

THE MORPHOSYNTACTIC MANIFESTATIONS OF MODALITY*

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1. Introduction

Linguistic expressions with modal meanings—i.e., ones that express some form of either possibility or necessity—have a common semantic core, but vary considerably in their morphological and syntactic properties as well as in the finer details of their meanings. The purpose of this paper is to identify and argue for a basic distinction between two types of modal expressions, and to show how that distinction can lead to a unified account of the superficially different realizations of futurities and counterfactuals in French and English, and of parallel gaps in the two systems.

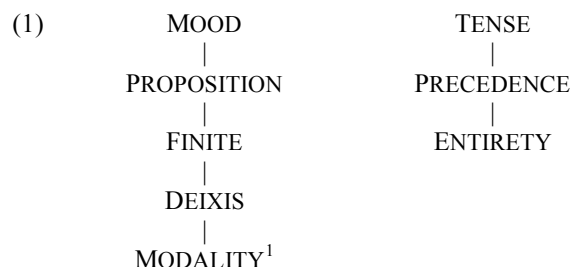
The essential contrast we propose to make is between grammatical and lexical modality. (These are the categories referred to as featural and non-featural meaning by Hall (2001); see also Bouchard (1995).) Grammatical modality is expressible in terms of discrete feature values, which can interact morphosyntactically with the system of grammatical tense and mood features. The semantic content of grammatical modal expressions is strictly epistemic, encoding simple logical consequence or compatibility (the relations that serve as the basis of Kratzer's (1977) treatment of modal meaning and of much subsequent work in the same vein). Lexical modality, on the other hand, encompasses potentially richer root modal meanings (deontic, dynamic, volitional, etc.) as well as epistemic ones, and is not reducible to feature values; consequently, lexical modal expressions have no direct morphosyntactic interaction with tense and mood. The same lexical–grammatical distinction shows up in other realms of meaning as well; thus, for example, there is a core of temporal meaning that is shared by a lexical expression such as *yesterday* and a grammatical past tense affix. In our application of this distinction to an analysis of modal expressions in French and English, we reveal that superficially similar expressions (such as French modal verbs and English modal auxiliaries) may differ as to which kinds of modality they encompass, and superficially different expressions (such as English modal auxiliaries and the French future and conditional tenses) may nonetheless encode very similar sets of grammatical features.

2. The geometry of tense and mood features

In our treatment of grammatical modality and the tense and mood features with which it interacts, we adopt a feature-geometric approach, following work by Harley (1994), Harley and Ritter (2002), Béjar (2003), Cowper and Hall (2000),

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and Cowper (1999, 2005). The specific dependency structures we assume are shown in (1).



These structures, along with the features of viewpoint aspect, determine the various “tenses” a language may have. The tense feature PRECEDENCE marks the event, state, or proposition denoted by a clause as (at least partially) preceding the reference point that serves as its temporal anchor; if the mood feature DEIXIS is also present, then the clause is in the indicative mood, and its temporal anchor is the moment of speech (Cowper 1999).² A deictic clause without PRECEDENCE has non-past tense (present or future time reference).

The feature ENTIRETY indicates that a clause is entirely prior to its temporal anchor. This feature is not grammaticalized in English; in French, it gives the difference between the *imparfait* (without ENTIRETY) and either the *passé simple* or the *passé composé* (with ENTIRETY).

Future time reference is not part of the tense feature system, but is instead a kind of epistemic modality (Hall 2001; Matthewson 2005; Kyriakaki 2006; Hayashi 2007), which is part of the mood feature hierarchy in (1). At the top of this hierarchy is the feature PROPOSITION, which distinguishes propositions about states or events from the bare states or events themselves. The feature DEIXIS links a clause to the deictic centre of the utterance, relating it to the belief set of the speaker at the moment of speech.³ The default interpretation is that the relation is one of inclusion—i.e., that the proposition asserted by the clause is held by the speaker to be true. Grammatical modality is represented as

1. In earlier work, we have referred to this feature as IRREALIS. Here and henceforth, we adopt the name MODALITY as a less ambiguous way of reflecting the feature’s semantic content.

2. This definition holds for languages, like English and French, that exhibit the sequence of tense phenomenon. Some modifications are required to account for languages, like Russian, that lack sequence of tense. For an initial attempt at this, see Cowper (1996).

