# The Semantic Development of Past Tense Modals in English

# Joan L. Bybee University of New Mexico

The English modal auxiliaries, would, should, might, and could are historically the Past Tense forms of will, shall, may and can respectively. However, their meaning and usage in Modern English are not derivable from the combination of past meaning with the meaning of the Present modals. Rather the uses of the Past Tense modals may be divided into three types: (i) hypothetical uses; (ii) present tense uses; and (iii) past tense uses.

In Modern English the hypothetical uses are the most common according to the analysis of spoken and written texts done by Coates (1983). They are most obvious in the *then*-clauses of hypothetical conditional sentences. In some cases the hypothetical meaning occurs along with what is sometimes called the 'root' meaning of the modal. For instance in (1) *would* indicates 'hypothetical willingness' (Coates 1983: 211), while in (2) *could* indicates 'hypothetical ability':

- (1) If you had that job lined up, would Fulbright then pay up?
- (2) If you helped me, I could finish this in an hour.

In the example in (3), no additional root meaning is present, and the modal conveys only the hypothetical conditional sense (Coates 1983:214):

(3) I mean we all want be to millionaires, but if we were of course money wouldn't be worth anything.

The present tense uses of originally Past modals are illustrated in examples (4) and (5) (from Coates 1983: 58, 152).

(4) You should walk round the ramparts of the old city too.

(5) I think it unlikely actually, but he might do it today.

Much less common are uses of the Past modals in past contexts, although they do occur, as the examples in (6) and (7) show (Coates 1983: 211, 111):

- (6) He believed Mr. Weaver would perform "outstanding service" in the post.
- (7) "I just cannot remember a time when I couldn't swim," she told me.

The ambiguity of *could* can be seen in the following bit of wisdom, expressed on a bumber sticker:

(8) George Bush couldn't run a laundromat.

This statement could be taken to mean that he tried and failed (the past tense reading), or that even if he tried, he would fail (the hypothetical reading).

Even though these modals are Past in form, the past uses of most of them are the least frequent of their uses, and for *should*, one could argue that there are no past uses at all.

This situation, especially with regard to the hypothetical uses, is paralleled in other languages, for it is common for the Conditional Mood to consist formally of the Past tense of the Future, as in Spanish and French, or the Past of another modal form, as for instance in Nahuatl (Andrews 1975) or Sierra Miwok (Freeland 1951). Such facts suggest that there may be something predictable about the diachronic development of the Past tense forms of modal verbs and that it may be fruitful to investigate the question of how and why past tense modals develop hypothetical and present tense uses, and whether there is any relation between these two developments.

In the following I will trace the semantic development of would and should only, but I expect the general findings to apply to might and could as well.

#### 1. Should and would in Old and Middle English.

That should and would are originally past tense in meaning is clear from their uses in Old English texts, such as Beowulf. There we find many clear instances of should signalling destiny, duty or obligation of the subject in the past, corresponding to sceal, which has the same meaning in the present. Consider the examples (9) through (11) and their translations, based on Gordon 1926.

- (9) Næs pæt forma sið / pæt hit ellen-weorc æfnan scolde. (1464) 'That was not the first time that it (a sword) had to perform a deed of valor.'
- (10) pe he wið pam wyrme gewegan sceolde. (2400) 'when he had to fight the dragon.'
- (11) pæt pæt ðeodnes bearn gepeon scolde. (910) 'that the king's son was destined to prosper.'

Similarly, wolde is used almost exclusively to signal volition of the subject in the past, just as wylle was used to express volition in the present. Consider the examples in (12) through (14). Example (13) refers to a time that is past with reference to the time of the narrative, which is also past.

- (12) **wolde** self cyning symbel \( \text{picgan.} \) (1010)

  'The king himself wished to join in the banquet.'
- (13) *donne sweorda gelac sunu Healfdenes efnan wolde;* (1040-41) 'when the son of Healfdene wanted to practice sword-play.'
- (14) wolde wig-fruma Wealhpeo secan, cwen to gebeddan. (664-5) 'the war-leader wanted to look for the queen to bed down with.'

By the Middle English period, however, both *should* and *would* had made their way into present contexts, especially with first and second person. Consider first *wolde*, which is especially prominent in present usage in *Sir Gawain and the Green Knight*, where it can express present volition or willingness. Consider the following examples:

- (15) "I wolde yowre wylnyng worche at my myzt..." (1546) "I am willing to do your desire as far as I can..."
- (16) "'Wher is', he sayd, "The gouernour of this gyng? Gladly I wolde Se that segg in syzt, and with hymself speke raysoun." (224-6) "Where is', he said, "The lord of this company? I would gladly See that knight and speak reason with him."

