truth-value is analogous to the contribution of a world to the determination of a truth-value. Thus the theory naturally yields the result that a sentence with the same content can be true at one time and false at another. This, as we saw, was also compatible with the *B* theory. If we look at the *B* version of the truth-conditions, we can see that at different times, different *B* facts are responsible for the truth-value of the same indexical content. This, incidentally, also answers the challenge posed to the *B* theory: unchanging *B* facts can explain the fact that the truth of tensed sentences changes in time. We saw that at different times, different *B* states of affairs are required for the truth of the same sentence; some of which obtain, and some of which don't.

8. Coda

My case is complete; but let me add some considerations to illustrate some important differences between the present suggestion and some alternative accounts.

One of the proposals that take the truth-value of utterances as basic is the token-reflexive theory, which was offered in support of the *B* theory of time.¹³ Consider the tensed sentence:

(1) It is now 1980.

Call a particular utterance of this sentence '*S*'. Remember, the theory attributes truth-values primarily to utterances (or tokens). The truth-conditions are given as follows:

A particular token *S* of (1) is true iff *S* occurs in 1980.

However, consider another tensed sentence,

(2) 1980 is present.

Any token of (1) will be distinct from any token of (2), so it seems right to give another name to a particular token of (2), say '*V*'. The token reflexive theory gives the conditions for there being a true utterance of (2) as follows:

A particular token *V* of (2) is true iff *V* occurs in 1980.

The original sentences, (1) and (2) are synonymous, and they report the same state of affairs. But on the token-reflexive analysis, their truth-conditions are different: a

token of (1) is made true by *S*'s occurrence, a token of (2) is by *V*'s occurrence in 1980. These are clearly different states of affairs: one may obtain independently of the other, since *S* may be uttered in 1980 without *V* being uttered in 1980, and the other way around. Something must have gone wrong.¹⁴ Nathan Oaklander (Oaklander 1994) offers the following reformulation to fix the problem:

Any token *S* of (1) is true with respect to the context in which it is produced *iff* the year of its context is 1980,
Any token *V* of (2) is true with respect to the context in which it is produced *iff* the year of its context is 1980.

Here the truth-conditions appear to be the same: at least what we read on the right-hand side of the biconditional are the same. But as Laurie Paul (Paul 1997) points out – following Quentin Smith's argument in Smith 1994b –, this solution gives only a semblance of the sameness of truth-conditions for (1) and (2), for the 'it' in the truth-condition contains an equivocation. Properly replaced by the tokens they refer to, we get

Any token *S* of (1) is true with respect to the context in which it is produced *iff* the year of *S*'s context is 1980.
Any token *V* of (2) is true with respect to the context in which it is produced *iff* the year of *V*'s context is 1980.

So the truth-conditions are different. Heather Dyke (Dyke 2002, 347) offers another, but essentially similar way of fixing the token-reflexive theory: her solution is to call both tokens by the same name. But this move seems to be as open to the charge of equivocation as Oaklander's suggestion was.

To overcome this problem, Paul suggests, just as I did in this paper, to evaluate the truth of sentence types rather than utterances or tokens. Curiously, Paul's own solution, though essentially on the right track in this respect, seems to suffer from the same formal deficiency as Oaklander's suggestion. Her proposal is this:

'It is now 1980' is true *iff* the time of its context of evaluation is 1980
'1980 is present' is true *iff* the time of its context of evaluation is 1980.

But as William Lane Craig points out in Craig (1999), these formulas also contain an equivocation on 'it', though in this case the 'it' refers to different sentence-types in the two different cases. Writing out properly, we would get

'It is now 1980' is true *iff* the time of the context of evaluation of 'It is now 1980' is 1980
'1980 is present' is true *iff* the time of the context of evaluation of '1980 is present' is 1980

and this again produces different clauses on the right hand side of the biconditional. I have already indicated in section 5 what seems to be the theoretical problem with Paul's proposal. If we agree that what is true is a *sentence with respect to a context*, then this should figure on the left hand side of the biconditional. So we get

'It is now 1980' is true with respect to a time t iff t is 1980.
'1980 is present' is true with respect to a time t iff t is 1980.

