1 Introduction

1.1 Aims

Tense is a very active research field in semantics and philosophy of language. In this chapter we outline some current controversies and theories in the field. Each section indicates some important recent studies where you can find extensive bibliographies. The rest of section 1 sets the scene for the issues and theories covered in sections 2 and 3.

1.2 Tense and time

Compare these two sentences. Example (1) is “in the past tense” (more exactly, it contains two past tense verbs, or alternatively, two past tense morphemes), while (2) is not in the past tense (it does not contain any past tense verbs or morphemes):

(1) Ruby and Joe admitted that they enjoyed eating Marmite.
(2) Ruby and Joe admit that they enjoy eating Marmite.

It is evident that the words admitted and enjoyed in (1) each contain two morphemes: the verb morpheme admit or enjoy, and a suffix that appears as -ed with regular verbs and is commonly called the past tense suffix, because it typically refers to past time.

Tense is a grammatical term; time is not. We all know in practice what time is, though a fuller understanding requires expertise in physics: it’s no coincidence that the leading scientist Stephen Hawking named his best-selling book A brief history of time (Hawking 1988), and if you are interested in the science of time, that’s the place to start. If you want to explore the nature of time further, you had better also read what philosophers have to say about it: a good recent discussion is Dummett (2004); see also section 3.6 below.

Here we are concerned only with the language of time, of which tense is just a part (see Evans (2003) for the bigger picture). In English there are many words and phrases which refer to time: now, tomorrow, last week, when I was a little child, and so on. But as well as those, we also have suffixes like the past tense morpheme, along with auxiliary verbs like have and will which can refer to time. If you want to find out about a word like tomorrow, you would consult a dictionary; whereas to learn about suffixes and auxiliary verbs, you
Tense

would turn to a grammar. Tenses are *time expressions which are part of grammar*. More specifically, tenses are time expressions which:

a  encode time locations relative to other time locations
b  are linked to verbs
c  are part of grammar.

Point (a) just means that tenses indicate when situations happen (following common practice, we use *situation* as a cover term for events, states, actions etc.). The only way to do this is to locate the time of the situation in question (say, Ruby and Joe admitting something) in relation to another time which is already known. So tenses express a relation between (at least) two times. In the default case, the “known time” is the time of speaking, so the past tense usually (but not always) means “past in relation to now”. (By the same reasoning, a time word like *yesterday* also expresses a relation between two times: *yesterday* only pinpoints a particular day if you know when “today” is). Tenses that conform to the default and locate the time of a situation relative to the time of speaking are often called *absolute tenses* (also known as *deictic* tenses, as they point to the time of the speech situation); for tenses that depart from the default, the term used is *relative tenses* (Fabricius-Hansen 2006: 567). Tenses are linked to verbs: with the past tense suffix, that is clear. With auxiliaries like *have* and *will* it is less obvious, and some grammarians are not prepared to call these markers of tense. A word like *yesterday* is not grammatically linked to a verb, so no one would consider it a tense.

1.3 Even the basics are controversial

Tense is a hugely controversial area in linguistics. Consider again examples (1) and (2). We all agree that the verbs in (1) contain two morphemes, but what about (2)? Most grammarians would say that example (2) is “in the present tense”, but are there two present tense morphemes in this sentence, one in *admit* and one in *enjoy*? If there are, they are not pronounced: we have to say that the present tense verbs *admit* and *enjoy* contain a suffix which is “covert” or “realised as zero”. Alternatively, we could say that the present tense in English is marked by the absence of the past tense morpheme *-ed*.

When we turn to the meanings of tenses, things get even more contentious. In (1), *admitted* is straightforward: it refers to some time in the past. What about *enjoyed*? Well, it is quite likely that what Ruby and Joe said was “We enjoy eating Marmite”, which is in the present tense. So using the past tense verb *enjoyed* in (1) seems to communicate that the time of enjoying was present in relation to the (past) time of admitting – alternatively, that the time of enjoying was *simultaneous with* or *included* the time of admitting. So the past tense suffix here conveys the information “simultaneous to another time in the past”: it doesn’t seem to indicate past time directly in relation to now but only indirectly by its relation to another time – it appears to be relative rather than absolute. Is this another meaning of the past tense, as some grammarians think, or is it the result of other things in the sentence, our knowledge of the world, and the way language is used in real contexts? See section 2.3 for more on this question.

