

Press, 1999), and “Basic Tensed Sentences and their Analysis” in *Time, Tense, and Reference*, edited by Aleksander Jokic and Quentin Smith, pp. 409–447 (Cambridge, MA: MIT Press, 2003). John Bigelow defends presentism in his “Presentism and Properties,” in *Philosophical Perspectives* 10, *Metaphysics* (1996): 35–52.

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TIME, BEING, AND BECOMING

The major debate in the philosophy of time, being, and becoming is between defenders of the tenseless theory of time and defenders of the tensed theory of time. During the late twentieth century into the early twenty-first century, the tenseless theory of time was defended by such philosophers as D.H. Mellor, Graham Nerlich, and L. Nathan Oaklander. The tenseless theory implies that temporal features of events consist only of relations of simultaneity, earlier, and later than, and that all events are ontologically equal, regardless of when they occur. The tensed theory, which has many versions, is advocated by such philosophers as William Lane Craig, Quentin Smith, and Michael Tooley. The tensed theory of time implies that some or all of the words *past*, *present*, and *future* are needed to describe time, although what is understood by the words *future*, *present*, and *past*, or by their usage as parts of phrases or sentences (e.g., whether or not they express analyzable or unanalyzable concepts) is a matter that varies among tensed theorists.

THE OLD AND NEW TENSELESS AND TENSED THEORIES OF TIME

For most of the twentieth century, the debate was between defenders of the old tenseless theory of time and defenders of the old tensed theory of time, concerning whether or not tensed sentence tokens are translatable by tenseless sentences. If a tensed sentence token, call it S, such as the sentence token “John was running” can be translated by a tenseless token, such as “John is (tenseless) running earlier than S,” then the tensed token S conveys no more temporal information than the tenseless token. Consequently, the defender of the old tenseless theory of time maintained that temporal properties and relations can consist only of the relations of earlier than, later than, and simultaneous with. Some of the main developers of the old tenseless theory are Bertrand Russell (1903, 1906, 1915)—Russell is the first twentieth century defender of the tenseless theory against the tensed theory of time—

Hans Reichenbach (1947), J.J.C. Smart (1963, 1966), and Adolf Grünbaum (1973). Smart (1980) was also one of the main founders of the new tenseless theory of time.

Proponents of the old tensed theory of time argued that these sentence tokens cannot be translated. For example, “John (is) running earlier than S” does not convey the temporal information of whether John’s running is past, present, or future. Because “John was running” conveys that it is past, this sentence token cannot have the same semantic content (or the same meaning, or express the same proposition) as the tenseless token, and therefore cannot be translated by the tenseless token. Some of the most influential defenders of the old tensed theory of time are C.D. Broad (1923)—who is the first twentieth century defender of the tensed theory and critic of the tenseless theory—A. N. Prior (1967, 1968, 1979), Richard Gale (1962, 1968), and George Schlesinger (1981).

In response to criticisms advanced by the old tensed theory of time, defenders of the tenseless theory largely accepted the argument of Gale and others that tensed sentence tokens cannot be translated by tenseless ones; however, the tenseless theorists now argued that the truth conditions of tensed sentence tokens are tenseless. For example, Mellor (1981) argued that the token S of “John was running” is not translatable by a token “John is (tenseless) running earlier than S,” but is true if, and only if, John is (tenseless) running earlier than S. The new tenseless theory of time was in place by 1981, due primarily to the independent work of Mellor (1981) and Smart (1980) (see also Anderson and Faye [1980], Faye [1981], and Oaklander [1984]). The main developments and defenses of various versions of the new tenseless theory from the mid-1980s to the early twenty-first century were made for the most part by L. Nathan Oaklander, but also by Heather Dyke (2002a, 2002b, 2003), Robin Le Poidevin (1992, 2003), Graham Nerlich (1998), L.A. Paul (1997), J. M. Mosersky (2000), and others.

The emergence of the new tenseless theory in the 1980s inspired the new tensed theory of time, whose unifying theme was a criticism of the new tenseless theory and the development of ontologies for a tensed theory that were able to overcome the hurdles set by the new tenseless theorists. Criticisms of one of the two main versions of the new tenseless theory, Mellor’s token-reflexive theory, appeared in Graham Priest’s (1986, 1987) work, and criticisms of the two main versions of the new tenseless theory (Smart’s and Mellor’s) appeared in Smith’s (1987, 1993) work.

