

# Arthur Prior's No-Property Theory of Tense

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Все пройдет, как с белых яблонь дым! — S. Esenin

Human beings experience time as the succession of past, present, and future, and this experience manifests itself at least in the indo-european languages as linguistic *tense*. The phenomenon of tense, the indication of temporal information relative to the present,<sup>2</sup> gives rise to a number of questions in metaphysics and in the philosophy of language. With respect to language, two of the main questions are: How are we to analyze tensed discourse? How does the specification of tense modify a sentence? With respect to metaphysics, it has been asked whether tense is real or only an appearance, i.e., whether there is something about the world ‘as it really is’ corresponding to the distinction of past, present, and future or not. If there is, does this teach us anything about the ‘basic building blocks of the world’? If not, how can it be that the experience of a tensed world arises in the first place and that the phenomenon of tense is so pervasive? A further question concerns the interrelation of these fields: can semantic analysis help us gain knowledge about the metaphysics of time?

Arthur Prior held that tense is real, and he accounted for this view by his so-called ‘no-property theory of tense.’ Although some of Prior’s contributions to formal logic, among them the whole subject of tense logic, have been studied extensively, his philosophical doctrines have been less thoroughly investigated. In the current philosophical literature, there is much debate about the reality of tense, especially related to the so-called ‘new theory of time,’<sup>3</sup> and some of Prior’s arguments on the subject are used extensively; his own theory, however, is generally neglected.

In what follows, I will explain and defend Prior’s no-property theory of tense. In section 1, I will introduce the semantic questions involved and outline one of Prior’s arguments for the irreducibility of tense. In section 2, I will characterize the current debate about tense and briefly sketch its historical development. In section 3, I will consider Prior’s no-property theory against the background of the current debate. Prior’s view, in my opinion, provides a viable alternative to the positions currently held.

## 1 “Thank Goodness That’s Over”

In 1959, Prior published a paper entitled “Thank Goodness That’s Over” (TGTO).<sup>4</sup> Prior’s paper is mainly concerned with the semantic analysis of tensed discourse, even though it implicitly also contains a statement of the no-property theory. TGTO starts with a critique of two proposed analyses of tensed discourse, against which Prior puts forth his own position. In the second part of TGTO, Prior sketches some consequences of his analysis. Finally, Prior gives his ‘thank goodness’ argument for the irreducibility of tense. I will consider these three parts of TGTO in turn.

### 1.1 The analysis of tensed discourse

To use Prior’s example, suppose a certain leaf is now red, and we say

(1) The leaf was green in August.

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<sup>2</sup>‘Tense’ is here used as a semantic rather than a syntactic notion, covering any temporal qualification relative to the present. Verbal tense will therefore be a sufficient, but not a necessary condition for a sentence to count as tensed.

<sup>3</sup>Cf. L.N. Oaklander and Q. Smith (eds.), *The New Theory of Time* (henceforth *NTT*), New Haven, CT, 1994.

<sup>4</sup>*Philosophy* 34 (1959) 12–17; cf. note 13.

The semantic question is: which position in the logical structure of the sentence do the tense of the verb and the date occupy? Prior first considers the following two analyses:

(2) The-leaf-in-August *is*<sup>5</sup> green.

(3) The leaf *is* green-in-August.

The analysis (2), where the date attaches to the subject, reflects the ‘space-time language’ of W.V. Quine<sup>6</sup> and J.J.C. Smart,<sup>7</sup> which explains individuals referred to by natural language as temporal slices of real individuals, which are extended through both time and space. N.L. Wilson, two of whose articles<sup>8</sup> form the background upon which Prior puts forth his arguments in TGTO, claims that this reading violates our natural language conception of ‘substance-individuals,’ i.e., individuals capable of losing or gaining properties while remaining the same individual, and leads to a strange picture of individuals as ‘four-dimensional worms’ devoid of change.

As an analysis that can provide a viable basis for a more desirable ‘substance-language,’ Wilson proposes the reading (3), where the date attaches to the predicate. Prior agrees that we need a ‘substance-language.’ However, he doubts that Wilson’s analysis yields more than a space-time language in disguise: as Wilson himself reluctantly admits, for his theory “there is no question of an individual changing” if change means the exchange of fully determined (dated) properties,<sup>9</sup> and thus Wilson’s individuals are changeless as well. If the tense attaches to one of the elements of (1) at all, then, according to Prior, it must belong to the copula:

(4) The leaf is-in-August green.

This analysis still seems unsatisfactory, as Prior holds that “there is no copula needed” (p. 14). Tense and date should rather be read as a sentential operator modifying the sentence “the leaf is green,” in a similar fashion as negation or a modal operator. The sentence (1) therefore is to be parsed as

(5) It was the case in August that / the leaf is green,

the slash indicating the end of the operator. It is important to stress that the operator is not a function that takes as its argument an abstract proposition allegedly referred to by “that the leaf is green”; instead, the operator operates on the (present-tense) sentence “the leaf is green.” Note that this account does not treat tense as a part of the subject or predicate of a sentence, nor as a predicate of events, but as a logical notion. This view of tense is at the core of Prior’s no-property theory to be dealt with below.