Another observation about example (1) is that in certain circumstances we could just as well have said (3) instead:

(3)  Ruby and Joe admitted that they enjoy eating Marmite.
Example (3) could be a true report of Ruby and Joe saying “We enjoy eating Marmite”, just like (1), so long as the speaker of (3) believes that they still enjoy it. In that case, there would be almost no practical difference between saying (1) and saying (3).

What’s more, example (1) could also be used to report an utterance of “We enjoyed eating Marmite (when we were little)”, with the time of enjoying before (anterior to) the time of admitting. This could suggest yet another relative meaning of the past tense: “anterior to another time in the past”.

We will look in more detail at these problems under “tense in reported speech” in section 2.3. We want to emphasise here that examples (1) to (3) illustrate a pervasive and difficult problem in analysing tense: how do we reconcile (a) the most likely meanings of different tenses with (b) the ways they are used. Here is another case which raises the same problem: the meaning and use of the present tense. What could be simpler than “the present tense refers to now”? Well, it is not so simple: (a) To describe an event happening in front of your eyes, you can’t just use the present tense in English: if you see a bird singing you don’t say “The bird sings” but “The bird is singing”. So aspect and tense are intertwined (cf. Chapter 19). (b) The English present tense can be used to refer to future events (Teaching starts tomorrow) or past events (In 1649, King Charles is executed and Cromwell assumes supreme executive power). The meanings of some tenses (semantics) seem to be different from the way they are used (pragmatics). We will see some more examples of this below. In our view, it is the key problem in analysing tenses.

1.4 Do all languages have tenses?

When we say that a language has tenses, this means that speakers of that language normally must choose a tense in every sentence, even if the tense is redundant as in the sentence Last year I bought a new car: Dahl and Velupillai (2011) point out that the words last year make it clear that the event took place in the past.

Tense is not a universal: lots of languages don’t have tenses at all. In a sample of 1132 languages, 152 (13%) had no tense or aspect inflection (Dryer 2011a). However, if you compare this map with the one at Dryer (2011b), you will see that most of the languages that lack tense or aspect inflection have no inflections of any kind. Even here, though, there is controversy. Mandarin Chinese has often been cited as a language that has no tenses: see Lin (2006) and Smith and Erbaugh (2005) for analyses of Mandarin which assume no tenses and which show how speakers can indicate time relations in other ways. However, Lin (2007) claims that if we accept a Tense Phrase (TP) for English (see section 3.5 below), then we should also accept an abstract TP for Mandarin. Similarly, Matthewson (2006) gives an analysis of St’át’imcets (Lillooet Salish), spoken in British Columbia, Canada, which proposes that although St’át’imcets has no tense suffixes, every finite clause in the language possesses a phonologically covert tense morpheme. At the other end of the spectrum, the Eskimo language Kalaallisut (alias West Greenlandic) has traditionally been said to have up to seven tenses, but recent theoretical work by Shaer (2003) argues that this language is in fact tenseless; from a more descriptive viewpoint, Bittner (2005) takes the same position. For a survey of these issues, see Lin (2012).

1.5 How many tenses?

Tense might look simple. We can distinguish three times in relation to now – past, present and future – so we’d expect many languages which have tenses to have exactly three tenses. In fact, it is rare to find languages with exactly these three tenses. Modern Hebrew is one – but
that’s interesting, because Modern Hebrew is largely an invented language, designed to be uncomplicated. Similarly Esperanto, a simple invented language, has three:

<table>
<thead>
<tr>
<th>Tense</th>
<th>Esperanto Form</th>
<th>English Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>present</td>
<td>mi kaptas</td>
<td>I catch</td>
</tr>
<tr>
<td>past</td>
<td>mi kaptis</td>
<td>I caught</td>
</tr>
<tr>
<td>future</td>
<td>mi kaptos</td>
<td>I will catch</td>
</tr>
</tbody>
</table>

(Hana 1998)

(Some grammars also include mi kaptus, “I would catch”, as a fourth tense.) For English, the number of tenses that you propose depends on whether you consider will + bare infinitive to be a future tense (see section 2.1) and whether you consider have + past participle (the present perfect) to be a tense (see section 2.2). The three main positions are these:

(1) Both will and have can be used to form tenses. This yields the eight tenses below, a position held by some major scholars in the field such as Declerck et al. (2006) and Hornstein (1990).