The classification of the new tenseless theories of time into two versions, the token-reflexive version and

the date-involving version, was made in the course of Smith's (1987, 1993) criticisms of these theories. One criticism of the former is that the tenseless token-reflexive theory of tensed sentence tokens in natural language is mistaken because (among other reasons) the truth conditions of a tensed sentence token *S* cannot be about *S* itself, as well as what *S* is about. Suppose there are two simultaneous utterances, the utterance *U* of "The talk will begin in an hour" and the utterance *S* of "The talk will begin in sixty minutes." These two utterances, given that they occur at the same time, are logically equivalent. It is impossible for the talk to begin in an hour unless it begins in sixty minutes and vice versa. But the token-reflexive truth conditions of *S* and *U* are not logically equivalent. *U* is true if, and only if, the talk begins one hour later than *U* and *S* is true if, and only if, the talk begins sixty minutes later than *S*, whereas because "the talk begins in an hour" and "the talk will begin in sixty minutes" are logically equivalent, it is neither necessary nor sufficient for *S*'s truth that the talk begin one hour later than *U*. It is not necessary because there is a possible world in which *S* is true, but in which *U* is not uttered.

Further, it is sufficient for *S*'s truth that the talk begins one hour later than the time at which *U*, as a matter of fact, occurs, regardless of whether or not *U* occurs; if *U* had not occurred, *S* would still be true. We have two logically equivalent, simultaneous, tensed sentence tokens that have logically inequivalent truth conditions—which not only fails to explain the logical equivalence of the tensed sentence tokens, but leads to an implicit contradiction. If *S* and *U* entail each other, and *S* and *U* are each logically equivalent to their respective truth conditions clauses *SC* and *UC*, then it follows by the transitivity of logical equivalence that *SC* and *UC* are logically equivalent. Because *SC* and *UC* are not logically equivalent, *SC* is not a truth conditions clause for *S* and *UC* is not a truth conditions clause for *U*.

This and other criticisms appear to have motivated an abandonment of the new token-reflexive tenseless theory of time by its originators and developers—Mellor, Oaklander, Paul (1997), Le Poidevin (2003), and so on, as well as by critics who are tensed theorists—Craig (1996, 2000a), Peter Ludlow (1999), and so on. However, Oaklander (2003, 2004), as well as Dyke (2000a, 2002b, 2003), have spent much time developing versions of what Oaklander calls the newer token-reflexive tenseless theory, which they argue are immune to Smith's criticisms. Because Dyke's and Oaklander's theories have not yet been critically evaluated, it must be said that the token-

reflexive theory, in its newer version, remains an obstacle in the tensed theorist's path.

The other version of the new tenseless theory of time is the date-theory. This may be criticized by arguing that the new tenseless date-involving truth conditions are neither necessary nor sufficient for the truth of tensed sentence tokens. It appears to be false, for example, that "Jane is running" as uttered at noon on July 1, 1994, is true if, and only if, Jane runs at noon on July 1, 1994. There are possible worlds in which the mentioned sentence utterance, call it *U*, is true and yet it is false that Jane is running at noon on July 1, 1994.

Suppose, for instance, that times are sets of simultaneous events and that noon on July 1, 1994, refers to the set of simultaneous events that is actually 1,993 years, six months, and twelve hours after the conventionally assigned birth date of Jesus. There is a possible world exactly similar to the actual world except for the fact that the utterance *U* belongs to a different set of simultaneous events, a set that includes every event included on July 1, 1994, at noon (which means it includes Jane's running), except for some minor difference; say, the set does not include the decision actually made by David to have lunch. Because *U* occurs simultaneously with Jane's running in this world, *U* is true; nonetheless, it does not occur at noon on July 1, 1994. Thus date-involving truth conditions do not appear to be necessary for the truth of tensed sentence tokens.

