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THE RISE OF FEATURAL MODALITY IN ENGLISH

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This paper takes a new look at the development of English modals as a syntactically distinct category (Lightfoot 1979; Roberts and Roussou 2003; van Gelderen 2003; Roméro 2005). Assuming that syntactic differences among languages are due to differences in the properties of elements of the functional lexicon (Chomsky 2000; Borer 2004, 2005a,b), I propose that the core of this syntactic change was the addition of a single feature, MODALITY, to the set of formal features characterizing the English Infl system. This feature was also added to the lexical entries of the verbs that became the English modals. Lightfoot (1979) refers to this class of verbs, prior to the change in question, as the *premodals*.

1. MODAL VERBS IN MIDDLE ENGLISH

It has been well documented (Lightfoot 1979; Roberts 1985, a.o.) that until the end of the Middle English period, the premodal verbs behaved in almost all respects like ordinary verbs. They took nominal arguments, as illustrated in (1).

(1) a. I can eow.

I can you

'I know you.' (Visser 1963-73:548)

b. Ic sculde tyn busendpunda.

I should ten thousand pounds

'I had to pay ten thousand pounds.' (Visser 1963-73:548)

c. Thou maist alle thyngus.

you may all things

'You are able to do all things.' (Visser 1963-73:557)

d. I wolle noon ober medecynene lore.

I will no other medecine nor lore

'I will have no other medicine or teachings.' (Visser 1963-73:559)

e. I woulde rather one onely day of lyfe / then all the ryches of Roome.

I would rather one only day of life / than all the riches of Rome

'I would rather have one day of life than all the riches of Rome.' (Visser 1963-73:561)

They could appear in various nonfinite forms, as shown in (2).

(2) a. *Bare infinitival*

I shall not **konne** answere.

I shall not can answer

'I will not be able to answer.' (Roberts 1985:23)

b. Present participle

Cynnyng no recour in so streit a neede... can-ing no recourse in so desperate a need 'Knowing no recourse in so desperate a need...' (Roberts 1985:23)

- c. Past participle
 - i. if we had **mought** convenient come together... if we had might-en convenient come together 'If we had been able to meet conveniently' (Roberts 1985:24)
 - ii. if he had wolde...

if he had will-en...

'if he had wanted to...' (Roberts 1985:24)

Finally, as all verbs could do in Old English and Middle English, the premodals underwent V-to-T movement. They could therefore precede clausal negation, as in (3), and could undergo inversion in questions and in verb-second constructions, as in (4).

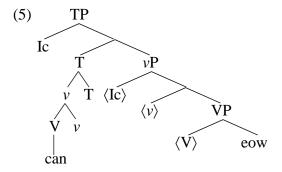
- (3) a. perfor I dar not ledyn be, for I wold not for an hundryd pownd bat therefore I dare not carry.INF you for I will.PST not for a hundred pounds that bu haddyst a vylany in my cumpany.

 you had.2sG a villainy in my company

 'Therefore I dare not carry you, for I would not for a hundred pounds [wish] that you had a villainy in my company.' (c 1450, Penn Corpus)
 - b. He thenkith nought that evere he shall/ Into ony syknesse fall.He does not think that he shall ever fall into any sickness. (Rose; Fischer 1992:285)
- (4) a. What wolde 3e more, whanne oure creatour God schal be clierly yseyen, iknowen what would you more when our creator God shall be clearly seen known and iloued?

 and loved
 - 'What more would you want, when our creator God is clearly seen, known, and loved?' (c 1400, Penn Corpus)
 - b. ...and thorugh the soule of our Lady wente a swerde of sorwe? and through the soul of our Lady went a sword of sorrow? (c 1450, Penn Corpus)

There is no reason, at this stage, to characterize these elements syntactically as anything other than ordinary verbs that happen to have modal meaning. They are inserted in V, and move from V through v to T, as shown in (5).



2. MODALS IN PRESENT-DAY ENGLISH

The situation in Present-Day English is very different. The class of modals (can, could, may, might, will, would, shall, should, must) display properties more characteristic of functional, rather than purely lexical, elements. First, they can no longer take nominal or prepositional internal arguments, as shown in (6).

- (6) a. *I can Turkish.
 - b. *You should to Ankara.

In fact, modals now take only a verbal complement, and that verbal complement must be a bare infinitival. In this, the modals behave like infinitival *to*, which is generally believed to occupy a functional head in the Infl system. The parallel patterns with modals and with infinitival *to* can be observed in (7) and (8).

- (7) a. It must *(be) obvious that modals have changed.
 - b. You should walk/*walking/be walking to school by now.
 - c. Only the best applicants will *(be) hired.
 - d. We may (*to) leave early today.
- (8) a. We believe it to *(be) obvious that modals have changed.
 - b. The children are expected to walk/*walking/be walking to school by 8:30 a.m.
 - c. Only the best applicants can hope to *(be) hired.
 - d. We tried to (*to) leave early today.