<table>
<thead>
<tr>
<th>Tense</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>I talk</td>
</tr>
<tr>
<td>Past</td>
<td>I talked</td>
</tr>
<tr>
<td>Future</td>
<td>I will talk</td>
</tr>
<tr>
<td>Future in past</td>
<td>I would talk</td>
</tr>
<tr>
<td>Present perfect</td>
<td>I have talked</td>
</tr>
<tr>
<td>Past perfect</td>
<td>I had talked</td>
</tr>
<tr>
<td>Future perfect</td>
<td>I will have talked</td>
</tr>
<tr>
<td>Future perfect in past</td>
<td>I would have talked</td>
</tr>
</tbody>
</table>

(2) Neither will nor have can be part of a tense, so the present and the past are the only two English tenses. This position has been adopted by some of the most distinguished grammarians of English, including Otto Jespersen (1933: 231), Randolph Quirk (cf. Quirk et al. 1985) and Geoffrey Leech (most recently, Biber et al. (1999), which includes in its bibliography a list of previous grammars in this tradition).

(3) Will is not a tense marker, but have is. This allows four tenses: the present, the past, the present perfect and the past perfect, the position of Huddleston and Pullum et al. (2002), arguably the most sophisticated grammar of English.

The issue here is the best criteria for the identification of “tenses”. Jespersen and Quirk assume that tenses (a) are verbal inflections which (b) mostly express time location. The first of these criteria keeps matters simple: English can have two tenses (assuming that the absence of an inflection can count – cf. section 1.3), and no more. If, on the contrary, we include other things than verbal inflections, then we have to decide whether we also count as tenses not only will and have but also be going to and be to, and ways of talking about the recent past such as Spanish acabar de, and French venir de. (Barack Obama acaba de llegar a Kabul, Afganistán, en un viaje sorpresa. = B.O. has just arrived in Kabul for a surprise visit [El País] / Elle vient de recevoir un appel d’une personne qu’elle ne connaît pas et qui me cherche. = She has just received a call from someone who she does not know and who is looking for me [Le Monde]). The majority of grammarians of English choose the simple option; most studies of tense in a wide range of languages (e.g. Comrie (1986), Dahl and Velupillai (2011)) choose the more complex one.
The second criterion is about meaning and frequency. Here the crucial problems are first, whether frequency can be part of the definition of a grammatical category, and second, how frequently the item has to express (that particular) time location. As we have seen, the English “present tense” has uses where it does not refer to present time, and English will has modal uses (cf. section 2.1). One of the arguments against treating German werden as a future tense marker (cf. again section 2.1) is that German very often uses the present tense to refer to the future where English (for example) probably would not: for example, in the famous last line of Lessing’s play Minna von Barnhelm, Sergeant Werner says to his bride-to-be Franziska “Über zehn Jahr’ ist Sie Frau Generalin oder Witwe” (literally, “In ten years you are a general’s wife or a widow”). It would be more natural in English to say “you’ll be”. Depending on the criteria and how they are applied, the picture that emerges may thus be quite different.

2 Some controversial issues

2.1 Future tense

Consider a sentence like (4):

(4)  It will rain tomorrow.

This sentence doubtless refers to future time, but the majority of grammarians treat will as a modal, not a future tense (see Chapter 21). The main reasons are:

a  Unlike the past tense in English, which is an inflection of a verb, will is a separate word. It is clear that the past tense ending is part of grammar: it is less clear for a separate word.

b  From a grammatical point of view, will is a modal verb like can, may and must. And in some cases, it seems to have a modal meaning: If I say “Oil will float on water” or “John will be at work now”, I am not talking about the future but stating a general truth or speculating about the present time.

c  There are many other ways of referring to future time in English: shall, be going to, the present tense, modals like may (cf. It may rain tomorrow), etc. Is there a reason to single out one of these as the future tense?

d  The future is uncertain, unlike the present or the past: so it is similar to statements using modals like may.

e  If you remove the time adverb tomorrow and just say “It will rain”, the sentence sounds incomplete and a little strange. Compare “It is going to rain”, which sounds complete. So there is something fishy about will.