To explain the present uses of Past forms, we must refer to the special properties of modal verbs. Modal verbs, whether they express desire, obligation, necessity, intention or ability, have in common the semantic property that they do not imply the completion of the action or event expressed by the infinitive with which they occur. (This property is in contrast with other complement-taking verbs such as *finish* and *manage*, which do imply completion [Givón 1973].) In the present tense, however, these modal verbs do imply

a close relation between the agent and the main predicate, which may imply or predict a future completion of the event or activity of the main predicate. Especially in first person, present tense modal verbs such as Modern English I wanna, I'm gonna, I hafta or I can are used to state intentions, make offers and promises which our interlocutors can expect to be carried out. The same verbs in the third person are used to report intentions, offers and promises. Similarly, I will and I shall in the Gawain text are used to make promises, state intentions and resolutions, which one trusts will be carried out.

The situation with these same modal verbs in the past tense is quite different, however. The relation between the agent and the main predicate is much more tenuous. *He/I wanted to* for instance may be used both in contexts in which the desire was carried out and in contexts in which the desire was not carried out. As stative verbs, the past forms of modals assert that a state existed before the moment of speech, but they do not say whether that state still exists in the present or not. Thus past modals offer two areas of vagueness: (i) whether or not the predicate event was completed; and (ii) whether or not the modality remains in effect.

A modal in past time, then, leaves open the possibility that some conditions on the completion of the main event were not met, and therefore the modality may still be in effect. That is why when we say, for example,

## (17) I wanted to help you.

in a situation where I didn't, it means that there were some conditions that were not met: something was standing in my way. Interestingly, we can also say *I wanted to help you* in a situation in which you still need help, but I do not intend to help you because something IS standing in my way. In other words, the existence of PAST blocking conditions is generalized to include the existence of PRESENT blocking conditions.

Note that the use of a Past Tense in a conditional sentence results in a hypothetical conditional. The hypothetical conditional is contrasted with the reality conditional which uses Present tense or a Future auxiliary:

- (18) Hypothetical conditional:

  If she saw Judy, she would tell her the news.
- (19) Reality conditional:

  If I see Judy, I will tell her the news.

The difference between the two is that the hypothetical conditional implies

that it is considerably less likely that the condition will still be met. The difference in likelihood originates from the tense distinction in the following way: The past in both clauses of the hypothetical conditional sentence signals that the conditional relation held in past time. The modality in the then-clause signals that the relation is still in effect. (Cf. If Mike saw her, he told her the news.) On the other hand, the reality condition with Present tense means that the conditional relation begins in present time and projects into the future. The reason that the one framed in the past seems more hypothetical is that the conditional relation has existed in the past but the condition has not yet been met, suggesting that it may never be met.

This description of the origins of hypotheticality for past tense modals predicts that the uses of hypothetical conditionals that span past and present time are more basic and historically prior to those that are set in the future. As Suzanne Fleischman (personal communication) has pointed out, a hypothetical conditional may also refer to the future: If in the next year the interests rates went down again, I would definitely consider refinancing. No uses of this sort are found in the texts examined in the study reported below, suggesting that this use is a less common extension of the hypothetical use derived in the way described above.

The *if*-clause of a hypothetical conditional always contains a past form, and the past modals show up here as well. However, it is their use in the main clause that is more important for explaining how they come to be used in present contexts.

It is interesting that the *then*-clause of the hypothetical may take other modal verbs besides *would*, such as those shown in (20), even though some of them are not very highly grammaticized:

The Past tenses of all these modal verbs behave in a similar manner: They allow the interpretation that the modality is still in effect, and the predicate action will be carried out if the right conditions are met.

For this reason it seems appropriate to interpret Modern English wanted to as an analogue to wolde in the Late Old English and Middle English period.

I am suggesting that the use of wanted to in present time in Modern English is possible because it implies that certain conditions on carrying out the desired predicate may not be met. The so-called polite or remote uses of past tense as in

(21) I wanted to ask you a question.

arise in the same way. That is, (21) implies that there might be conditions that are unmet. Among these implied conditions is the question of whether the addressee wants to be asked a question — thus the deferential use of the past (see Fleischman 1989).