With the loss of the non-finite uses of the modals, they can now appear only first in the verbal sequence, as shown in (9).

- (9) a. The children might laugh.
 - b. The children might be laughing.
 - c. The children might have laughed.
 - d. The children might have been laughing.
 - e. The children might have been being laughed at.

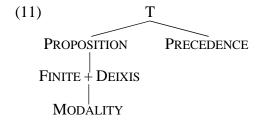
As would be expected if they are now of category T, modals can encode the present/past tense distinction. The distinction illustrated in (10) between *will* and *would*, and between *can* and *could*, is an example of Sequence of Tense, like the parallel distinction between *goes* and *went*.

- (10) a. i. The teacher says that she will return the exams tomorrow.
 - ii. The teacher said that she would return the exams the next day.
 - b. i. We know that the suspect can fly an airplane.
 - ii. We knew that the suspect could fly an airplane.
 - c. i. The boss says that he goes to Montreal every month.
 - ii. The boss said that he went to Montreal every month.

2.1. Features of INFL in Present-Day English

The interpretable features of T in English are shown in (11), adapted from the analysis in Cowper (2005). These are privative features, whose absence in any given clause is contrastive. For example, if PRECEDENCE appears in T, the event or state denoted by the clause precedes the

temporal anchor of the clause, while if PRECEDENCE is absent, the eventuality is interpreted as coincident with the temporal anchor.



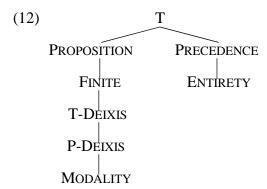
As argued in Cowper (2005), modals in Present-Day English are inserted in T, and spell out a particular formal feature of the English INFL system, namely MODALITY. MODALITY is a semantic dependent of DEIXIS, which in English is bundled with FINITE.

Semantically, MODALITY modifies the relation that holds between the proposition denoted by the sentence and the set of propositions constituting the world/situation in which the sentence holds. DEIXIS states that the proposition denoted by the sentence is a member of that set of propositions, while MODALITY states that the proposition in question either follows from, or is compatible with, the set. The details of the semantics can be found in Hall (2001).

In addition to encoding the feature Modality, a Present-Day English modal carries non-featural information specifying whether it denotes possibility or necessity (can vs. must), the strength of the modal force (must vs. should), and various other idiosyncratic properties.

3. FEATURAL MODALITY IN FRENCH AND SPANISH

The feature MODALITY is not always spelled out by modal verbs like those found in English. In many languages, modal verbs are ordinary verbs, as they were in earlier English, and inflectional MODALITY is spelled out by a synthetic tense form in the verbal paradigm. This is what we find in French and Spanish; the features of the Spanish T system are given in (12).



Both French and Spanish have synthetic future and conditional tense forms, which have both temporal and modal interpretations.

(13) a. *Temporal future*

En un remoto futuro el sol se apagará.

in a remote future the sun SE extinguish.FUT.3SG

'In the remote future the sun will go out.'

-

¹ The feature MODALITY used here corresponds to the feature IRREALIS in Cowper (2005).

b. Deontic future

No pasarán!

not pass.FUT.3PL

'They shall not pass!'

c. Epistemic modal

Habrá más de cien personas en la fiesta. have.FUT.3SG more of 100 persons in the party 'There must be more than 100 people at the party.'

(14) a. Future in the past

Dijo que lo haría luego. say.PRET.3SG that it do.COND.3SG later

'He said he'd do it later.'

b. *Present polite modal*

Yo querría hacer-lo.

I want.COND.1SG do.INF-it

'I'd like to do it.'

c. Present contrary-to-fact modal

Sería una locura poner-lo en marchasin aceite. be.COND.3SG a craziness put.INF-it in go without oil.

'It would be crazy to start it up without oil.'

d. Past epistemic modal

Tendría unos treinta años. have.COND.3SG some thirty years

'He must have been about 30.' (all from Cowper 2005)

Cowper (2005) argues that the synthetic future in French and Spanish spells out MODALITY, while the synthetic conditional spells out both MODALITY and PRECEDENCE. In line with work by Ippolito (2002), I assume that PRECEDENCE is crucial in providing contrary-to-fact interpretations; this is the role it plays in many conditional clauses.

As predicted by the dependency relations shown in (12), tense forms that spell out MODALITY are always finite. This has been observed with Present-Day English modals, but it is also true of the relevant tense forms in French and Spanish. While both languages have participial and infinitival verb forms, and these (sometimes periphrastic) non-finite forms participate in the present-past distinction, future and conditional forms are invariably finite. The crosslinguistic absence of nonfinite future and conditional forms follows if these forms spell out the feature MODALITY, which can only appear if DEIXIS is also present. PRECEDENCE is independent of FINITE, and thus also of DEIXIS.