Suppose, in contrast, that one does not reduce times to sets of events, adopting instead a substantival theory that regards times as particulars in their own right, particulars identified by their position in a time sequence, essentially dated (and metricated) in relation to earlier and later times; times may be occupied by events or sets of events, but the times are neither identical with nor necessarily contain their occupants.

The same time (e.g., May 1, 2005, at noon) may have different occupants in different possible worlds. One of the arguments against a substantival version of the tenseless date-theory concerns the date-theory that a sentence token *S* of "Jane is running" that is uttered at noon on May 1, 2005, is true if, and only if, Jane is (tenseless) running on May 1, 2005, at noon. Suppose Jane is running at this time. Because we are assuming a substantival version of the date-theory, the mentioned time has the essential date property of being May 1, 2005.

In other words, the time is metricated (identified as a part of a sequence of equal-lengthed intervals and assigned a specific ordinal in this sequence, convention-

ally abbreviated as 5/1/2005) and this metricated time remains identical across possible worlds even if it has different occupants in these worlds. There is a possible world similar to the actual world except that Jane is not running at noon on May 1, 2005, and S does not occupy the time on May 1, 2005, at noon. Instead, S occupies a later time, on May 2, 2005, at noon and Jane is running at noon on May 2, 2005, in this world.

The token S of “Jane is running” on noon, May 2, in this second world is true because S occurs simultaneously with Jane’s running. And yet the purported date truth conditions it is supposed to have would imply S is false because it cannot be true unless the date is May 1. But how could the token S of “Jane is running” be false if Jane is running simultaneously with the token S of “Jane is running”? This indicates that the truth condition sentence: “A token S of ‘Jane is running’ that is uttered at noon on May 1, 2005, is true if, and only if, Jane is (tenseless) running on May 1, 2005 at noon” is false. It is false because the token S is true in the second world even though Jane is not running on May 1 in that world (note that S is here being used in the actual world as a modally stable tag [Marcus 1961] that serves to refer directly to S in both worlds). Thus, the alleged date-involving truth condition sentence does not give us a correct necessary condition (“only if”) of S’s truth.

Oaklander (1994) responds to these arguments of Smith (1987, 1993) by changing the new date-theory to a still newer date-theory and thus avoids the problem Smith mentions. The newer date-theory, Oaklander says, is that the correct truth condition sentence is that the token S of “Jane is running” uttered at noon on May 1, 2005, in world W, is true at noon on May 1, 2005, in W if, and only if, Jane is (tenseless) running at noon on May 1, 2005, in W.” Because the possible world W is mentioned in the truth-condition sentence, the objection based on what occurs in a different possible world is avoided.

This newer theory may seem *prima facie* plausible. But a closer look shows that, by virtue of being world-indexed, it is irrelevant to the semantic content, truth value, and truth conditions of the token S. If we take any true extensional sentence, such as “The sun is shining on Mount Everest at noon on May 1, 2005,” substitute it for the extensional clause after the biconditional, namely, “Jane is (tenseless) running at noon on May 1, 2005,” retain the world-index “in W,” then we also have a true truth condition sentence for the token S-in-W. If we take any true, contingent, extensional, sentence token T, operate on it to produce the world-indexed operand T-in-W, then T-in-W is necessarily true and fulfills the criteria of

being both sufficient and necessary for the truth of S-in-T. But whether or not the sun is shining on Mount Everest has no bearing on the truth or falsity of the sentence token S, which is the sentence token whose truth conditions are being discussed by the tensed theorist and the tenseless theorist. Accordingly, world-indexing the clauses before and after the biconditional does not solve the problem of the truth conditions of a token of “Jane is running” that is uttered at noon on May 1, 2005. We can see that a problem with Oaklander’s newer date-theory is that it has, in effect, changed the subject.

The subject is the truth conditions of the non-world-indexed, tensed sentence token, the May 1, 2005, at noon token S, “Jane is running.” Oaklander changed the subject to world-indexed sentence tokens, such as the truth conditions of S-in-W, and whether or not the tenseless date-theorist can provide tenseless truth conditions—for S-in-W does nothing to answer Smith’s argument that the new tenseless date-theory of time cannot provide satisfactory truth conditions for the tensed sentence token S.