## 1.2 Consequences of the analysis

Prior’s conception of tense as a logical notion and his attempt at giving an account of ‘substance-individuals’ both have important implications for his work. Even though these implications will not be dealt with here, I am at least going to list the three most prominent ones that he cites in TGTO.

**No abstract propositions** Prior strongly opposes any talk of abstract propositions. Instead, he gives a unified account of all types of discourse that have traditionally been analyzed by means of abstract propositions in terms of sentential operators and, where necessary, sentential quantifiers.<sup>10</sup>

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<sup>5</sup>The italicized *is* is to stand for a *tenseless* copula, which is not part of the English language.

<sup>6</sup>Cf. W.V. Quine, “Mr. Strawson on Logical Theory,” *Mind* 62 (1953), pp. 433–451.

<sup>7</sup>Cf. J.J.C. Smart, “Spatialising Time,” *Mind* 64 (1955), pp. 239–241.

<sup>8</sup>“Space, Time, and Individuals,” *Journal of Philosophy* 52 (1955), pp. 589–598, and “The Indestructibility and Immutability of Substances,” *Philosophical Studies* 7 (1956), pp. 46–48.

<sup>9</sup>“The Indestructibility and Immutability of Substances,” p. 48.

<sup>10</sup>Cf. his analysis of propositional attitudes in *Objects of Thought*, ed. P.T. Geach and A.J.P. Kenny, Oxford 1971, p. 19. An assessment of Prior’s arguments against abstract propositions is given in P. Hugly and C. Sayward, *Intensionality and Truth*, Dordrecht 1996.

**Tense logic** The concept of tense as a logical notion prompted Prior to develop a number of increasingly refined tense-logical calculi in order to clarify the logical structure of tensed discourse and to account for tense-logical reasoning, which cannot be captured by means of the predicate calculus. He symbolizes the tense-logical operators by ‘P’ (‘it was the case that’), ‘F’ (‘it will be the case that’) and their duals ‘H’ (‘it has always been the case that’ = ‘ $\neg P\neg$ ’) and ‘G’ (‘it is always going to be the case that’ = ‘ $\neg F\neg$ ’).<sup>11</sup>

**Actualism** As regards individuals, Prior holds an actualist position, claiming that only what exists has any properties at all (“there were no facts about me before I existed,” p. 16). Prior’s doctrine of actualism has far-reaching implications for modal discourse.<sup>12</sup>

### 1.3 The ‘thank goodness’ argument

Prior advances his ‘thank goodness’ argument against a reductionist analysis of tensed statements towards the end of TGTO. As far as I can see, TGTO is the only place in Prior’s published writings where an argument from the phenomenology of temporal experience is used to support metaphysical claims. Therefore, the significance Prior himself assigned to the argument should not be overrated.<sup>13</sup> However, I believe that the argument is very forceful.

Stating that he is “turning now to a fundamental,” Prior puts forth his argument as follows:

One says, e.g. ‘Thank goodness that’s over!’, and not only is this, when said, quite clear without any date appended, but it says something which it is impossible that any use of a tenseless copula with a date should convey. It certainly doesn’t mean the same as, e.g. ‘Thank goodness the date of the conclusion of that thing is Friday, June 15, 1954’, even if it be said then. (Nor, for that matter, does it mean ‘Thank goodness the conclusion of that thing is contemporaneous with this utterance’. Why should anyone thank goodness for that?)

Wilson seems to have the notion that a tensed copula is analysable into a tenseless one plus a date ... but the above example is sufficient to refute this assumption. The fact is that propositions with dates are just *not* ‘the simplest empirical propositions’ ... (p. 17; Prior’s italics)

Prior claims that his example rules out the possibility of giving a general account of tensed discourse by tenseless means. The only two possible tenseless interpretations that have been proposed — namely, a *date-analysis* (“... the date of the conclusion of that thing is...”) or a *token-reflexive account* referring to the act of the utterance (“... the conclusion of that thing is contemporaneous with this utterance”) — are explicitly denied. The point is this: if what we mean by saying “thank goodness...” was to be interpreted tenselessly, then we could not understand what we are saying; the very notion of being thankful for the cessation of something is only possible under a tensed interpretation. As we are, in fact, sometimes thankful for the ending of something, it follows that tense is irreducible.<sup>14</sup>

The phenomenological observations that Prior uses in his argument are universally acknowledged.<sup>15</sup> His argument, however, has been called invalid, as anxiety and relief can purportedly be explained by (tenseless) causal relations. For example, the cessation of a person’s pain causes relief, which then prompts the person to say, “thank goodness that’s over.” I find this move uncongenial, especially because the discussion in terms of pain is not likely to make things clearer.<sup>16</sup> A person can also be thankful for the cessation of something very remote — e.g., a famine in a distant country — that perhaps caused no anxiety whatsoever.

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<sup>11</sup>Cf. note 30 below for references.

<sup>12</sup>For a Priorean approach to quantified modal logic, cf. C. Menzel, “The True Modal Logic,” *Journal of Philosophical Logic* 20 (1991), pp. 331–374.