Where the right hand sides are the same, just as they should be.

The above two sentences are applications of my (B) schema to sentences (1) and (2); applications of (A) would of course have different results. I argued that the choice between (A) and (B) is determined by one's prior commitment to the *A* or the *B* theory. Therefore I would like to emphasise that – until further notice – even the amended version of Paul's theory can only *save* the *B* theory from an objection, but it cannot provide an advantage for the *B* theory over the *A* theory.

Applications of (B) are quite similar to the usual formulations of the date theory, which, besides the token-reflexive theory, the other main account of temporal sentences suggested by the *B* theorists (for a background on the date theory and its relation to the *B* theory, see Faye 2003). The following version is given by Robin Le Poidevin:

Any token of 'e is occurring now', tokened at t , is true iff e occurs at t . (Le Poidevin 2003, 307).

Le Poidevin's suggestion – like other versions of the date theory, and unlike the present proposal – considers tokens as the primary bearers of truth-values, and formulates the truth-conditions accordingly. The above schema is basically the same as my (*uB*) at the end of section 5; that is, (B) style truth-conditions applied to utterances. Therefore I would not object against the date theory as I did against the token-reflexive theory, since the date theory is equivalent to a particular application of my own proposal.

Two things though. One is that although the date theory – just as Paul's similar theory – offers a way for the *B* theorist to save herself from certain objections, it is not, in itself, an argument for the *B* theory against the *A* theory, unless one shows the independent superiority of (B) schemas over (A) schemas.¹⁵ The second point is that since I believe in unspoken or unwritten truths, I find the date theory's limitation of truth-value to tokens unmotivated. Consider the frequently discussed case of the time when there are no utterances. The date theory would give us the following:

Any token of 'there are no tokens now', tokened at t , is true iff there are no tokens at t .

This means that no *token* of ‘there are no tokens now’ is ever true, which is of course the right result. But it is still *true of some time* that there are no tokens then – or so I claim –, and this can be most easily explained if we extend the realm of truth-bearers to untokened sentences, evaluated with respect to a certain time.¹⁶

¹ There is another, closely connected question about the reality of the past and the future. I shall not be able to discuss that question in this paper; I shall confine my attention to the reality of – any part – of the *A* series.

² This is not an exhaustive categorisation of all sentences: the distinction is drawn only with respect to those sentences which report temporal features of events.

³ Even if it is argued that space has a feature analogous to the *A* series, as in Craig 1996, the conclusion is not directly drawn from the fact that there are ‘placed’ sentences in a language.

⁴ The following points of connections between theories of temporal language and temporal reality may not be complete; I merely indicate the ones I deal with in this paper.

⁵ The main argument is that expression of certain beliefs is essentially indexical – without the indexical element, the connection these beliefs have to other mental states is unexplained. See Perry 1979.

⁶ Arguably A. N. Prior makes a related, though somewhat different point in his famous ‘Thank Goodness That’s Over’ article (Prior 1968). In the paper, Prior considers a certain suggestion to develop a logically rigorous ‘substance-language’ (as opposed to the space-time language of four-dimensionalism). On this particular suggestion, the properties of an individual should be understood as ‘complete’ properties, relativised to a time, so a subject-predicate sentence has the form ‘*S* is *P-at-t*’. On this view, ‘The leaf is green-in-August’ and ‘The leaf is green-in-September’ do not attribute the same property to the leaf, and hence the fact that the first is true and the second is false does not mean that the individual first has and then lacks the same property. Prior then claims that “From this leaf whose ‘complete’ properties never change, to the pure ‘four-dimensional worm’ of Quine, Kotarbinski, etc. is a very short step indeed.” I think the step is bigger than Prior suggests, but the underlying point seems to be similar to the one made here: that the *A* theory of change which Prior wants to defend is not accommodated by a language which makes ‘The leaf is green’ ambiguous among various versions of ‘The leaf is green-at-*t*’.