Note that under this analysis, the polite use of the Past tense depends upon the presence of a modal verb; it is not possible to get a polite reading of just any verb with the Past tense. Thus He asked you a question is no more polite than He is asking you a question. Some of the verbs that commonly have polite readings in past tense across languages are 'be obliged' (English should, Spanish debía), 'want' (English would, Spanish quería), 'be able' (English could, Spanish podía), and also mental or emotional state verbs, such as 'think'. All of these verbs have in common the fact that they are stative and that their past tense meaning leaves open the possibility that the past state continues into the present.

The difference between *I wyl* and *I wolde* in Gawain illustrates the conditional nature of the Past form nicely. *I wyl* is used to state intentions or willingness and may be taken as making a promise or resolution. Compare the use of *wyl* in (22) and (23) to that of *wolde* illustrated in (15) above.

- (22) Quoth Gawayn, "I schunt onez, And so wyl I no more" (2280-1) 'Gawain said, "I flinched once, But I won't do it again."
- (23) "For sothe," quoth that other freke, "so felly thou spekez, I wyl no lenger on lyte lette thin ernde rizt nowe." (2302-3) "Truly," said the other (the green knight), "so fiercely you speak, I will no longer delay your errand (right now)."

These statements with wyl are waiting on no conditions. The first is a knight's resolution, which is apparently not conditional, and the second is followed by action.

Wolde also occurs with the conditions made explicit, as in the examples in (24) and (25):<sup>2</sup>

- (24) And I wolde loke on that lede, if God me let wolde. (1063) 'And I want to see that knight, if God would let me.'
- (25) Bot wolde ze, lady louely, then leve me grante... (1218)

  I wolde boze of this bed, and busk me better; (1220)

  'But if you would, lovely lady, grant me leave...

  I would get out of bed and dress myself better.'

The conclusion, then, is that the hypothetical and the present uses of Past modals are basically the same in semantic content. With the present uses of wolde, however, the conditions are not stated, they are only implied.

Turning now to *schulde* in Middle English we find a similar situation. *Shall* refers to what is to be. The deontic source may vary: it may be divine destiny, social obligation or mutual arrangement. *Schulde* refers to what was to be and carries the same vagueness of implication as the other modalities: the action may or may not have been completed; the modality may or may not still be in effect. In Middle English we find many uses of *schulde* to refer to what was to take place, without any implication that it did take place:

- (26) pere watz much derue doel driuen in the sale

  That so worthé, as Wawan schulde wende on that ernde...(558-9)

  'There was great lamenting made in the hall

  That so worthy as Gawain was to go on that errand.'

As with *wolde*, all the conditions necessary for the completion of the main predicate may not be met, so the use of *schulde* is appropriate in a hypothetical conditional.

(28) 'For were I worth all fe wone of wymmen alyue... (1269) fer schulde no freke vpon folde bifore yow be chosen.' (1275) "For if I were worth all the host of women alive...

No man upon earth would be chosen before you."

The fact that a hypothetical conditional relation still holds in the present makes the few present uses of *schulde* found in *Gawain* possible. In (29) I assume the condition to be 'if I looked for you.'

- (29) "Where schulde I wale \( \theta e, \)" quoth Gauan, "where is \( \theta y \) place?" (398)
  - "Where shall I find thee," said Gawain, "where is thy place?"
- (30) And quy be pentangel apendez to bat prynce noble
  I am in tent yow to telle, bof tary hyt me schulde: (623-4)
  (Author speaking)
  'And why the pentangle belongs to that noble prince
  I intend to tell you, though it (should) slow my tale.'
- (31) "faz I hade nozt of yourez, zet schulde ze haue of myne." (1815-6) "Though I have nothing of yours, Yet you should have something of mine."

One very interesting example, (32), refers to an obligation established in the past, which is being met in the present. This example shows clearly that the use of a Past modal may imply the continuation of the modality into present time.

(32) "At fis tyme twelmonyth fou toke fat fee falled,
And I schulde at fis Nwe zere zeply fee quyte." (2243-4)
"At this time a year ago you took what fell your lot,
And I am/was obliged at this New Year to promptly repay you."

In an embedded or hypothetical context, the original lexical meaning of obligation or destiny has weakened considerably even in Middle English, so that it contributes little additional meaning:

- (33) Quat! hit clatered in se clyff, as hit cleue schulde. (2201) 'Quat! It (a noise) clattered on the cliff as if it would cleave it.'
- (34) And he asoyled hym surely and sette hym so clene
  As domezday schulde haf been digt on the morn. (1883-4)
  'And he absolved him surely and made him so clean
  As (if) doomsday should have been the following morn.'