<sup>13</sup>Prior did not include the paper in his collection *Papers on Time and Tense* (Oxford 1968), nor did he use the argument in his book *Past, Present and Future* (Oxford 1967), in which he summarizes his views. The paper is, however, included in Prior’s posthumous *Papers in Logic and Ethics*, ed. P.T. Geach and A.J.P. Kenny, London 1976, pp. 78–84, the editors of which claim to have incorporated only papers that Prior “would have found worth preserving” (p. 7).

<sup>14</sup>Obviously, an analogous argument can be given using anxiety in place of relief, so that the claim holds for all tenses.

<sup>15</sup>Cf., however, the reference in note 24 below.

<sup>16</sup>This move has led to a rather unhelpful discussion about the relevance of masochism for Prior’s argument; cf. *NTT*, essays 26, 27, and 28. — Prior does not give an explicit example in TGTO, but he uses an examination, or coming home from the war, to illustrate his point in the essay “Some free thinking about Time,” published from his *Nachlaß* in B.J. Copeland (ed.), *Logic and Reality*, Oxford 1996, pp. 47–51.

Maybe Prior himself saw the end of TGTO as posing a riddle rather than giving a knock-down argument. However, the argument can be extended, showing that any kind of human memory, action, and planning can only be understood as what it is on a tensed view of the world. The attempt of ruling out such a tensed view leads to a distortion of phenomena central to any intelligible conception of active human life. Thus, the ‘thank goodness’ argument amounts to a *reductio* of the claim that tensed discourse can be reduced to tenseless talk.

## 2 Tensors and detensors

Prior’s ‘thank goodness’ argument is taken up at various places in the recent debate on the new theory of time.<sup>17</sup> I will indicate some important issues in the history of the debate during the 20th century and then outline the two main positions, viz., the position of the tensors and the position of the detensors.

### 2.1 History of the debate

In 1908, the neo-Hegelian J.M.E. McTaggart gave his famous argument for the unreality of time.<sup>18</sup> McTaggart distinguishes the temporal *A-series* of past, present, and future from the *B-series* of earlier, simultaneous, and later. He claims that the existence of the A-series is necessary for the reality of time, which is understood as the dimension of change and becoming. According to his argument, however, the A-series is self-contradictory, as every event must have the incompatible qualities of being past, present, and future together. Therefore, time is unreal.<sup>19</sup> Even though McTaggart’s conclusion is generally felt to be unsatisfactory, the importance of his proof for the debate on tense can hardly be overrated.

A further line of argument entering the discussion in the 20th century is connected with Einstein’s special theory of relativity. Among scientists, but also among philosophers, the spectacularly good empirical confirmation of the theory is taken as a reason for ruling out the reality of tense, as the theory purportedly presupposes a tenseless world.<sup>20</sup>

The theories Prior criticizes in TGTO are nowadays jointly referred to as ‘the old tenseless theory of time.’ They were usually connected with the claim that tensed discourse can be adequately translated tenselessly, either by a date-analysis or, after the failure of this approach had been recognized, token-reflexively. In the spirit of the project of ‘rational reconstruction,’ it has also been suggested that we should replace natural language by a tenseless space-time language.

Space-time language takes events as primitive, but an event-ontology received strong support also from other considerations, especially from Davidson’s analysis of adverbials in terms of properties of events.<sup>21</sup>

With the advent of the ‘new theory of indexicals,’<sup>22</sup> it was generally conceded that there are irreducibly indexical elements in natural languages. Still, the theory holds that it is possible to give non-indexical, token-reflexive truth-conditions for sentences involving indexicals. The claim that tensed discourse can be translated into a tenseless language was accordingly given up and replaced by the more modest program of giving tenseless truth-conditions for tensed statements.

In 1981, D.H. Mellor published a book that combined some of McTaggart’s ideas with the new theory of indexicals, yielding the ‘new tenseless theory of time.’<sup>23</sup> McTaggart is taken to have established that the (tensed) temporal A-series is contradictory and thus unreal; however, Mellor does not follow McTaggart to the conclusion that time itself is unreal. He holds instead that time is tenseless but real. The issues addressed in Mellor’s book still form the heart of the current debate.

<sup>17</sup>Cf. *NTT*, esp. part iii, essays 26–35, pp. 289–372.

<sup>18</sup>“The Unreality of Time,” *Mind* 17 (1908), pp. 457–474. His notion of the A- and B-series has become standard.

<sup>19</sup>I am here not concerned with the validity of McTaggart’s proof, which is part of the objective of the current debate; cf. note 25 below.

<sup>20</sup>The question of the relevance of relativity theory for the debate will be addressed briefly in appendix A of this paper.

<sup>21</sup>Cf. D. Davidson, “The Individuation of Events,” in his *Actions and Events*, Oxford 1980, pp. 163–180.

<sup>22</sup>Cf., e.g., J. Perry, “Frege on Demonstratives,” *Philosophical Review* 86 (1977), pp. 474–497, and “The Problem of the Essential Indexical,” *Noûs* 13 (1979), pp. 3–21.

<sup>23</sup>*Real Time*, Cambridge 1981.