A minority of people disagree. They respond to these five points as follows:

a  Scholars who study tense in a range of languages accept that auxiliary verbs like will are less grammaticalised than inflections, but still treat them as tense markers when they are mainly used to express time relations. In French, for example, the normal way to express past time is to use the passé composé (compound past) with an auxiliary verb (J’ai fini hier “I finished yesterday”) but an inflection for the future (Je finirai demain “I will finish tomorrow”). If we only allow inflections to be tenses, then we would have to say that French has a future tense but no past tense – a conclusion that few would accept.
It remains to be proved that the grammar of will is relevant to its meaning: the auxiliary verbs have and be share many of the grammatical properties of modals but it does not follow that they have modal meanings. What’s more, the vast majority of instances of will in English refer to future time (Salkie 2010: 191–4); and examples with the future tense stating general truths or speculating about the present are found in languages like French and Italian which have future tense inflections.

French and Italian also have many ways of referring to future time.

It is a fact about time that the future is uncertain, but not necessarily a fact about language. We normally treat “It will rain tomorrow” as a confident assertion, especially if it is said by a meteorologist.

Bare future statements sound strange out of context in other languages too. What’s more, bare past statements often look odd: If I say “It rained”, is that any less strange than “It will rain”?

More sophisticated arguments against treating will as a future tense are given by Huddleston (1995), and summarised in Huddleston and Pullum et al. (2002: 209–10). The case for treating will as a future tense is presented in Salkie (2010). A similar controversy about the status of the werden + infinitive construction in German divides grammarians, with Vater (1997) claiming that it is modal, while Welke (2005: 365–448) argues that it is a future tense.

2.2 Present perfect

A first question that has been addressed is whether the present perfect (e.g. I have talked) is a tense or whether it should be classified as an aspectual marker. There are advocates of both positions, and some have argued that it has a sort of special status (Huddleston and Pullum et al. (2002) use “secondary tense”). Comrie writes that

given the traditional terminology in which the perfect is listed as an aspect, it seems most convenient to deal with the perfect in a book on aspect, while bearing in mind that it is an aspect in a rather different sense from the other aspects treated so far.

(1976: 52)

In aspectual analyses, the present perfect is said to communicate a perfect (sometimes also called a “consequent” or “result” or “present”) state. This means that when the speaker produces a sentence with a present perfect, (s)he makes it clear that there is a result state that holds at present time. For instance, “Sarah has broken her leg” definitely communicates “Her leg is broken”, a present result that is entailed by the lexical semantics, but the utterance is likely to communicate a pragmatically inferred present result as well, such as “She won’t go skiing next week” or “That’s why she looks a bit depressed”. Those who argue against an aspectual approach tend to maintain that “current relevance” is a consequence of the temporal structure of the perfect; and they argue that the present perfect is a deictic category and therefore not concerned with aspect. Ritz (2012) is a useful summary of this debate.

The question of determining the number of perfects, or rather, uses of the perfect, is another one on which there is no consensus in the literature. McCawley (1971) is often cited in this context; he distinguishes between the following “uses” (1971: 263), which he argues are different “senses” (in other words, the present perfect is ambiguous): the universal perfect (5), the existential perfect (6), the stative perfect (7) and the hot news perfect (8):
I’ve known Max since 1960.
I have read the *Principia Mathematica* five times.
I can’t come to your party tonight. – I’ve caught the flu.
Malcolm X has just been assassinated.

Even though there is disagreement on the number of uses of the perfect, most other researchers seem to agree that these are not different senses. Declerck et al. (2006) distinguish three “readings” of the perfect, depending on the type of situation expressed: the indefinite reading, in which the situation comes to an end before now, as (6); the continuative reading, where the terminal point of the situation includes now, as in (5); and the “up-to-now” reading, in which case the terminal point of the situation is adjacent to now, as in (7) and (8). Note that this is different from Declerck (1991), in which a distinction is made between the indefinite perfect, the continuative perfect and the repetitive perfect.

The present perfect in English has a feature that it does not share with languages like French, Dutch or German: it is not normally compatible with adverbials that explicitly locate the situation at a time that is completely over:

*I have seen her yesterday.*

Je l’ai vue hier.
I heb haar gisteren gezien.
Ich habe sie gestern gesehen.

Various proposals have been made to explain this constraint, which appears to be weakening in some varieties of English. For Reichenbach (1947), the English present perfect has a reference time in the present, and its meaning therefore always involves the past and some connection with now (cf. section 3.1 below). This would explain why an adverb like *yesterday*, which does not have this connection, is not possible: if instead we say *I have seen her since yesterday*, where the time period expressed by *since yesterday* extends from the past up to now, then the sentence is fine. Declerck (1991) argues that the present perfect establishes a pre-present domain which extends up to now (as opposed to a past domain, wholly in the past, with the past tense – cf. section 3.2); here again, the meaning of the present perfect is said to be incompatible with time expressions like *yesterday*.