But Oaklander’s modal argument is not the only objection that can be brought against Smith’s arguments against the new tenseless date-theory of time. Oaklander has advanced further arguments challenging Smith’s arguments against the new tenseless date-theory, as have Le Poidevin (2003), Mosersky (2000), L.A. Paul (1997), and Nerlich (1998). Furthermore, arguments in favor of a tensed date-theory have been made by Tooley (1997, 2001, 2003) who also presents arguments against Smith’s criticisms of the new date-theory. Whether or not a date-theory of time is viable remains an issue upon which there is as of yet no common consensus.

An equally crucial issue concerns the relation of the new tensed theory of time to the sciences. Smith emphasized (1985, 1993) that the new tensed theorist must show that the crucial sort of scientific theses, the theses predominately found in the central observational part of the sciences, include tensed sentence tokens. These tensed tokens are used to confirm the theoretical claims of the sciences (keeping in mind, of course, the context relativity of the theoretical/observational distinction) and Smith argues that these tensed sentence tokens are logically incoherent if they lack tensed truth conditions.

A long-standing mistake, championed most influentially by Grünbaum, is that tensed statements, if they belong to the sciences, must belong to the theoretical part of physics (specifically, to the basic equations, and the semantic content of the constants and parameters in these equations). This is wrong because the semantic content of the tenses of verbs, and the semantic content of

temporal pronouns (*now, yesterday*) are essentially observational and by definition belong to the observational, not theoretical, statements in the sciences.

For example, Alexander Friedman's solution to the Einstein equation belongs to the theoretical part of big bang cosmology, but the observational information that the big bang occurred fifteen billion years ago essentially belongs to the observational part of big bang cosmology (see Smith 1985, 1993; Smith and Oaklander 1994). This shows that some of the more superficial evaluations of Smith's *Language and Time* (1993) are mistaken (e.g. the evaluation that it is not based on science but ordinary language analysis of the sort done in the 1950s in England). For it is based, not on ordinary language, but, instead, on the observational part of science, on confirmation theory, logic, and on the deep structure of natural languages (1993, Ch. 6.6) studied in linguistics. However, one of the most conceptually precise and accurate explorations of this notion, Nerlich's *Time and Space-time* (1998), takes the ingenious route of eliminating the presentness part of the deep structure of a sentence, while still retaining the propositional relation.

Nerlich predicts that Smith will answer his critique by appealing to ordinary language, rather than to science (to which Nerlich appeals). But section 1.5 of *Language and Time* suggests otherwise. Smith would say that he appeals to the conditions in the universe that make true the tensed observation sentence tokens in the observational part of science. What is reported in these observation sentence tokens is the condition that the empirical datum observed is past to some degree or is or will be present in a certain amount of time. Nerlich appeals to the theoretical parts of the special and general theories of relativity. Smith appeals to the tensed observation sentence tokens that confirm the theoretical parts of special and general relativity.

Dennis Sciama (1973, pp. 24–25), for example, made the observation (relative to the observational/theoretical distinction in big bang cosmology): “in its *present* state the universe is far too dilute to be able to thermalize radiation in the time available (10^{10} years) ... we conclude that at sometime *in the past* the universe must *have been* sufficiently dense to thermalize radiation.... According to the standard cosmological models the universe thus would require a universal density of at least 10^{-14} gm cm⁻³ (that is about 10^{15} times larger than the *present* mean density. [my italics]” P.A.M. Dirac (1983, p. 47) observes that “the *present* velocity of recession is 10^{-3} [my italics]” I. D. Novikov (1974, p. 273) observes that “the Universe expands isotropically with a high degree of accuracy at

the present time ... This is valid for at least some period in *the past* too.” A philosopher of the observational part of science will find that the tense in the verb phrases of the observation sentence tokens are surface manifestations of the deep structure of language, a structure that includes only propositions that have presentness as a part. This deep structure, like Ludlow's (1999) deep structure, is a structure of mind-independent reality. This investigation of the deep structure of scientific observation sentence tokens is a primary task of Smith's *Language and Time*.