## 2.2 Detensers

The detensers usually take Mellor's book as a starting point, conceding both that time is real and that a translation of tensed into tenseless discourse is generally impossible. The detensers' point is metaphysical in nature: tense is unreal, and it has no place in our ontology. Their claim is (i) that the concept of tense is contradictory and (ii) that a tensed ontology is not needed to account for tensed discourse. In their argumentation, (i) a variant of McTaggart's proof is invoked to show that tense, understood as predicating pastness, presentness, and futurity of events, is contradictory. Furthermore, (ii) the purported possibility of giving token-reflexive, tenseless truth conditions for tensed statements is taken to yield an adequate picture of the reality presupposed by such discourse. Proponents of truth-functional semantics even claim that this provides an adequate semantic analysis. As real tense is not needed to account for tensed discourse, Occam's razor is invoked to purge tense from our ontology.

## 2.3 Tensers

I assume that the tensors' position coincides with the ordinary, pre-reflective view held outside philosophy departments.<sup>24</sup> Therefore, a tensor's argumentation will generally be a reaction to a challenging of this view — be it explicitly by a detenser's arguments, or through the course of philosophical reflection. In order to meet the detensers' challenge, tensors will have to show (i) the tenability and (ii) the irreducibility of tense. In the current debate, this defense mainly proceeds (i) by attempting to refute McTaggart's proof and to show how the properties of pastness, presentness, and futurity could be ascribed to events in a non-contradictory way and (ii) by giving an example of an irreducibly tensed statement, often along the lines of Prior's TGTO.

## 3 Prior's no-property theory

Encountering the phenomenon of tense, one has to decide between two possible positions: the tensor's view is that there is a correspondence between the distinction of past, present, and future and what the world is like; the detenser's view is that there is not.

The detenser's point would follow naturally from a theory holding that time itself, and thus tense *a fortiori*, is unreal, but such an extreme view nowadays seems to be of little appeal. As a detenser, one therefore has to account for linguistic tense by a tenseless ontology. The new theory of time attempts to give such an account of tense.

A tensor mainly has to answer the detenser's objections. The claim that real tense is not necessary to account for tensed discourse has been refuted by the 'thank goodness' argument. It thus remains to answer the challenge of McTaggart's argument for the unreality of tense. Beyond that, a positive account of tense should be given. One possibility of such an account is to introduce events as basic entities and take the temporal determinations of being past, present, and future as properties of events. The introduction of events is tantamount to accepting one of the premises of McTaggart's argument, which therefore has to be dealt with explicitly.<sup>25</sup> Prior states his no-property theory as an alternative account that does not necessitate the introduction of events and thus does not treat tense as a property. In this way, it is not necessary to deal with McTaggart's argument at all.<sup>26</sup>

In the rest of this paper, I will give an account of Prior's no-property theory. In section 3.1, I will state the theory. Section 3.2 shows how the theory is criticized from within the current debate. In section 3.3, I will examine the notion of 'what a sentence is about,' which is central to Prior's theory. In section 3.4, I will show a possibility for vindicating Prior's theory.

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<sup>24</sup>For an argument against this claim, albeit from within a philosophy department, cf. C. Williams, "The Phenomenology of B-Time," *Southern Journal of Philosophy* 30 (1992), pp. 123-137; reprinted in *NTT*, pp. 360-372.

<sup>25</sup>I am not going to address this point here, but I assume that it can be, and in fact has been, done satisfactorily; cf. F.M. Christensen, "McTaggart's Paradox and the Nature of Time," *Philosophical Quarterly* 24 (1974), pp. 289-299.

<sup>26</sup>I take this to be mainly a strategic advantage, as I do not see McTaggart's argument as posing any real threat against a tensor's position; cf. note 25.

### 3.1 Statement of Prior's position

Prior sees talk of events as one aspect of the “game of ‘nominalizing’” along the lines of the “programme of Platonism, which eliminates parts of speech by multiplying entities.”<sup>27</sup> He would rather have a slimmer ontology, as he states in the following passage:

The real point, one might say, is not that events ‘are’ only momentarily, but that they don’t ‘be’ at all. ‘Is present’, ‘is past’, etc., are only quasi-predicates, and events only quasi-subjects. ‘X’s starting to be Y is past’ just means ‘It has been that X is starting to be Y’, and the subject here is not ‘X’s starting to be Y’ but X. And in ‘It will always be that it has been that X is starting to be Y’, the subject is still only X; there is just no need at all to think of *another* subject, X’s starting to be Y, as momentarily doing something called ‘being present’ and then doing something else called ‘being past’ for much longer . . . the other entities are superfluous, and we see how to do without them, how to stop treating them as subjects, when we see how to stop treating their temporal qualifications (‘past’, etc.) as predicates, by rephrasings which replace them with propositional prefixes (‘It has been that’, etc.) analogous to negation.<sup>28</sup>

Prior’s main point is that it makes no sense to treat temporal qualifications as properties, because there is nothing they could be properties of — “what looks like talk about events is really at bottom talk about things.”<sup>29</sup> Instead, tense should be taken as a logical notion expressed by sentential operators (‘one-place connectives,’ in logical jargon).