In a more recent paper, Schaden (2009) offers a critical analysis of these and other analyses and proposes instead that the cross-linguistic variation of the present perfect should be explained in terms of pragmatic competition between forms that refer to a situation located before now: both the present perfect and the past tense denote past time. In Schaden’s words, they are “one-step past-referring tenses”. On top of that, the present perfect communicates a perfect state. In English and Spanish, the default form to refer to past time is the simple past and the marked (unusual, special) form is the present perfect: one is almost always able to use the past tense, and occasionally one has to use it (when there is a past time adverbial, cf. (9)).

In French and German it is the other way round: one is almost always able to use the present perfect, and occasionally one has to use it (when there is reference to a present result state, for instance when pointing to a painting: *Meine Tochter malte das* (My daughter painted this) [past] / *Meine Tochter hat das gemalt* [present perfect]). The present perfect is the default form and the past tense is the marked form. The choice of a marked form triggers a pragmatic inference process: the hearer will infer that there is current relevance when the
(marked) present perfect is used in English (as a “perfect state” is part of the semantics of the present perfect), while in German, (s)he will infer that there is no current relevance when the (marked) simple past is used.

While the past tense in English does not exclude the possibility of “current relevance”, the form on its own does not trigger the search for a result. The presence of a past time adverbial makes it clear that the localisation of the event is crucial, and, the argument goes, the speaker is unlikely to be overinformative by using a form that also refers to a perfect state when the only requirement is to locate a situation in the past.

Sometimes the present perfect does combine with a past time adverbial. Schaden quotes the following example from the British National Corpus: “Thank you, the point that Mr has made yesterday, I think will continue to make [sic]”; in these cases, he argues, the speaker provides two pieces of information in a very explicit way: the localisation of the event is important (as is shown by the adverbial), but so are the consequences of the event.

Summing up, the perfect constitutes very fertile ground for the analysis of questions relating to the semantics-pragmatics interface. First, we have the question of the polysemy or monosemy of the perfect: are the different readings of the perfect the result of different semantics associated with each of them, or, rather, is there one common semantic profile with different contextually determined realisations? Second, there is the question of the nature and status of the results communicated by the perfect.

2.3 Tense in reported speech

Consider again example (1), repeated here:

(1) Ruby and Joe admitted that they enjoyed eating Marmite.

This is an example of Indirect reported speech (IRS). What were Ruby and Joe’s original words? Most likely they said “We enjoy eating Marmite”, but it’s possible that they said “We enjoyed eating Marmite”, especially if the sentence continues “… when we were little”. Let’s call the first of these the simultaneous interpretation of the past tense liked, and the second one the anterior interpretation. Although it is less salient, the anterior interpretation is straightforward: the past tense seems to be used with its normal meaning. It’s the simultaneous interpretation which is problematic: the past tense seems to mean “simultaneous with the time of admitted”. How can we explain this?

Grammarians disagree. There are three main analyses.

a  Sequence of tense (backshifting)

The traditional approach to the simultaneous interpretation of examples like (1) was to say that English has a rule called Sequence of Tense or Backshifting, which starts with the original words and changes We enjoy eating Marmite to They enjoyed eating Marmite. (The pronoun we changes to they, but that is thought to be automatic and doesn’t vary from language to language; but not all languages change the tense in the way that English does.) Here is one version:

If the tense of the verb of reporting is past, then the tense of the original utterance is backshifted into the past:
Ilse Depraetere and Raphael Salkie

<table>
<thead>
<tr>
<th>Direct speech</th>
<th>Indirect speech</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Not backshifted)</td>
<td>(Backshifted form)</td>
</tr>
<tr>
<td>(1) Present</td>
<td>Simple past</td>
</tr>
<tr>
<td>(2) Simple past</td>
<td>Past perfect</td>
</tr>
<tr>
<td>(3) Present perfect</td>
<td>Past perfect</td>
</tr>
<tr>
<td>(4) Future</td>
<td>Future in the past</td>
</tr>
</tbody>
</table>

(adapted from Thomson and Martinet (1986)).