A very interesting point to note about the distribution of schulde in the Gawain text is that all of the past uses save one are in embedded clauses — in complements, relative clauses, as if, or if clauses — where the main clause is marked for Past tense. The one exception is where schulde occurs in a main clause in the main past narrative line, but in this case it has haf with it:

(35) And he schunt for \( \text{pe} \) scharp, and schulde haf arered;

A rach rapes hym to, ryzt er he myzt,

And ryzt bifore \( \text{pe} \) hors fete \( \text{pay fel on hym alle, } \) (1902-5).

'And he (the fox) swerved for the sharp blade, and should have retreated,

A hound hurries to him, just before he could,

And right before the horses' feet they all fell on him.'

511

In this Middle English text, *schulde* never has to convey a past sense by itself. It was compatible with a past context, but to convey pastness, it had to be bolstered with *have*.

### 2. Should and would in Shakespeare

If we continue to follow *should* and *would* into Early Modern English, and consider a Shakespearean play such as *The Merchant of Venice*, we find that the trend toward using *should* and *would* in present and hypothetical contexts has continued to the point where both modals appear in these contexts almost to the exclusion of past contexts.<sup>3</sup> Consider Table 1.

The present uses continue to be much the same for would although they grow in frequency. They occur mainly in the first person singular and mean 'I want' or 'I would like'. The present uses of should include the first singular question, as in (36), the second singular statement of obligation, as in (37), and a new development, the occurrence of should in complement clauses where no past time is signalled or implied, as in (38).

(36) What should I say to you? Should I not say "Hath a dog money? ..." (I.2.115-6)

Table 1. Uses of should and would in Middle and Modern English.

	hypothetical past		present	other	total
should					
Gawain	17%(6)	62%(21)	15%(5)	5%(2)	(34)
Merchant	58%(30)	6%(3)	21%(11)	14%(7)	(51)
Would					
Gawain	35%(12)	38%(13)	17%(6)	8%(3)	$(34)^4$
Merchant	38%(20)	4%(2)	42%(22)	$15\%(8)^5$	(52)

- (37) You should in all sense be much bound to him. (V.1.136)
- (38) You teach me how a beggar should be answer'd. (IV.1.436)

It will be recalled that the hypothetical uses of modals may involve a retention of some of their lexical meaning, such as hypothetical obligation and hypothetical willingness. Thus in *Gawain* we find examples of *would* which signal hypothetical or conditional willingness, as examples (15) and (24). There is also an example in *Gawain* which is devoid of any volitional meaning and might be characterized as a conditional prediction:

(39) Bot who-so knew the costes that knit ar therinne, He wolde hit prayse at more prys, parauenture; (1849-50) 'But whoever knew the qualities that are knit into it, He would value it more highly, perhaps.'

In such examples, would is a pure conditional, since it contributes no other meaning to the clause.

In *The Merchant of Venice* such uses are common, but only for third person. *Would* occurs rarely with first person in *then*-clauses, and when it does, it signals volition. Compare (40) and (41) with third person, where *would* is conditional, to (42) where it is volitional.

- (40) Believe me sir, had I such venture forth, The better part of my affections would Be with my hopes abroad. (1.1.15-17)
- (41) For if they could, Cupid himself would blush To see me transformed to a boy.
- (42) If every ducat in six thousand ducats
  Were in six parts, and every part a ducat,
  I would not draw them, I would have my bond.

Should complements would by occurring with a pure conditional sense in first person, and rarely in second or third person then-clauses.

(43) If I could bid the fifth welcome with so good a heart as I can bid the other four farewell, I should be glad of his approach. (1.2.121-3)

Another difference between would and should is that should appears frequently in if-clauses with only hypothetical meaning, while would appears

rarely in *if*-clauses and then only with volitional meaning. Thus *should* has come to signal pure conditional or hypothetical in conditional sentences, while *would* maintains some of its volitional content in first person and *if*-clauses.

The difference between Elizabethan and Modern English with regard to these modals is that would is replacing should in the first person in then-clauses, and has in fact already done so in American English, and would is now appearing in if-clauses with only hypothetical meaning, where formerly it conveyed willingness.<sup>6</sup>

As for the present uses, my proposal is that the Past modals come to be used in the present via the hypothetical conditional: originally the present uses are hypothetical *then*-clauses without the conditions stated explicitly. As *should* illustrates, however, the conditional sense can be lost. The resulting present tense modal expresses obligation, as *shall* and *should* originally did, but in a weakened sense. The hypothetical meaning has had the effect of weakening the force of the obligation, through the implication that there are outstanding conditions. Thus modern *should* expresses weak obligation. This may be seen by comparing it to the stronger *have to*, in examples (44).