I therefore claim that the connection between featural modality and finiteness is not accidental. MODALITY is semantically dependent on DEIXIS, which characterizes finite indicative clauses. All IPs with MODALITY must thus also be finite.

4. THE SUBJUNCTIVE/MODALITY SANDWICH

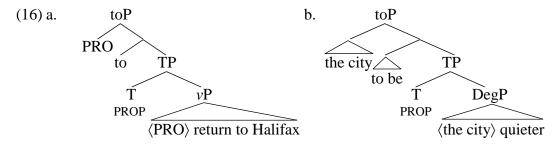
The feature systems in (11) and (12) embody an interesting interaction between the degree of featural markedness, on the one hand, and the rigidity of deictic anchoring, on the other. Sometimes, a clause is less rigidly anchored because it is less marked—i.e., it lacks DEIXIS

altogether, as with infinitivals and subjunctives. Sometimes, a clause is less rigidly anchored because it is more marked—i.e., the connection between the clause and its deictic anchor is made looser by the presence of the marked feature MODALITY.

4.1. The unmarked case—no DEIXIS

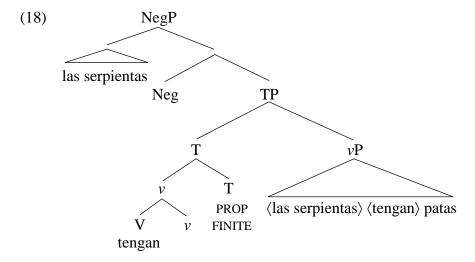
A clause that lacks a DEIXIS feature is not inherently anchored to the deictic centre of the utterance. It can be anchored as the complement of another clause, with the interpretation dependent on the semantic properties of the governing verb. As is apparent in (15), an English infinitival clause can be interpreted as taking place in the future (15a), or in the past (15b).

- (15) a. Sometime soon, we hope [PRO to return to Halifax].
 - b. In previous years, we found [the city to be quieter].



In Spanish, both infinitival clauses like the one in (17a) and subjunctive clauses like the one in (17b) lack DEIXIS, and are thus temporally anchored by the higher clause, in a way determined by both the lexical meaning of the higher verb and the features of the higher T.

- (17) a. Quiero hablar con José. want.PRES.1SG talk.INF with Jose 'I want to talk to José.'
 - b. Dios decretó que las serpientas no tengan patas. God decree.PRET.3SG that the snakes not have.SBJCT.3PL paws 'God decreed that snakes should have no legs.'



In Present-Day English, the features DEIXIS and FINITE are for the most part bundled together, and are spelled out by the indicative tense forms. Setting aside the vestigial, and highly formal,

subjunctive, forms lacking DEIXIS are thus necessarily non-finite, as in (15). In languages with a robust subjunctive, these two features are not bundled, as shown in (12), and FINITE without DEIXIS is spelled out by the subjunctive, as in (17b).

4.2. The marked case—DEIXIS + MODALITY

The feature Modality, a marked dependent of Deixis, has the effect of reducing the degree of certainty associated with the proposition denoted by the clause it appears in. Depending on whether Modality is realized as necessity or possibility, the proposition denoted by the clause is interpreted as either following from, or merely not inconsistent with, the set of propositions making up the situation at the moment of speech. Both of these interpretations also arise with infinitives and subjunctives, as seen just above. The result of this similarity is that what is expressed in Spanish with the subjunctive is frequently expressed in Present-Day English with a modal, as in the translation of (17b) above, and in (19).

- (19) a. I worry that she could be sick.
 - b. May the force be with you!

(20)

a.	No Deixis (Infinitive)	b.	No Deixis (Subjunctive)	c.	Full Deixis (Indicative)	d.	Markedly weak deixis (Modal)
	PROPOSITION		PROPOSITION		PROPOSITION		PROPOSITION
			FINITE		FINITE		FINITE
					DEIXIS		DEIXIS
							Modality

5. WHAT HAPPENED TO ENGLISH MODALS AND MODALITY, AND WHY?

In Old English, and in early Middle English, there was a subjunctive tense form, which was used in contexts similar to the modern French and Spanish subjunctive. Unlike French and Spanish, however, English lacked both a future and a conditional tense form. Modal verbs were ordinary verbs, as indeed they are in French and Spanish. There was thus no evidence in Old English or in Early Middle English for a formal feature MODALITY in INFL. I thus claim that MODALITY was not part of the English INFL system at this time.

Between Old English and late Middle English, there was a significant loss of inflectional morphology, resulting in almost complete syncretism between the indicative and subjunctive verb forms. The subjunctive thus became less useful as a way of unambiguously indicating lack of full Deixis in contexts where a finite clause was needed. As a result, during the Middle English period, there was a rapid increase in the use of periphrastic constructions with premodals, where the subjunctive would have been used in Old English (Fischer 1992: 250). At the same time, the frequency of use of non-finite forms of the premodals was declining. This shift in the use of the premodals meant that they predominantly appeared in INFL, as the first element in the verbal sequence in the clause.