There is thus a strong tension between Prior’s view and the more widely held pro-event attitude. Events are generally thought to be indispensable because adverbials, such as ‘slowly’ or ‘today,’ can be analyzed as properties of events, and it has been argued that events are the referents of causal relations. Furthermore, in some physical theories, events form the ultimate furniture of the universe. Leaving physics aside, the claim that we can understand adverbials if we admit events points to a trade-off between ontology and the inventory of formal logic. Historically, formal logic has exclusively dealt with individuals, properties, and relations; there is no place for adverbials or adverbial modifiers. Encountering these in natural language, we can therefore either increase the number of individuals in our logical ‘universe of discourse’ or introduce new logical vocabulary. The move towards events opts for the first possibility, whereas Prior prefers to enhance the logical vocabulary.<sup>30</sup>

None of these moves can claim superiority without further justification. Historical continuity with the development of formal logic alone is not a good argument, but neither is close adherence to the surface structure of natural language, which, as is well known, can be wildly misleading.

However, the kind of ontology accepted by a decision for or against events might give a valuable hint: If events are basic, it is easy to imagine that they are all ‘there’ — in some “secret place” perhaps, as Augustine was worried — and this view seems to lean heavily towards a static conception of the world akin to the four-dimensional space-time picture criticized by Prior. An ontology of changing things, on the other hand, would leave more room for the dynamical picture that we, as agents, have of the world.<sup>31</sup>

### 3.2 Critique of Prior's position

Although Prior’s ‘thank goodness’ argument occupies an important place in the debate of tenses vs. defenders, his own view is often dismissed as a minority opinion not worthy of serious investigation.<sup>32</sup>

To what extent Prior’s conception deviates from the positions held in the current debate may be illustrated by the way Quentin Smith, himself a tensor and therefore basically sympathetic with Prior’s

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<sup>27</sup> *Objects of Thought*, pp. 30 and 32, resp.

<sup>28</sup> *Past, Present and Future*, p. 18; Prior’s italics.

<sup>29</sup> *Changes in Events and Changes in Things*, Lawrence, KS, 1962, p. 10; reprinted in *Papers in Time and Tense*, pp. 1–14.

<sup>30</sup> Prior devoted the bulk of his work to the development of a tense-logical calculus. His main results are summarized in his *Past, Present and Future*. For more recent developments cf. J.P. Burgess, “Basic Tense Logic,” in *Handbook of Philosophical Logic*, Vol. II, D. Gabbay and F. Guenther, eds., Dordrecht 1984, pp. 89–134, and M. Xu, “On some U, S-tense logics” *Journal of Philosophical Logic* 17 (1988), pp. 181–202.

<sup>31</sup> Prior seems to have been undecided between a thing-ontology and a more radical ‘stuff-ontology’ which does not even allow things as basic. Cf. “Things and Stuff,” in his *Papers in Logic and Ethics*, pp. 181–186, and P. Needham, “Fleeting Things and Permanent Stuff: A Priorean Project in Real Time,” in J. Faye, U. Scheffler, and M. Urchs (eds.), *Perspectives on Time*, Dordrecht 1997, pp. 119–141.

<sup>32</sup> Cf., e.g., *NTT*, p. 11, and L. Paul, “Truth Conditions of Tensed Sentence Types,” *Synthese* 111 (1997), pp. 53–71.

views, comments on the no-property theory. In Smith's 260-page defense of the tensed view, the no-property theory is allotted only four pages of criticism. Smith maintains that a no-property theory is "either unintelligible or self-contradictory."<sup>33</sup> The theory, in his view, characterizes tense only negatively and "does not explain its semantic correlate" (p. 167). In an attempt to reconstruct the theory in familiar terms, taking tense as a second-order property analogous to Frege's characterization of existence,<sup>34</sup> he arrives at a contradiction and takes this as a proof of the untenability of the no-property position.

In the rest of my paper, I will show how this conclusion can be avoided. Smith rightly observes that Prior states his position mainly negatively, but Prior also suggests the direction along which a positive account will have to be sought.

### 3.3 What sentences are about

The key to understanding Prior's no-property theory, in my view, is his notion of 'what a sentence is about.' This notion does not coincide with judgeable content nor with reference, which are the two notions of 'what a sentence is about' offered by modern formal logic.

Since Frege's *Begriffsschrift*,<sup>35</sup> a sentence is taken to express a *judgeable content* and have a certain *force*, e.g., the assertive force, which in natural languages is expressed by the mere form of the assertion and which Frege symbolizes with his judgement stroke. Judgeable content is the basic semantic unit, and it can be analyzed in various ways. Before Frege, the natural way was considered to be in terms of subject and predicate. Frege finds the subject-predicate structure of ordinary language misleading. He opts for an analysis in terms of function and argument, and modern formal logic has followed him, taking individuals and (*n*-place) functions as primitive.

For modern formal logic, two sentences can 'be about the same' in two ways. On the one hand, sentences can express the same judgeable content, as for example the logically equivalent sentences:

(6) Grass is green and it is not the case that (the sky is pink).

(7) It is not the case that (it is not the case that (grass is green) or (the sky is pink)).

On the other hand, sentences can be about the same object, as for example:

(8) The morning star is a planet.

(9) The evening star is bright.