A more sophisticated version of this analysis can be found in Comrie (1986: 104–17).

b Two different past tenses

Declerck (1991) and Declerck et al. (2006) propose that the English past tense is ambiguous: normally it means “past in relation to now”, but in special cases like IRS, the past tense is a relative tense which means “simultaneous to another past time in the context”. Huddleston and Pullum et al. (2002: 151–8) give arguments in favour of this analysis, and a more complete defence can be found in Declerck et al. (2006: 383–426). For more on Declerck’s framework see section 3.2 below.

c Pragmatics

Salkie and Reed (1997) propose that the past tense in the simultaneous interpretation of (1) has its normal sense, and that the simultaneity comes from aspectual considerations and pragmatic factors. For criticisms see Declerck (1999).

3 Theories of tense

3.1 Reichenbach

In his 1947 book *Elements of symbolic logic*, the philosopher Hans Reichenbach devoted twelve influential pages to what he called “the tenses of verbs”. Reichenbach noted that the pluperfect (past perfect) tense in a sentence like *Peter had gone* involves not two times (speech time and the time of Peter’s going) but three. The third time, which he called *Reference Time*, is another time which is mentioned or implied in the context. In the case of the pluperfect, the Reference Time has to be past (in relation to speech time), and the pluperfect locates the time of the event (Peter’s going) as past in relation to that Reference Time: in other words, the pluperfect means “past in the past”. He quotes a passage from Somerset Maugham’s great 1915 novel *Of Human Bondage*:

> But Philip ceased to think of her a moment after he had settled down in his carriage. He thought only of the future. He had written to Mrs. Otter, the *massière* to whom Hayward had given him an introduction, and had in his pocket an invitation to tea on the following day.

Reichenbach comments:

> The series of events recounted here in the simple past determine the point of reference as lying before the point of speech. Some individual events, like the settling down in the carriage, the writing of the letter, and the giving of the introduction, precede the point of reference and are therefore related in the past perfect.

(1947: 287)
For the present perfect (Peter has gone), the Reference Time is present, so this tense would mean “past in the present” (cf. section 2.2 above). Reichenbach went on to claim that every English tense involves a Reference Time: so the present tense would not mean “speech time simultaneous with the time of the event” but “speech time simultaneous with Reference Time which is simultaneous with the time of the event”. Many grammarians now agree that this was a mistake, though Hornstein (1990) sets out a carefully argued neo-Reichenbachian model of tense which proposes a reference time in every tense. A comprehensive critique of Reichenbach is Declerck (1991: 225–32); for a discussion that retains his useful insights see Bennett (2002: 82–7).

3.2 Declerck

Declerck (1991) and Declerck et al. (2006) have developed a very systematic conceptual framework for the interpretation of tense and time in English. For Declerck, the present perfect and will + infinitive are tenses, rather than markers of aspect or modality (cf. sections 2.1 and 2.2 for more about these controversial issues). The past tense, the present perfect, the present tense, and the future tense are absolute tenses because they express a link between a situation and the time of speech, which Declerck calls the temporal zero-point (t₀). Whereas the absolute past tense refers to a period of time that is wholly in the past, the present perfect refers to a period that includes now, which Declerck calls the “pre-present”. Compare:

(13) a I visited China (last year).  
     b I have visited China (during my lifetime).

As we noted in section 1.2, relative tenses are used to express time relations between situations where none of them is to. Declerck uses the term “situation time of orientation” (STO) to capture the fact that any situation that is represented in a clause may act as the known time or starting point for locating another situation (or another STO, for that matter). For example, in (1) above the time of admitting (past) is the STO for the time of enjoying.

Declerck says that the time of admitting in (1) “establishes a domain”, a domain being a set of STOs that are temporally linked to each other by means of relative tenses. If the absolute tense that establishes the domain is past, as in (1), then the past tense is used to express simultaneity within the domain, as with enjoyed in (1). The past perfect (pluperfect) expresses anteriority within the domain (cf. (14)), and the future in the past expresses posteriority within the domain (cf. (15)):

(14) Some 20 per cent of staff working in schools said they had been attacked by pupils or parents during the 2010/11 academic year, figures show. (www)
(15) Mr. Whiskers knew that sooner or later the dog would be back to steal from his dish again. He also knew this would be the last time! (www)

If the tense that establishes the domain is future, then Declerck says that the future STO is reinterpreted as if it were present: he calls this a shift of temporal perspective. The relative tenses used within the domain are the ones that are also used to express temporal relations in the present: present for simultaneity (16), past or present perfect for anteriority (17) and (18), future for posteriority (19).
It is anticipated that during the course of the strategic planning process, significant issues will emerge that do not fit neatly into the other themes. (www)

In a few years you will realise that I was right.