⁷ I argue elsewhere that we can resist Frege’s claim that for example the sentence ‘The tree is covered with green leaves’ expresses different thoughts at different times, each with its own eternal truth-value. On the alternative picture, the content of such a sentence remains constant, as described for example by Aristotle in his *Categories*:

Suppose, for example, that the statement that somebody is sitting is true; after he has got up this statement will be false. Similarly with beliefs ... [this is different from the way substances change] For in the case of substances it is by themselves changing that they are able to receive contraries. For what has become cold instead of hot, dark instead of pale, good instead of bad, has changed ... Statements and beliefs, on the other hand, themselves remain completely unchangeable in every way; it is because the actual thing changes that the contrary comes to belong to them. For the statement that somebody is sitting remains the same; it is because of the change in the actual thing that it comes to be true at one time and false at another.

Similarly with beliefs. (*Categories* 4a 21- 4b 2).

Accounting for the content of indexical sentences involves very complex issues, and again, even a superficial general treatment of this question would go far beyond the scope of the present paper. I hope to account for these issues more fully elsewhere; see e.g. Farkas 2006, section 4.

⁸ This is obviously true at least for contingent sentences. I think it is also true for necessary sentences: for the truth of a necessary sentence – just like the truth of all sentences – depends on how the world is; the special feature of necessary sentences is that they report a constant feature of the way the world is.

In any case, my argument needs only the acknowledgment that there are *some* sentences which are true or false only with respect to a certain state of the world, and this surely holds for contingent sentences.

⁹ There is a further question here though, which will be addressed in section 8: that the truth-conditions of these two sentences are expected to be equivalent.

¹⁰ Consider the notion of a *proposition*. A proposition is a non-linguistic abstract entity, which is identical to, or at least entails, a function from possible worlds to truth-values. Whether or not propositions are ultimately acceptable entities, I think their appeal is partly to be found in the fact that they easily accommodate the idea that the truth of a sentence depends on a world, without having to assume that the sentence is actually uttered in that world.

¹¹ It is crucial that *truth at t* itself should be tensed if we accept the *A*-theory of time; so the qualifications ‘was/is/will be’ have to figure also on the left hand side of the biconditional. Robin Le Poidevin discusses a theory which he calls the ‘Complex Tensed Theory’ and which he takes to be a theory of temporal indexicals suitable for the *A*-theorist’s purposes. His tensed schema is this: “Any token of ‘*e* is occurring now’, tokened at tensed time *t*, is (now) true if and only if *e* occurred/is occurring/will occur at *t*” (Le Poidevin 2003, 308). Le Poidevin attributes a theory of this kind to E.J. Lowe (his reference is Lowe 1987), mistakenly, it seems to me, since Lowe’s own suggestion is much closer to (A) as just presented. Anyway, it is not clear why we should assess the truth of a past utterance with respect to the *present*, as Le Poidevin’s Tensed Theory suggests; a token should always be evaluated with respect to the time of its production, which is unique, since a token is a dated concrete event. The way to include the passage of time into the schema is not to adjust the *time* with respect to which we evaluate, but to make adjustments according to whether the time of production is, or was, or will be.

¹² Similar adjustments would be called for in giving the truth conditions of e.g. past tensed sentences.

(A) ‘The forest was burning’ was/is/will be true at *t* iff the forest had been / was / would have been burning at a time before *t*.

(B) ‘The forest was burning’ *is* true at *t* iff the forest *is* burning at a time *t*’, where *t*’ is earlier than *t*.

¹³ The original, widely influential presentation of the theory is in Mellor 1981. A recent defence is Dyke 2002.

¹⁴ The objection was presented in Smith 1993 and in Smith 1994a.

¹⁵ Le Poidevin presents an argument in his 2003 to support the *exclusivity* of the date theory; but since the two versions of *A* friendly theories he considers are both different from the present proposal – see also endnote 11 –, his argument is not effective against my neutralist conclusion.

¹⁶ This paper is based on research I’ve done during my visit at the *Centre for Time* at the Department of Philosophy, University of Sydney, and I would like to thank Huw Price for inviting me. Some of this material was presented at the University of Sydney and at the RSSS at the ANU in Canberra, and I am grateful to audiences for a very useful discussion. I also greatly benefited from the helpful comments by the anonymous referees for *Synthese*.

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