The misunderstanding of Smith's work as being ordinary language analysis rather than scientific analysis may be because the tenseless theory is often associated with more scientifically inclined philosophers and the tensed theory with more ordinary language inclined philosophers. This association is largely a myth. Not only Smith but also Storrs McCall (1994), Tooley (1997), Craig (2000b, 2003), Mauro Durato (1995), and many others have developed tensed theories in terms of or in relation to the physical sciences. Many tenseless theorists, such as Mellor (1981), Oaklander (1994, 2003), Dyke (2002), Le Poidevin (1992, 2003), Paul (1997), and others have based their theory in large part on analysis of ordinary language.

DISTINCTIONS BETWEEN TENSED AND TENSELESS EXISTENCE

One of the oldest and most important ontological distinctions in the philosophy of time concerns the “full/empty” versions of the tensed theory of time. Broad's theory (1923) and Tooley's theory (1997, 2001, 2003) imply an empty future and full present and past; that is, the future is nonexistent (nothing exists later than the present time) and the present and past are full (existent). Schlesinger's (1981) theory implies a full future, present, and past and, likewise, McCall's (1994) theory implies a full future, containing real possibilities, and a full present and past; in McCall's theory, the present and past are both real and actualized possibilities, whereas the future consists of real but unactualized possibilities. Bell (1987) articulates a theory with an empty past and Others, such as Prior (1967, 1968), Craig (2000a), John Bigelow (1996), Mark Hinchliff (1996), and Ludlow (1999), hold an empty past, full present, and empty future theory.

Smith and Tooley introduced new but different ways to understand the empty/full ontology. But many philosophers have misunderstood both of their (very different) ontologies to be full, tenseless ontologies. A clari-

fication of their ontologies will be helpful, starting with Smith's ontology.

Most tensed theorists, from 1996 to 2005, (with exceptions, such as Tooley and McCall) call themselves *presentists*. Many of these tensed theorists believe Prior coined this neologism as a name for his theory of temporal solipsism (only what is present is real and possesses properties) and they see themselves as developers of the Priorian tradition. But this widespread belief is because of a misunderstanding of the use of *presentism*. Prior did not coin the neologism *presentist* and never used this word even once in his entire corpus. Nor did Prior's early disciples, such as Genevieve Lloyd (1977; 1978), Ferrel Christensen (1974), and others, use the words *presentism* and *presentist*. Contrary to widespread belief, there was no standard use of this term prior to *Language and Time*, which was published in 1993.

The words *presentism* and *presentist* appear nowhere in philosophy journals and books in the 1950s, 1960s, and 1970s. In the 1980s there were two articles in which *presentism* appears; one by Robert Adams (1986), where he rejects presentism, and in a reply to Adams, where Jonathan Kvanvig (1989) defines *presentism* in a way that contemporary philosophers would call a non-presentist theory. The philosopher who first called himself a presentist and who first called the theory he was advocating presentism was Smith (1993). Far from it being the case that *presentism* was regularly used since Prior's 1950s and 1960s publications, the use of *presentism* did not become widespread until readers of Smith (1993) had time to read the book, write an article, and have it published, that is, with the first post-Smith publications beginning in 1996 (Bigelow 1996, Hintchcliff 1996 and others).

By 1997 and 1998 presentism had become the most widely used name of a theory of time (replacing, for example, the names *A-theory*, *tensed theory*, *theory of temporal becoming*, and so on). The false belief that Prior and his 1970s disciples used *presentism* to name Prior's theory partly explains the false belief that Smith misused this word since he had a different theory than Prior. Thus, Smith is typically classified with Tooley and McCall as a contemporary non-presentist who takes tense seriously. The truth is the reverse. Smith correctly used *presentism* and the hundreds of contemporary philosophers who discuss presentism are misusing this word, because of their mistaken belief that it was in wide use prior to Smith (1993) to denote a Priorian version of the tensed theory of time.