3. The feature FINITE, which is intermediate between PROPOSITION and DEIXIS in the hierarchy, is a purely morphosyntactic feature with no semantic content (see Cowper 2002). Unlike the other dependency relations in the geometry, those involving FINITE do not follow from semantic entailments between the features in question, but rather serve to express morphological generalizations—e.g., that all morphosyntactically finite clauses are semantically propositional, and that all semantically deictic clauses are finite. These generalizations hold in the languages discussed in this paper, but are not necessarily universal; cf. Kyriakaki (2006), who proposes a somewhat different feature geometry for Greek.

a feature, dependent on DEIXIS, that indicates that the proposition denoted by a clause bears a marked relation of either consequence or compatibility to the speaker's belief set.⁴ A non-modal deictic clause is a statement about what the speaker believes is true; a clause bearing the feature MODALITY is a statement about what the speaker believes will, must, or may be true.

We use the term "tense" to refer to the features under TENSE in (1), not to a particular syntactic projection. The mapping between the features in (1) and the syntactic heads making up the INFL system can, in principle, vary from language to language. Proposals about how this mapping works in any language therefore cannot rely on semantics alone, but must be motivated by syntactic evidence.

3 French modals

Some French modals are listed in (2). As can be seen in the sentences in (3)–(6), they, like other French verbs, can appear in all of the tense forms that French permits, and can take a variety of complements.

- (2)
- | | |
|----------------|----------------|
| <i>pouvoir</i> | 'can' |
| <i>devoir</i> | 'must, should' |
| <i>falloir</i> | 'need' |
| <i>vouloir</i> | 'want' |

- (3)
- a. *Jean pouvait conduire.*
Jean can-impf.3sg. drive-inf.⁵
'Jean could drive.'
 - b. *Il se peut que Pierre soit à Montréal.*
it SE can-pres.3sg. that Pierre be-sbjct.3sg. in Montreal.
'It's possible that Pierre is in Montreal.'
 - c. *Je n'en peux plus.*
I NEG-EN can-pres.1sg. more
'I can't take it any more.'
 - d. *On espère pouvoir arriver à l'heure.*
one hope-pres.3sg. can-inf. arrive at the hour.
'We hope to be able to arrive on time.'
 - e. *Marie a pu trouver l'article.*
Marie have-pres.3sg. can-prt. find-inf. the article
'Marie managed to find the article.'

4. These relations may be expressed in terms of possible worlds (e.g., Kratzer 1977, 1991) or by some other means (e.g., Hall 2001).

5. Abbreviations used in glosses for French verb forms: cond. = conditional; fut. = future; impf. = *imparfait* (imperfect); inf. = infinitive; pres. = present; prt. = past participle; sbjct. = subjunctive.

- (4) a. *Elle **devait** écrire une lettre.*
she must-impf.3sg. write-inf. a letter
'She had to write a letter.'
- b. *Tu me **dois** dix dollars.*
you me must-pres.2sg. ten dollars
'You owe me ten dollars.'
- c. *Les enfants ont **dû** perdre leurs mitaines.*
the child-pl. have-pres.3pl. must-prt. lose-inf. their mittens
'The children must have lost their mittens.'
- d. *Je ne **veux pas devoir** défaire toutes mes valises.*
I NEG want-pres.1sg. NEG must-inf. unpack-inf. all my suitcases
'I don't want to have to unpack all my suitcases.'
- (5) a. *Le chien **voulait** un biscuit.*
the dog want-impf.3sg. a biscuit
'The dog wanted a biscuit.'
- b. *Elle est entrée sans **vouloir** déranger les autres.*
she be-pres.3sg enter-prt. without want-inf. disturb-inf. the others.
'She came in without wanting to disturb the others.'
- c. *Marcel n'a pas **voulu** manger son déjeuner.*
Marcel NEG have-pres.3sg. want-prt. eat-inf. his lunch
'Marcel didn't want to eat his lunch.'
- (6) a. *Il **faut** respecter ses parents.*
it need-3sg. respect-inf. one's parents
'You must respect your parents.'
- b. *Il nous **faut** mille dollars.*
it us need-pres.3sg. thousand dollars
'We need a thousand dollars.'
- c. *Il a **fallu** montrer le livre à la doyenne.*
it have-pres.3sg. need-prt. show-inf. the book to the dean.
'It was necessary to show the book to the dean.'
- d. *Il va **falloir** nettoyer le parterre.*
it go-pres.3sg. need-inf. clean-inf. the floor
'We're gonna have to clean the floor.'