If a magician constantly creates new effects, then the audience will not realize that the tricks they have seen revealed are indeed the same method used in the new tricks. (www)

Make it fun for people to talk to you, so they will realize that they will enjoy working with you as well. (www)

Declerck explains that speakers may choose not to grammaticalise time relations within the domain, and opt instead to express the link between the time of the situation and t0 directly, using absolute tenses as in (20–22). Here, the first choice (e.g. had witnessed in (20)) uses a relative tense, while the second option (witnessed in (20)) uses an absolute tense:

John said that Mary had witnessed/witnessed the accident. (Declerck 1991: 46)
I have never denied that I had used/used that money. (Declerck 1991: 29)
The newspapers will print everything that is/will be said. (Declerck 1991: 155)

However, the choice is not always free. There are constraints, both on the use of relative tenses and on the use of absolute tenses. For instance, in the case of temporal clauses, it is not possible to say *I will do it when I will have time: the relative present tense must be used (I will do it when I have time). In a similar way, when the domain is past, the relative past perfect cannot always be replaced by an absolute past tense (He admitted that he was a fool does not mean the same as He admitted that he had been a fool) – cf. (21), where it is possible.

When the tenses on their own do not provide information about the relationship between times, the “Principle of unmarked temporal interpretation (PUTI)” applies: this principle roughly corresponds to the rules that determine the progression of $R$ in other frameworks such as Discourse Representation Theory (see section 3.5, and Chapters 3, 4 and 10). The PUTI basically says that an STO that is a State or an Activity will tend to overlap with other STOs whereas a sequence of Accomplishments or Achievements usually indicate a temporal sequence (see Chapter 19 for these terms) (Declerck 1991: 119, 138–9).

Declerck et al. (2006) is a more elaborate and updated version of the theory presented in Declerck (1991); it also includes a detailed discussion of aspectual categories, and a very systematic analysis of tense in discourse.

### 3.3 Computational linguistics

A great deal of interesting research on tense has been done by people working on language and computers, an area also known as Natural Language Processing (NLP) or Language Engineering. Programming computers to handle tense meanings and the use of tense in discourse is a complex task: much of the best work is collected in Mani et al. (2005). One key paper is Moens and Steedman (1988), which proposes that time relations in language are not fundamental but derive from causal relations. They compare:

When they built the 39th Street bridge, a local architect drew up the plans.
??When my car broke down, the sun set.

They argue that (24) is odd because there is no obvious connection between the car breaking down and the sun setting, and they go on to propose a semantic analysis which starts from a
causal or “enabling” relationship between the when-clause and the main clause. Nowadays most analysts would treat the time relations as semantic and the causal ones as pragmatic, but Moens and Steedman’s alternative is worth considering. Steedman (2005) is a more developed version of this approach to tense.

Another key problem for computational linguists is how to model the way humans understand time sequences in discourse; other approaches to tense tend to concentrate mostly on individual sentences. Several papers in Mani et al. (2005) deal with this problem, including some that use Discourse Representation Theory (see section 3.4).

### 3.4 Discourse representation theory (DRT)

Discourse representation theory takes a formal approach to tense and time relations, and combines semantic and pragmatic information (see Chapters 3, 4 and 10). One of the starting points in this framework is the observation that tenses behave in similar ways to pronouns. Look at this example:

(25) Jennifer entered. She smiled at John.

Here the interpretation of the past tense of smiled in the second sentence depends on the time referred to in the previous sentence, in the same way as the interpretation of the pronoun she in the second sentence depends on the NP Jennifer in the previous sentence. A distinction is made between events (e) like smiling and states (s) like being happy. In (25) both sentences introduce an event into the discourse structure, and a sequence is established between e₁ and e₂. If the discourse were to continue as follows . . . She was happy, introducing a state, the temporal relation between e₂ and s would be one of overlap.

Instances where events do not express temporal progression – Mary fell. John pushed her – or states do not overlap – She opened the door. He was smiling – have led researchers working in Segmented Discourse Representation Theory (SDRT) to assign a more important role to world knowledge and to discourse relations such as narration, result, exploration, background and explanation (Lascarides and Asher 1993). These are said to play a part in determining the hierarchical structure of the discourse. For a simple introduction to DRT see Mani et al. (2005: 321–3); for more details and for SDRT, try van Eijck and Kamp (2011).