Prior wants a further notion of 'being about the same,' as he expresses in the following passage:

When a sentence is formed out of another sentence or other sentences by means of an adverb or conjunction, it is not *about* those other sentences, but about *whatever they are themselves about*. For example, the compound sentence, "Either I will wear my cap or I will wear my beret" is not about the sentences "I will wear my cap" and "I will wear my beret"; like them, it is about me and my headgear. . . . Similarly, the sentence "It will be the case that I am having my tooth out" is not about the sentence "I am having my tooth out"; it is about me. . . . Nor is it about some abstract entity named by the clause "that I am having my tooth out." It is about me and my tooth, and about nothing else whatever.<sup>36</sup>

On this account of 'being about the same,' the introduction of adverbial modifiers or sentential operators does not change 'what a sentence is about.' Using Prior's examples,<sup>37</sup> the sentences

(10) It is raining.

(11) It is not the case that it is raining.

(12) Possibly it is raining.

<sup>33</sup>Q. Smith, *Language and Time*, Oxford 1993, p. 166.

<sup>34</sup>G. Frege, *Die Grundlagen der Arithmetik*, Breslau 1884, §53.

<sup>35</sup>G. Frege, *Begriffsschrift*, Halle 1879.

<sup>36</sup>*Changes in Events and Changes in Things*, p. 9; second italics mine.

<sup>37</sup>*Changes in Events and Changes in Things*, pp. 7f; sentences (13) and (14) adapted from a parallel example.

(13) It will be the case that it is raining.

are all ‘about the same,’ namely about rain, whereas

(14) It is snowing.

is not. Accordingly, the sentences “The leaf is green” and “The leaf is red” are not ‘about the same,’ even if they are about the same leaf. An alteration in material content ((10) vs. (14)) thus changes ‘what a sentence is about,’ whereas the specification of existence (10), nonexistence (11), mode (12), or tense (13) does not.

Prior’s notion of ‘what a sentence is about’ has important implications for his view of existence statements: the basic form of assertion is the assertion of the reality of ‘what the sentence is about.’ Prior makes this claim explicitly, holding that “to say that *X* is the case in the real or the actual world, or that it is really or actually or in fact the case, is just to say that it is the case — flat, and without any prefix whatever.”<sup>38</sup> Putting a sentence in the past or future tense by prefixing it with a tense operator, on the other hand, amounts to specifying a mode of unreality of ‘what the sentence is about’: “the present simply *is* the real considered in relation to two particular species of unreality, namely the past and the future.”<sup>39</sup>

Prior’s claim that the past and the future are unreal does seem a bit far-fetched: after all, there is history, and there are many reasonable expectations about the future, e.g., that the sun will rise tomorrow — how could we put all that on a par with the unreality of mere fiction? According to Prior’s dynamic view of the world, however, some radical difference between the present on one side and the past and the future on the other side is to be expected. Certainly, only what is present can immediately affect us; this is warranted by an observation along the lines of TGTO: it is absurd to be frightened by a hungry tiger which walked by here yesterday, or will walk by here tomorrow; if the tiger was here now, however, things would be quite different. Therefore, it can actually be taken as an advantage of Prior’s view that the difference between what is present and what is not present is so pronounced.

Prior’s no-property theory of tense, I believe, can be vindicated if a positive account of ‘what a sentence is about’ can be given.

### 3.4 Toward a positive account

Prior does not give a positive account of ‘what a sentence is about.’ The problem was, however, central to his work, as is witnessed by the fact that it is treated at length in his first book on formal logic<sup>40</sup> as well as in his last manuscript.<sup>41</sup> In both works, Prior gives a careful historical overview of the problems involved, but is reluctant to take sides. As is clear from the above quote, he holds that ‘semantic ascent’ is not a way out, and neither does he want to introduce abstract entities for ‘what a sentence is about.’

It has been noted<sup>42</sup> that Prior’s no-property account of tense and existence closely parallels Kant’s view that

‘*Being*’ is obviously not a real predicate; that is, it is not a concept of something which could be added to the concept of a thing. It is merely the positing of a thing. . .<sup>43</sup>

The difference between sentences (10) and (11) is not a material, or, in Kant’s terminology, *real* one; the difference between (10) and (14), on the other hand, is *real*. Prior’s example of the rain thus closely parallels Kant’s famous example that “a hundred real thalers do not contain the least coin more than a hundred possible thalers.”<sup>44</sup>

Neither Kant nor Prior subscribes to Frege’s view of existence as a second-order predicate. It is true that Kant, in his earlier writings, does hold the Fregean position that “existence . . . is not so much a

<sup>38</sup> “The Notion of the Present,” *Studium Generale* 23 (1970), pp. 245–248; here p. 246.

<sup>39</sup> “The Notion of the Present,” p. 245; Prior’s italics.

<sup>40</sup> *The Craft of Formal Logic* (1950/51), partly published from Prior’s *Nachlaß* as *The Doctrine of Propositions and Terms*, ed. P.T. Geach and A.J.P. Kenny, London 1976.

<sup>41</sup> *Objects of Thought*.

<sup>42</sup> W. L. Craig, “Is Presentness a Property?,” *American Philosophical Quarterly* 34 (1997), pp. 27–40.

<sup>43</sup> I. Kant, *The Critique of Pure Reason* (1781/87), transl. N.K. Smith, London 1953, A598/B626; Kant’s emphasis. ‘Real’ here is a translation of the German ‘real,’ which at that time had the primary meaning ‘pertaining to a thing,’ ‘material.’