The important point is not the mere terminological one that if *presentism* is used accurately (on the causal

chain theory of reference), Smith is a presentist, Prior is not a presentist, and the post-1993 philosophers who call themselves presentists are not, in fact, presentists because they do not hold a version of Smith's presentism. The ontologically important issue concerns the presuppositions about the empty/full distinction that led philosophers of time to believe that Smith's presentism was a full tenseless existence theory. Philosophers interpreted him as maintaining that all times exist equally, in an irreducible, tenseless sense of *exists*. But Smith maintained exactly the opposite theory. He held that no times, events, or anything else exist tenselessly; that only one time exists in the present tensed sense; and that past and future times either no longer exist or do not yet exist.

Smith writes: "x exists" in the tenseless sense means 'x existed, exists, or will exist' where the middle 'exists' is present tensed ... and 'x exists' in the present tensed sense means, or is logically equivalent to, 'x is present' (Smith 1993, p. 165). In fact, Smith argues that there is no tenseless semantic content of *is* or *exists* so that *tenselessly exists* is merely a syntactical string whose semantic content is *existed*, *exists* (present tense), or *will exist*.

This seems to be what post-1993 philosophers meant by their use of *presentism*, so, despite their false beliefs about the correct use of the word *presentism*, it may seem that Smith is a presentist in the same sense in which later philosophers used or misused this word. But there is one main difference: Smith (1993, 2003) argued that past and future tensed sentence tokens can be true in the sense of correspondence only if past and future events presently possess properties of pastness or futurity. Although these past and future events do not exist in the present tense sense of this word, their exemplification of pastness or futurity exists or presently obtains. For the sake of brevity, Smith says that what is past or future may be said to exist in an artificial present tense sense, namely, to presently possess pastness or futurity. If commentators on Smith's ontology distinguished this artificial present tense sense of "exists" from both the natural, genuine present tensed sense of "exists" (is present) and the reductive tenseless use of "exists," all explained in (1993, p. 165), and if the philosophers commented that only in the artificial present tense sense of "exists" do all times exist equally, then this would be a correct attribution (even if the artificial sense appears in only three sentences in the book [1993, p.165]). But their criticism is instead based on mistakenly attributing to Smith's times an equal, primitive, tenseless existence and a "spotlight" version of the tensed theory of time, such as Schlesinger (1981) held.

It is noteworthy that both Smith and Prior recognized that pastness and futurity have presentness as part of their meaning, which must be reflected in one's ontology. Both agree with the statement that pastness is (identically) *present* pastness. Using the example of Whitrow's lecture, Prior notes (1979, p. 258): "its pastness is its present pastness, so that although Whitrow's lecture isn't now present and so isn't real, isn't a fact, nevertheless its pastness, its *having* taken place, is a present fact, is a reality, and will be one as long as time lasts." This is also Smith's position, except Smith proceeds to develop an ontological analysis of these statements and Prior does not. Prior merely gives syntactic rules for translating tensed sentences into the syntactically regimented sentences of tense logic (which have operators such as "It was the case that," "It will be the case that," and so on). Peter Ludlow notes (1999, p. 100): "Prior never actually gave a semantics for his tense logic." In addition, Tooley (1997, p. 164) points out some problems with Prior's syntactics for his tense logic. "But, while treating tensed terms as operators on sentences may be convenient for the formulation of a logic of tense, is it also metaphysically perspicuous? I do not believe that it is. In order for a given regimentation of tensed sentences to be metaphysically perspicuous, the syntax needs to reflect the structure that would need to be present in states of affairs to render tensed sentences true." Tooley shows it does not and concludes that the tense-logical reformulation of a natural sentence "does not get one back to the state of affairs in the world that makes the original sentence true. The tense-logical formulation appears, therefore, to leave it completely obscure what sorts of states of affairs are truth-makers for tensed sentences." (Tooley, 1997, p. 166).

More recently, Smith (2002) has developed a different ontology than his (1993), a theory he calls Degree Presentism. This theory implies there are no properties of pastness, presentness, or futurity. Each entity tenselessly stands in a relation to the present of being earlier than it by a certain amount of time, being later than it by an amount of time, or being simultaneous with the present. Only the present exists to the maximal degree. What is earlier or later than the present lacks the amount of existence that is measured by its temporal distance from the present. Something one second earlier than the present is not maximally existent but rather exists to the lower degree of being one second distant from the present.