(44) I should mail this today. vs. I have to mail this today.

The other English Past tense modals, *could* and *might*, when used in a present context, also express a meaning that is weaker than their Present tense counterparts, *can* and *may*. If Past modals evolve universally into present uses in the way proposed here, they will always express a meaning that is similar to their Present counterparts, but weakened by hypotheticality.

#### 3. Implications

These facts about the gradual development of the hypothetical and present senses of Past modals and their loss of past meaning have a number of implications for the synchronic and diachronic analysis of Past tense modals. In particular, we have seen that it is the combination of the modal sense and the past sense that produces the hypothetical reading, and not past alone, nor the modality alone. Moreover, the hypothetical sense replaces the past sense over time. Therefore a synchronic analysis of Modern English such as the classical Chomskyan one (Chomsky 1957), which derives would and should

by combining Past Tense with will and shall cannot be justified. The case for should is the clearest, since should no longer has any past readings at all and has needed have added to it to attain a past reading ever since the Middle English period.<sup>8</sup>

A case can also be made for would not containing any past sense, except for its past habitual use. Note that the past uses of would in the corpus of spoken Modern British English examined by Coates represent only 16% of the total, with 82% of the uses being hypothetical. Furthermore, the small percentage of past uses occur in past contexts in which would does not on its own signal past time. I would argue, then, that would agrees with or is compatible with a past context, but does not contain as part of its own semantics a reference to past time. The gradual semantic changes that take place among the English Past tense modals are similar, but do not affect all the modals at the same time. Despite having some syntactic properties demonstrating classhood, each modal verb follows its own path and timetable of development (Bybee 1986).

There are also consequences for the analysis of the meaning of past tense morphemes. It has been suggested, for instance by Steele (1975), Waugh (1975), Langacker (1978) and James (1982) that in languages in which a past tense is used as a hypothetical that the past tense actually means 'remote from present reality' rather than 'preceding the moment of speech'. James points out a problem with this approach, which is that in normal contexts, the past tense, say in English or French, continues to mean 'before the moment of speech' and cannot be interpreted as merely 'remote' or 'distal'. That is, there is no justification for claiming that the normal sense of a past morpheme has become more general and no longer refers to past time just because in some contexts it means hypothetical.

What all of these authors have failed to stress is that it is not the past tense alone that is contributing the hypothetical meaning, but rather the past in combination with a modal verb, a subjunctive mood, a hypothetical marker (such as *if*), or, in some cases, the imperfective aspect (Fleischman, this volume). Moreover, I have argued that the diachronic progression shows that it is not the 'remoteness' of the past that leads to the hypothetical sense, but rather the fact that past combined with modality leaves open the possibility that certain conditions on the completion of the predicate have not been met. Thus there is no justification for claiming that the meaning of past tense in some languages is 'removed from present reality'.

Another issue concerns whether or not a 'Conditional Mood' should be viewed as the 'future of the past'. Since in would and should, as well as in the conditional mood in other languages, such as Spanish or French, we can see that formally the 'conditional' consists of the Past tense of the Future marker, it is tempting to claim that conditional meaning is the combination of past and future meaning and is historically derived from the future-of-the-past. Fleischman (1982) makes this claim for the Romance conditional, arguing that sentences such as (45) show that would may be conditional and future of the past at the same time.

## (45) Peter said he would come (if he got the money).

For the Romance conditional she claims that "the conditional use was a secondary development contingent upon the earlier use of this form as a future for past time" (p. 66), though she presents no direct historical evidence for this position.