<sup>44</sup> I. Kant, *The Critique of Pure Reason*, A599/B627. ‘Real’ here translates the German ‘wirklich,’ meaning ‘actual.’



predicate of the thing itself as it is of the thought one has of it.”<sup>45</sup> In the *Critique*, however, he does not repeat this analysis, but relies solely on the notion of ‘positing.’<sup>46</sup> Prior, in the above quote, also makes it clear that it is not abstract entities, such as concepts or propositions, which an existence statement ‘is about’ — the statement “Pegasus does not exist” still ‘is about’ Pegasus, but in Prior’s sense of ‘being about.’

Although Prior does not reach a definite conclusion as to ‘what sentences are about,’ he expresses sympathy to the notion of an ‘object of thought’ or ‘intentional object’ as propounded by Brentano and Meinong.<sup>47</sup> This is not generally considered good company. However, I believe that the Meinongian notion of an ‘object of thought’ — along the views of the historical Meinong, to be sure, not the mythical man with the round square in his head — merits further exploration. The close connection between views about the reality of tense and theories of ‘objects of thought’ has been pointed out recently in an article<sup>48</sup> showing that tenses either must concede that there are more objects of thought than there are actual (physical or abstract) objects, or must strengthen Prior’s no-property theory in some other way.

## 4 Conclusion

In this paper, I have outlined Arthur Prior’s attempt to give an account of tense as a logical notion. Such an account could form a viable alternative position for tenses, who wish to hold that tense is real, in the current debate about the new theory of time. Prior’s view is generally neglected, for which I can see two main reasons: (i) his view deviates strongly from an event-ontology endorsed by many, and (ii) at least on my reading, the tenability of the theory hinges on Prior’s notion of ‘what a sentence is about,’ which I have paralleled with ‘intentional objects’ along the lines of Brentano, Meinong, and Kant.

However, a dynamic view of the world required for active human life, such as Prior had in mind, may well necessitate a radical change in our theories of language and logic. It seems to me natural to suppose that we, the subjects using sentences, should create and not grasp (in the Fregean sense) ‘what a sentence is about.’ This would also provide a natural account of the modification of sentences, be it by tense or otherwise, as our various ways of using what we have created. It will be objected that, on this account, ‘what a sentence is about’ cannot be shared, so that intersubjectivity is in danger, or even impossible — after all, the possibility of science was one of the chief reasons for Frege to conceive of Thoughts as independent from us. However, I take it that the success of intersubjectivity is as contingent a matter as any other empirical fact, and we all know that it can, and does ever so often, fail.

Perhaps we can understand Prior as pointing out the existence of two projects of inquiry, the one theoretical, the other practical. The theoretical project, exemplified by the natural sciences, seems in fact to have no need for tense, whereas the practical project, which is concerned with human action, seems unable to do without. On this view, the debate of tenses vs. detenses can be seen as one about the very tenability of the practical project and therefore of crucial importance for philosophy as a whole.

## A The relevance of the special theory of relativity

As has been remarked, the special theory of relativity (STR) invented by Einstein in 1905,<sup>49</sup> especially in its formulation by Minkowski,<sup>50</sup> is taken by many to have decisive force in the debate about tense. In this appendix, I will briefly address this claim. Prior himself does not go to great lengths in discussing the issue,<sup>51</sup> but it is clear for him that we must not conflate epistemological with metaphysical questions here.

STR gives a description of nature in terms of physical *events* that are characterized by their positions in space (three  $x$ -coordinates) and time (one  $t$ -coordinate). The whole of all possible positions of events is the four-dimensional space-time manifold, or Minkowski space,  $\mathcal{M}$ . The notion of simultaneity between distant events,

<sup>45</sup>I. Kant, *The One Possible Basis for a Demonstration of the Existence of God* (1763), transl. G. Treash, New York 1979, p. 57; cf. *Kants gesammelte Schriften* (Akademieausgabe), Berlin 1902ff., Bd. 2, p. 72.

<sup>46</sup>Cf. G. Prauss, *Einführung in die Erkenntnistheorie*, Darmstadt 1980, pp. 197ff.

<sup>47</sup>Cf. *Objects of Thought*, esp. chap. 8, pp. 121–130.

<sup>48</sup>J. Van Cleve, “If Meinong Is Wrong, Is McTaggart Right?,” *Philosophical Topics* 24 (1996), pp. 231–254.

<sup>49</sup>A. Einstein, “Zur Elektrodynamik bewegter Körper,” *Annalen der Physik* 17 (1905), pp. 891–921.

<sup>50</sup>H. Minkowski, “Raum und Zeit,” address delivered at the 80th assembly of German Natural Scientists and Physicians, Cologne, Sept. 21, 1908; transl. in A. Einstein et al., *The Principle of Relativity*, New York 1923, pp. 73–91.

<sup>51</sup>Cf., however, “Tense Logic and the Logic of Earlier and Later” in his *Papers on Time and Tense*, pp. 116–134.

which was assumed to be absolute and unique in pre-relativistic, Newtonian physics, is relativized to account for the negative outcome of experiments designed to detect some absolute physical ‘ether’ as the purported substratum of the electromagnetic field.