Also evident in (3)–(6) is the fact that French modals have a variety of root and epistemic senses—for instance, *pouvoir* can express epistemic possibility (as in (3b)) or dynamic ability (as in the other examples in (3)). This broad range of meanings, and in particular the inclusion of root meanings, can be taken to indicate that the French modals express lexical modality: their senses are more complex, more nuanced, and less predictable than those of purely grammatical modal expressions. From the fact that they can appear in all tenses and moods, we can infer that the French modals do not encode the grammatical

feature MODALITY in addition to their lexical modal meaning; if they did, then they would be constrained by the dependency relations in (1) to appear only in finite, deictic clauses.

4. English modals

4.1 English modals in general

The English modals, listed in (7), express a range of meanings similar to those of the French modals

(7)	a.	<i>can/could</i>	epistemic/dynamic/deontic	possibility
	b.	<i>will/would</i>	epistemic/volitional	necessity/strong likelihood
	c.	<i>may/might</i>	epistemic/deontic	possibility
	d.	<i>shall/should</i>	epistemic/deontic	necessity
	e.	<i>must</i>	epistemic/deontic/dynamic	necessity

Unlike French modals, however, the English modals do not pattern morphosyntactically with other lexical verbs in the language. As shown in (8), they have no non-finite forms.

(8)	a.	*We hope (to) can arrive on time.	cf. (3d)
	b.	*Marie has could find the article.	cf. (3e)
	c.	*The children have must(en) lost their mittens.	cf. (4c)
	d.	*I don't will must bring all my luggage to the station.	cf. (4d)
	e.	*She came in without willing disturb the others.	cf. (5b)
	f.	*Marcel hasn't would eat his lunch.	cf. (5c)
	g.	*We have should show the book to the dean.	cf. (6c)

Unlike other finite verbs and auxiliaries, English modals do not show subject agreement, as illustrated in (9) by the contrast between the modal auxiliary *can* and the homophonous lexical verb *can*.

(9)	a.	Mary can (*s) play the bassoon.	modal <i>can</i> ; agreement disallowed
	b.	Mary can*(s) tomatoes.	non-modal <i>can</i> ; agreement required

In any verbal sequence in English, it is the first element, if any, that agrees with the subject. The non-agreement in (9) is thus despite the fact that, as illustrated in (10), English modals are always initial in any such series in which they appear.

(10)	a.	The cat may have been being fed by the neighbours.
	b.	*The cat may+s have been being fed by the neighbours.
	c.	*The cat has may+en be being fed by the neighbours.
	d.	*The cat has been may+ing be fed by the neighbours.
	e.	*The cat has been being may+en feed by the neighbours.

The English modals, although semantically as rich as their French counterparts, are thus much more restricted syntactically. We infer from this that English modals express both lexical modality (accounting for the range of their meanings) and grammatical modality (accounting for the restrictions on their syntactic distribution). In other words, English modals form a small lexical class, each member of which is specified as to its particular modal properties (necessity vs. possibility, most salient root interpretation, etc.), but members of this class also spell out the grammatical feature MODALITY, and thus can be inserted only in a clause whose inflectional head includes that feature. The morphosyntactic restrictions on English modals are exactly what we would expect from the position of the feature MODALITY in the dependency structure in (1): they can appear only in finite clauses, but, because they themselves spell out a feature that entails FINITE, they cannot occur in combination with any other vocabulary item, such as the third-person singular agreement suffix, that explicitly spells out FINITE separately. (This point is discussed in further detail in §4.3 below.)

4.2 *Will*: Modal or future tense marker?

Conflicting accounts have been given of the morphosyntactic status of English *will*: it has been argued to be a future tense marker rather than a modal (by, e.g., Comrie 1985; McCawley 1981; Hornstein 1990), and to be a modal rather than a future tense marker (by, e.g., Abusch 1985; Enç 1996; Iatridou 2000; Hall 2001; Matthewson 2005; Hayashi 2007).

Comrie (1985) notes a syntactic difference between volitional and futurate *will*—viz., that the former but not the latter can be used in *if* clauses:

- (11) a. If he WILL go swimming in dangerous waters, he will drown.
 b. *If it will rain tomorrow, we will get wet.
 c. If it rains tomorrow, we will get wet.

Because “future time reference uses of will are grammatically distinct from modal uses of will in such subordinate clauses,” Comrie (1985: 48) argues, “the grammar will have to refer directly to the feature of futurate time reference. These examples therefore suggest (but do not, of course, prove) that English does have a separate grammatical category of future time reference, i.e. a future tense.” However, as Hall (2001: 35–36) points out, epistemic *will* patterns with futurate *will* in this respect. The sentence in (12a) is an epistemic statement about a situation holding at the moment of speech; in the *if* clause in (12b), this epistemic *will* is just as ungrammatical as the futurate *will* in (11b).