### 3.5 Generative grammar

Within generative work on tense we can distinguish three main lines of research. The first is summarised in the claim that “many central aspects of the semantics of tense are determined by independently motivated principles of syntactic theory” (Stowell 2007: 437). The second strand can be traced back to an important paper by Pollock (1989), which proposed for a variety of reasons that every clause had a “Tense Phrase” in its underlying structure. This idea was further developed by Cinque (1999), who argued that the underlying structure of sentences contains a rich series of “functional heads”, of which tense is one (cf. 1.4). Third, we should note some sophisticated work on tense in reported speech by Giorgi, most recently her (2010) book, and related work by Hatav (2012) and Ogihara and Sharvit (2012). Much of this work is discussed in Guéron and Lecarme (2004, 2008).
3.6 Philosophy of language

Philosophers who think about time distinguish two theories following a classic paper by McTaggart (1908): the A-theory which treats time as something objective and real which flows past us, and the B-theory, which regards time as part of our subjective experience. For A-theorists, the present moment is real and can be used to define tenses. For B-theorists, the present moment is something that people construct and has no objective reality. The B-theory holds that tenses are not semantically basic – it is relations such as “earlier than” or “simultaneous with” that are the only legitimate starting point. The A-theory says that tenses are semantically basic – deictic or “absolute” notions such as “earlier than now” and “simultaneous with now” are where we should begin. For an A-theorist, a statement about the future such as (4), repeated here, is not true or false at the time it is uttered but only when the event referred to actually happens or not: the real world has to flow in time before we can judge.

(4) It will rain in Lille tomorrow.

For a B-theorist, predictions about the future are true or false at the time they are uttered (in fact, they are always either true or false, because there is no objectively real flow of time on which our judgement depends). For useful discussion see Dowden (2013).

A related issue in the philosophical literature is whether tenses are referring expressions which are part of propositions (consistent with the A-theory) or operators that are external to propositions (in line with the B-theory). Formal work on the semantics of tense focuses on whether tenses quantify over times (see Chapter 18). Kuhn and Portner (2002) is an excellent summary of these issues. More recently, King (2007) uses tense to address the status of propositions from another direction. He considers the possibility that what is asserted by an utterance of a sentence is not the same thing that tense (and modal) operators operate on. This leaves the nature of propositions in need of reassessment. King argues that tenses are not sentence operators, and that propositions are structured entities consisting of properties, entities and relations. He rejects previous accounts of what holds these parts together, and puts forward the view that speakers of natural languages endow propositions with their truth conditions. This is a radical departure from traditional semantics.

4 Future directions: tense, semantics and pragmatics

In this chapter, we have highlighted some of the key issues in research on tense. Many of the issues depend on one’s view of the relationship between semantics and pragmatics.

It is one thing to describe the specific time information conveyed in specific contexts (e.g. the possibly different uses of the past tense in section 1.3, or the different readings of the present perfect in section 2.2); it is another to decide whether each of these different interpretations have their own semantics or whether they share one core meaning, a kind of common denominator that underlies all the different uses. Issues like these relate to the interface between semantics and pragmatics, and researchers have tried to find evidence or tests that will tip the scales in one direction or another. Tenses in reported speech (section 2.3) raise similar issues: the prominent view that the past tense has two different meanings (absolute versus relative) tries to explain the facts using semantics, whereas other analyses stress pragmatic factors.

It is not only the meaning of the tenses themselves that brings up the question of where to draw the line between semantics and pragmatics. As we saw in sections 3.2 and 3.4, our
knowledge of the world very often overrides any “rules” of temporal progression formulated in terms of situation types: what we know about causation and consequence often seems to drive the “temporal interpretation”, as in examples such as Today I signed a contract with a publisher and had tea with an old friend (no specific ordering imposed) versus The glass broke. John dropped it (reversed order) (Wilson and Sperber 2012: 174). Here again, there is tension and interaction between semantic and pragmatic knowledge and the relation has to be spelt out to arrive at an analysis that can explain the facts.

The analysis of tense thus crucially connects with wider questions about semantics and pragmatics. We expect this to be a central research issue in the future.

Further reading


References


Ilse Depraetere and Raphael Salkie


**Related topics**

Chapter 19, Lexical and grammatical aspect; Chapter 21, Modality.