The ‘argument from relativity’ against tense has been folklore since the early days of STR. It was made popular by C. Rietdijk<sup>52</sup> and H. Putnam.<sup>53</sup> Basically, it amounts to the claim that as the  $x$ - and  $t$ -variables of STR range over the whole of the four-dimensional Minkowski space  $\mathcal{M}$ , no position can qualify as ‘the present,’ because no position has any special status above the others. Thus objective change is impossible. As this might seem unconvincing, a technical maneuver is invoked that defines a two-place relation  $\mathcal{R}$  (‘is real with respect to’). This relation is taken to be transitive, thereby purportedly expressing the fact that “There Are No Privileged Observers” (Putnam, p. 241) — however, it is well known that in STR the analogous relation ‘is simultaneous with’ is intransitive. Using the stipulated transitivity of  $\mathcal{R}$ , it is shown that every point of  $\mathcal{M}$  stands in relation  $\mathcal{R}$  with every other point. Therefore, the future and the past of every observer have the same status as the observer’s present, and any notion of change or becoming is ruled out.

This argument has been decisively criticized on physical and philosophical grounds.<sup>54</sup> Indeed, it has been claimed recently that the  $t$ -coordinate of STR cannot be identified with time and that “*time* is absolute, rather than relative.”<sup>55</sup> Prior seems to have been sympathetic with this view, holding that “the theory of relativity isn’t about *real* space and time.”<sup>56</sup>

Another attack on a tensed view from a scientific perspective has been launched by Grünbaum, who claims that “if *nowness* were a fundamental property of physical events themselves, then it would be very strange indeed that it could go unrecognized in all extant physical theories *without detriment to their explanatory success*.” The present is therefore reduced to a mere “*now-content* of awareness.”<sup>57</sup> Quite a number of physicists doubt the validity of ‘inference to the best explanation’ on this matter. Most notably, Carnap reports Einstein as saying

that the problem of the Now worried him seriously. He explained that the experience of the Now means something special for man, something essentially different from the past and the future, but that this important difference does not and cannot occur within physics. That this experience cannot be grasped by science seemed to him a matter of painful but inevitable resignation. . . . Einstein thought that these scientific descriptions cannot possibly satisfy our human needs; that there is something essential about the Now which is just outside the realm of science.<sup>58</sup>

A careful exposition of this problem from a physicist’s point of view has recently been given by Abner Shimony, who concludes that a satisfactory account can be given along Kantian lines.<sup>59</sup>

L. Sklar has pointed out that the kind of reflection provoked by trying to unify STR with a tensed view of the world does little more than highlight problems inherent in STR: the verificationist foundations of the theory have never been superseded, which is nicely reflected by the fact that a coherent tensed account should take as real only what is *here and now*. In fact, Sklar points out that, given a verificationist foundation, this same result is to be expected for a pre-relativistic theory. He sees the threat of solipsism behind this result, but claims that there is just no known non-verificationist foundation for STR.<sup>60</sup>

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<sup>52</sup> “A Rigorous Proof of Determinism from the Special Theory of Relativity,” *Philosophy of Science* 33 (1966), pp. 341–344.

<sup>53</sup> “Time and Physical Geometry,” *Journal of Philosophy* 64 (1967), pp. 240–247.

<sup>54</sup> Cf., e.g., H. Stein, “A Note on Time and Relativity Theory,” *Journal of Philosophy* 67 (1970), pp. 289–294, and M. Čapek, “Relativity and the Status of Becoming,” *Foundations of Physics* 5 (1975), pp. 607–617.

<sup>55</sup> Q. Smith, *Language and Time*, p. 229, his italics. Cf. also the observation that the very formulation of STR already hints at this: “Einstein’s discovery as the synthetic, informative empirical realization of the relativity [of time and space] cannot mean that relative space is relative and relative time is relative, because this would be analytic and uninformative.” (G. Prauss, *Die Welt und wir*, Bd. 1/2, Stuttgart 1993, p. 935; my transl.)

<sup>56</sup> “Some Free Thinking about Time,” published from Prior’s *Nachlaß* in B.J. Copeland, *op. cit.*, pp. 47–51; here p. 50; Prior’s italics. It seem reasonable to expect that Prior’s extensive correspondence with J.J.C. Smart, which is currently being prepared for publication, will further illuminate Prior’s exact view of the matter.

<sup>57</sup> A. Grünbaum, *Modern Science and Zeno’s Paradoxes*, London 1968, p. 21 and 22, resp.; his italics. This is an echo of H. Reichenbach’s claim that “if there is Becoming the physicist must know it” (*The Direction of Time*, Berkeley, CA, 1956, p. 16).

<sup>58</sup> Reported by R. Carnap in *The Philosophy of Rudolf Carnap*, P.A. Schilpp (ed.), La Salle, IL, 1963, pp. 37f.

<sup>59</sup> “The transient now,” in his *Search for a Naturalistic World View*, Vol. II, Cambridge 1993, pp. 271–287.

<sup>60</sup> L. Sklar, “Time, Reality, and Relativity,” in R. Healey (ed.), *Reduction, Time and Reality*, Cambridge 1981, pp. 129–142. Reprinted in P. Yourgrau (ed.), *Demonstratives*, Oxford 1990, pp. 247–260.