- (12) a. That will be Hustav at the door now.
 b. *If that will be Hustav at the door now, I’d better leave.
 c. If that’s Hustav at the door now, I’d better leave.

This suggests that the relevant distinction is between root and epistemic necessity, not between modality and future tense, and that futurate *will* can be treated as simply a sub-case of epistemic *will* (as predicted by the mood feature

geometry in (1)). We thus assume, in light of these observations and the fact that it patterns syntactically with the other English modals in every way, that *will* is a modal.

4.3 Modals and PRECEDENCE

In addition to MODALITY, some of the English modals (*would, could, should, might, and sometimes must*) also spell out the inflectional feature PRECEDENCE. The combination of modal semantics and PRECEDENCE is what gives rise to the contrary-to-fact interpretation of clauses containing these modals. Iatridou (2000) accounts for this effect by generalizing the meaning of past tense morphology as in (13).

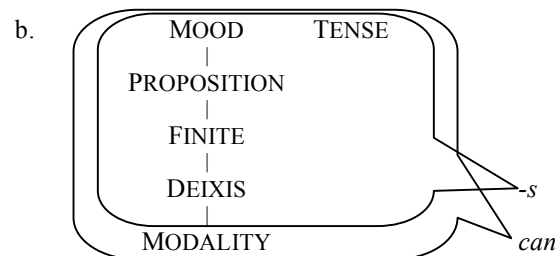
- (13) **T(x) excludes C(x)**, where x ranges over times or worlds; T(x) is the topic time or topic world; and C(x) is the time or world of the speaker.

Hall (2001) provides another account, using the narrower meaning of PRECEDENCE. For Hall, counterfactual situations are alternative continuations—either possible or necessary—of past situations.

This hypothesis immediately accounts for the syntactic and morphological restrictions on the distribution of English modals. Since MODALITY entails both DEIXIS and FINITE, English modals can appear only in finite clauses, and no other morphemes, such as the 3rd person singular agreement marker, are required (or indeed permitted) to spell out these features.

For example, in (9a), repeated below in (14a), *can* spells out MODALITY and, by entailment, all features of which MODALITY is a dependent. The further insertion of *-s* would redundantly re-spell out DEIXIS and its superordinate features. The diagram in (14b) shows the features that would be spelled out by each of the two vocabulary items.

- (14) a. Mary can(*s) play the bassoon.



The prohibition on redundant vocabulary insertion assumed here is also responsible for other phenomena, such as the fact that *-s* cannot combine with the simple past tense (**He lefts*), or, in the D system (on which see Cowper and Hall 2002), the impossibility of combinations such as **this a book*.

5. Grammatical modality in French

French, like Spanish (Cowper 2005), has tense forms traditionally known as future and conditional. It can be argued that the futurate and counterfactual meanings of clauses containing these forms arise from the feature MODALITY, as in the case of English clauses containing *will* and *would*. There is thus no need to add a separate future tense feature (e.g., a SUBSEQUENCE feature parallel to PRECEDENCE) to the geometry in (1). We support a narrow construal of Matthewson's (2005) conjecture that "future itself is never a tense, but rather involves another element (a modal or a temporal ordering predicate; cf. Abusch's (1985) WOLL) which combines with tense"—narrow in that we exclude the possibility of a grammatical "temporal ordering predicate" that explicitly places the time reference of a clause after the moment of speech.

The temporal and modal interpretations of the French future are illustrated in (15), and those of the conditional in (16):

- (15) a. *Le train arrivera à la gare centrale à cinq heures.*
the train arrive-fut.3sg. at the station central at five hours
'The train will arrive at the central station at five o'clock.'
- b. *Pierre aura environ 30 ans.*
Pierre have-fut.3sg 30 years
'Pierre is probably around 30 years old.'
- c. *Il n'est pas là. Il aura oublié l'heure du repas.*
he NEG is NEG there he have-fut.3sg forget-prt. the hour of the meal
'He's not here. He must have forgotten the time of the meal.'
- (16) a. *Marie savait que Pierre partirait le lendemain.*
Marie know-impf.3sg. that Pierre leave-cond.3sg. the next day
'Marie knew that Pierre would leave the next day.'
- b. *Si jamais tu perdais ce livre, ce serait un désastre.*
if never you lose-impf.2sg. this book, it be-cond.3sg. a disaster
'If you ever lost this book, it would be a disaster.'