A recent, non-presentist, tensed account is Tooley's (1997) theory. Here the central ontological claim is that the past and the present are real, but the future is not, while the main semantical claims are, first, that when the

terms *past*, *present*, and *future* are used in ordinary sentences, they involve an indexical element that refers directly to the time that the utterance is made; secondly, that there are non-indexical, tensed concepts that are more basic, such as the concepts of being past at time *t*, or future at time *t*, or present at time *t*; and, thirdly, that those more basic tensed concepts can in turn be analyzed. Thus it was claimed, for example, that the sentence "E is (tenseless) present at time *t*" could be analyzed, using a temporally-indexed notion of actuality, as "E is actual as of time *t* and nothing later than *t* is actual as of time *t*" (Tooley 2003).

The idea that the terms *past*, *present*, and *future*, as used in ordinary sentences, involve an indexical element, and that it is expressions such as *present at time t* that are more basic, suggested to some philosophers that the theory advanced by Tooley was in fact a full tenseless existence theory. For it is often held, by advocates of tensed views, as well as by defenders of tenseless approaches, that the sentence "E lies (tenseless) in the present at time *t*" is logically equivalent to "E is (tenseless) simultaneous with time *t*". But these two sentences are, Tooley argues, not equivalent. The reason is that the former, in view of the term *present*, entails the fundamental idea of the tensed theory of time, that time is dynamic, but the latter, which contains instead the word *simultaneous*, does not entail this. For because the sentence "E lies (tenseless) in the present at time *t*" means the same as "E is actual as of time *t*, and only times earlier than *t* are also actual as of *t*," the truth of this sentence entails an empty future, because it entails that no future state of affairs is actual as of time *t* (Tooley 2003).

Thus Tooley writes: "The analysis needed here rests upon the claim that the present is the point at which events and states of affairs come into existence, and the basic idea is that, since this view of the present entails that future events and states of affairs are not yet real, an event is present at a given time if and only if the totality of what is actual as of that time does not contain an event or state of affairs that is later than the event in question" (Tooley 2003, p. 438).

But what account can be given of the core notion on which this approach rests—that is, the concept of being actual as of a time? Is it a tensed notion, or a tenseless notion? The most natural view would seem to be that it is a tensed notion. It is true that tensed concepts are typically defined in terms of the concepts of past, present, and future, and such an account entails that the concept of being actual as of a time is not a tensed notion, because it can be argued that it is not analyzable in terms of the

concepts of past, present, and future. However, the temporally-relativized concepts of a proposition's being true at a time, and of a state of affairs being actual as of a time are integral to dynamic conceptions of time, and have no place in tenseless approaches. Accordingly, it seems natural to conclude that tensed temporal concepts are best viewed as including both tensed concepts in the narrow sense of concepts involving ideas such as past, present, and future, and also the temporally-indexed concepts of truth and actuality that are crucial for tensed conceptions of time.

Advocates of tenseless approaches to time have argued (Smart 1981, Mellor 1998), however, that the only way one can make sense of such a temporally-indexed notion of actuality is by saying that E is actual as of time t only if E occurs at or earlier than t. If this view is right, then Tooley's approach collapses into a tenseless account. But this criticism would in fact be very wide-ranging indeed, because arguably what is central to any tensed approach to time is the idea that at least some propositions can have different truth values at different times. If this is right, any tensed approach to time requires a temporally-indexed conception of truth, and this combined with a correspondence theory of truth, means that tensed approaches to time need a temporally-indexed conception of actuality. So if the latter can only be understood tenselessly, no tensed theory of time can be correct.

These explanations of Tooley's and others' theories gives a substantive presentation of the novel ideas that are currently under discussion as of 2005. The tensed/tenseless theories and debates are attracting an increasing number of philosophers. The creativity, the new and more complex arguments, and the increasingly precise conceptual distinctions exhibit the advancement or progress of philosophy in a very clear and positive light.

See also Being; Ontology, History of; Prior, Arthur Norman; Reichenbach, Hans; Russell, Bertrand Arthur William; Smart, John Jamieson Carswell; Time.

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TIME, CONSCIOUSNESS OF

William James's discussion of the perception of time in *Principles of Psychology* (Vol. I, Ch. 15) provides a con-