There are a number of reasons for rejecting this particular explanation of the relation between future and conditional, at least for English, and perhaps generally. First, in the English data, we have seen that the conditional uses of would and should developed while these two modals and their Present tense counterparts still signalled their original lexical meaning of 'desire or volition' and 'obligation or destiny'. Not only did they not wait until will and shall had become futures, they also did not wait until they had lost their original modal semantics. That is, I have claimed that it is the particular combination of these modalities with past time that creates the conditional, not the combination of past with future. If this hypothesis is correct, then we would expect to find languages in which a past modal has developed into a conditional without its present tense counterpart developing into a future. Indeed such cases exist. For instance in Classical Nahuatl, the form used in 'then'-clauses of conditional sentences (with the condition implied or explicit) is the Imperfect form of the verb meaning 'to want' (Andrews 1975). However, the future is not formed from the Present of this verb, it is a completely independent suffixal formation. Similarly, in the east central subdialect of Sierra Miwok, the Andative (be going to) marker -y:i: modified by the Distant Past marker is used to form a conditional. However, the Present Andative is not used as a future in that dialect, although it is so used in a reduced form in the southern dialect. The evidence that this is not a case of the 'future of the past' is that the conditional meaning is expressed by the unreduced form of the Andative,

while in the dialect in which the Andative is used as a future, it is reduced to yi (Freeland 1951).

Finally, a more general conclusion is that we must expect grammaticizing semantic elements to merge in some cases, especially if they are always expressed together, and despite the fact that they may involve different grammatical categories, such as tense and modality. Our overzealous tendency as linguists to analyze every element down into minimal components often obscures rather than illuminates the diachronic tendencies for some types of grammatical meaning to merge.

#### **NOTES**

- An earlier version of this paper was presented at the Eighth International Conference on Historical Linguistics in Lille, France, August 1987, and appeared in the Buffalo Working Papers in Linguistics, A special issue for Paul Garvin, 1990, 13-30. Special thanks are due to Suzanne Fleischman, William Pagliuca and the participants in the Mood and Modality Symposium for discussion of ideas contained herein. This work was supported by a fellowship from the John Simon Guggenheim Memorial Foundation.
- Wolde also occurs in the if-clauses in these examples. Here it means 'want' or 'be willing' in the past.
- 3. The Merchant of Venice is written partly in poetry and partly in prose, making it more appropriate than one of the plays written entirely in verse. Of course, we cannot assume that Shakespeare's texts give a true representation of spoken Early Modern English. At the time, however, they apparently sounded natural enough for audiences to accept them, and moreover, they are the best evidence we have concerning spoken English of that period.
- 4. For the Gawain text, the numbers for wolde include nolde (ne + wolde).
- 5. The other uses of would in The Merchant of Venice are three generic uses in phrases such as 'as one would say' and four uses to mean 'I wish', in which the complement clause has a different subject than the main clause.
- 6. In American English, examples such as the following, where *would* is purely hypothetical and conveys no sense of willingness, are frequently heard in colloquial speech:
  - (i) If I would see her, I would tell her.
- 7. *Must* is also considered Past tense in some analyses. However, its strong meaning suggests that it might derive from the Second Singular Present form, *moste*.
- 8. In American English was supposed to conveys past obligation (I was supposed to go yesterday) and should does not (\*I should go yesterday). Even should with have has specialized to counter-factual obligation (I should have gone yesterday).
- The past habitual uses of would date from the Old English period and develop independently of the hypothetical uses.

#### **REFERENCES**

Andrews, J. R. 1975. Introduction to Classical Nahuatl. Austin: University of Texas Press.
 Bybee, Joan L. 1986. "On the Nature of Grammatical Categories: A Diachronic Perspective." Proceedings of the Second Eastern States Conference on Linguistics, ed. by Soonja Choi 17-34.

Chomsky, N. 1957. Syntactic Structures. The Hague: Mouton.

Coates, J. 1983. The Semantics of the Modal Auxiliaries. London: Croom Helm.

Fleischman, S. 1982. The Future in Thought and Language. Cambridge: Cambridge University Press.

Fleischman, S. 1989. "Temporal Distance: A Basic Linguistic Metaphor". Studies in Language 13.1.

Freeland, L. S. 1951. The Language of the Sierra Miwok. (Memoirs of IJAL or Indiana Publications in Anthropology and Linguistics VI.) Bloomington: Indiana University.

Givón, T. 1973. "The Time-Axis Phenomenon". Language 49.800-825.

Gordon, R. K. 1926. Anglo-Saxon Poetry. London: Dent.

James, D. 1982. "Past Tense and the Hypothetical: A Cross-Linguistic Study". Studies in Language 4.375-403.

Langacker, R. W. 1978. "The Form and Meaning of the English Auxiliary". Language 54.853-82.

Steele, S. 1975. "Past and Irrealis: Just What Does it All Mean?". IJAL.41.

Waugh, L. 1975. "A Semantic Analysis of the French Tense System". Orbis 24.436-85.