The French future, like English *will*, has both a futurate interpretation (15a) and a non-furate epistemic one (15b,c). Similarly, the conditional, like *would*, has both a future-under-past reading (16a) and a potentially counterfactual epistemic one (16b). If the future and conditional were treated as tense morphemes proper, their non-furate interpretations would be mysterious.

A further point of similarity between the future and conditional and the English modals is that they have only finite indicative forms, a pattern that appears to hold cross-linguistically. While many languages have both present and past infinitives and participles, we know of no clear cases of future infinitives or participles. (See Cowper (2005) for a discussion of the so-called future participle in Latin.) In addition, even in Spanish, where there is almost complete cross-classification between the indicative–subjunctive distinction and

the rest of the tense system, there is neither a future subjunctive nor a conditional subjunctive.

We therefore propose that the French future and conditional tense forms spell out MODALITY. In addition, the conditional spells out PRECEDENCE. The lack of root modal meanings associated with these two tense forms follows from the fact that they have only grammatical modality, and no lexical modal meaning. Since subjunctives lack the feature DEIXIS (or at least one of its component features; see Cowper (2005) for the decomposition of DEIXIS in Spanish), and since MODALITY entails full DEIXIS, future and conditional forms cannot be subjunctive.

6. Conclusions

The features spelled out by the modals and tense forms discussed above are summarized below in (17).

- (17) a. French future;
English non-past modals
(*will, shall, must, may, can*):
- MOOD TENSE
| |
PROPOSITION |
| |
FINITE |
| |
DEIXIS |
| |
MODALITY
- b. French conditional;
English past tense modals
(*would, should, must, might, could*):
- MOOD TENSE
| |
PROPOSITION PRECEDENCE
| |
FINITE |
| |
DEIXIS |
| |
MODALITY

As we have seen, expressions with modal meaning can have lexical modal semantics, grammatical modality, or both. The possibilities and some of their instantiations are summarized in the table in (18).

(18)	+grammatical modality	-grammatical modality
+lexical modal semantics	English modals	French modals; English <i>be able, be obliged</i> , etc.
-lexical modal semantics	French future & conditional	[wholly non-modal expressions]

We expect to find similar patterns with other potentially grammatical types of meaning, such as number in nominals. For example, in Hungarian, quantified DPs have (potentially plural) lexical quantity, but pattern as singular syntactically (19a–b); plural-marked DPs have grammatical plural number, and thus trigger plural agreement on verbs (19c–d).

- (19) a. *Van hat könyv.*
be.3sg. six book
'There are six books.'
- c. *Vannak könyvek.*
be-3pl. book-pl.
'There are books.'

- b. **Vannak hat könyv.* d. **Van könyvek.*
 be-3pl. six book be.3sg. book-pl.

We have argued that the feature responsible for the futurate meanings of forms such as English *will* and the French future tense is a MODALITY feature in the mood hierarchy, rather than a ‘future tense’ feature. However, it is generally uninformative to ask, about an expression such as *will*, whether it is ‘a tense morpheme’ or ‘a mood morpheme’; in fact, such vocabulary items spell out both tense features and mood features.

- (20) a. Features of English *will* and French future
 Mood: spells out MODALITY
 (entailing DEIXIS, FINITE, and PROPOSITION)
 Tense: contrastively lacks PRECEDENCE (yielding non-past tense)
- b. Features of English *would* and French conditional
 Mood: spells out MODALITY
 (entailing DEIXIS, FINITE, and PROPOSITION)
 Tense: spells out PRECEDENCE (yielding past tense)

In fact, it can be argued that the English finite past tense forms are not purely tenses either, since they spell out both tense features (PRECEDENCE) and mood features (DEIXIS, entailing FINITE and PROPOSITION). Under the analysis presented here, the boundary between tense and mood is drawn not in the inventory of verbal forms, but rather in the feature system. The interesting question to ask about an individual inflectional morpheme in any language is thus not “Is this a tense marker or a mood marker?” but rather “What features does this vocabulary item spell out?” Of a particular feature in a particular language, one must ask on which syntactic head it appears, and which vocabulary items, if any, overtly spell it out. And of a language, the interesting questions to ask are not “Does this language ‘have tense’? Does it ‘have mood’?” but rather “What are the tense, mood, and aspect features of this language, and how are they realized morphosyntactically?”

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