Lightfoot (1979) argues that several independent changes in English, prior to the end of the 15th Century, had the effect of making the premodals a morphosyntactically identifiable class of verbs, known as the *preterite-present* verbs. The most salient property of verbs in this class is that they did not take the *-b/-s* suffix to agree with third-person singular subjects in the present tense.

The verbs with this property which did not have modal meaning were either lost or morphologically regularized by the end of the Middle English period. Together with the loss of the subjunctive and the use of the modals as a periphrastic alternative, this left a class of verbs that was morphologically, syntactically, and semantically identifiable: preterite-present verbs that virtually always appeared in T, and which had modal meaning.

This, I suggest, is what caused speakers acquiring English around 1500 to posit the formal feature Modality as part of the English Infl. system, and to assume that the modals were inserted directly in Infl., as they are in Present-Day English.

Finally another syntactic change that happened in Middle English had the effect of exposing, in the surface syntactic string, the new underlying difference between verbs and modals: non-auxiliary verbs stopped raising to INFL. Following Cowper (2010) (see also Bjorkman (2011) for a similar idea), I assume that auxiliary verbs like *have* and *be* are inserted directly in functional heads to provide morphological support for inflectional features. The loss of non-auxiliary verb raising thus eliminated all movement from V to INFL, with modals and the auxiliaries *have* and *be* appearing only in the INFL system, and true verbs appearing only in the $\nu P/\nu P$ system.

5.1. What we know

If the scenario just sketched is correct, it makes a non-accidental connection among several syntactic changes that took place in English in the 16th Century.

The first group of changes follows directly from the fact that the modals have been reanalyzed as spelling out the feature Modality, which is a dependent of Deixis. Modals can now only be inserted in a head that bears Modality, and thus also contains both Finite and Deixis. We thus predict that the infinitival uses of the modals, and also their present and past participial uses, which had been decreasing in frequency throughout the previous century, disappear completely at this point.

Second, since a single TP contains only one set of T features, and since modals spell out one of those features, we predict that a single clause can no longer contain multiple modals. The very restricted cases of modal stacking observed in some varieties of English will have to be treated as exceptions.

Third, since modals now spell out a formal feature of the T system, we predict that they will acquire more purely inflectional uses. Indeed, modals began to be used in less obviously modal contexts, such as for future time reference, replacing the simple present, and in the consequent clauses of contrary-to-fact conditionals, replacing the past and the pluperfect. These are precisely the contexts in which languages like French and Spanish use the synthetic future and the conditional, which I argue spells out the same formal feature of T.

5.2. What we don't (yet) know

The account just sketched raises several questions which have been left for future research. First, if modals and auxiliary verbs are all inserted in functional heads to support inflectional features, why do modals, but not other auxiliary verbs like *have* and *be*, require a bare infinitival complement? In other words, why is *be* required in (21)?

(21) The cat may *(be) hungry.

Modals share this selectional property with infinitival to, and both the modals and to historically

appeared with the infinitive. It can easily be stipulated that the modals and *to* have an uninterpretable [V] feature that must be checked by a verbal element, but such an account is merely descriptive.

Second, if all modals are inserted in T, why are the scope relations between modals and clausal negation so inconsistent? The problem is illustrated in (22).

- (22) a. Elizabeth can't understand the syntax of modals. (NOT > CAN, dynamic, possiblity)
 - b. It won't rain tomorrow. (NOT > WILL, epistemic, necessity)
 - c. The students mustn't laugh at the professor. (MUST > NOT, deontic, necessity)
 - d. It shouldn't matter if the package arrives late. (SHOULD > NOT, epistemic, weak necessity)
 - e. The train may not have arrived before the plane leaves.(MAY > NOT, epistemic, possibility)

As discussed by Hall (2001, 2002), the relative scope of a given modal and negation correlates neither with the flavour of the modal (epistemic vs. deontic vs. dynamic) nor with the modal force (necessity vs. possibility). This suggests that accounts that merge root modals in a lower position than epistemic modals (Hacquard 2006) will not, in and of themselves, provide an account of this apparently idiosyncratic phenomenon.

Relatedly, are these other properties of modals (flavour, force) represented in a structural position distinct from T? If so, how does that position unite with T so as to be spelled out by a modal? Finally, why are the modals now losing ground to more periphrastic semi-modals like have to, be going to, be able to, be supposed to, etc.? Could it be that the MODALITY feature is being lost from the English INFL system? If so, why? Recent work by Biberauer and Roberts (2013), distinguishing microparameters from macroparameters, may provide some insight into this question.

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