On the development of the category modal: a cognitive view
How changes in image-schematic structure led to the emergence of the grounding predication

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1. Introduction

This paper attempts to examine semantic change in the domain of a grammatical category: that of the modal auxiliary. In doing so, I will be relying on the framework of Langacker’s cognitive grammar (outlined in Langacker 1987, 1991, 1999). I will argue that the changes in the grammar of the modals described as unrelated in Lightfoot (1979) are in fact motivated by substantial changes in their image-schematic structure that point towards the development of a deontic system as a first stage. The second set of changes, which Lightfoot (1979) sees as the result of a reanalysis will be partially interpreted as an indication of the development of the epistemic senses—the grounding predication in Langacker’s grammar.

Although semantic change is in itself a fascinating topic that can reveal a number of interesting connections that a thoroughly synchronic analysis would never be able to find, the study of semantic change from a lexical to a grammatical category (frequently referred to as grammaticalization, cf. e.g. Hopper and Traugott 1993), or within a grammatical category (e.g. the transition from root to epistemic meanings in the modal system, cf. Sweetser 1990, Pelyvás 1996) has the additional interest of revealing significant details about processes of development within the system of grammar itself.

We are all aware that development within the grammatical system takes place all the time, but the extent to which grammatical theories are able to grasp these changes can be very different. A traditional grammar like Chomsky’s theories of syntax would not have the tools to even begin to explain why certain structures that used to be regarded as impossible begin to be used and eventually become part of the system (cf. John is one of the rare people who believe/believes in ghosts.) or why alternative structures with ‘the same’ meaning exist. For such theories semantic change is largely confined to lexical categories and remains within the bounds of the lexicon—a part of the grammar where rules need not apply.

1 The real question is why, since the rules themselves can often be changed relatively easily to accommodate the new phenomena. But the theory would often require rules that could account for both the old and the new versions since both are present together in the system. Such rules are not easy to construct without contradiction or recourse to the lexicon.
Langacker’s cognitive grammar appears to be eminently suited for such a study, since in this system
• diachronic and synchronic considerations can appear simultaneously;
• the system and its use are not separated artificially: in fact all the properties of the system are seen as emerging from the communicative needs of its users;
• the rigid traditional distinction between grammar (a system of rules without exceptions) and the lexicon (a list of idiosyncratic data, often serving as a ‘dustbin’ for problems that the rules cannot account for) is discarded altogether in Langacker’s holistic cognitive grammar.

In this system predictability and the principle of strict compositionality that it entails give way to motivatedness based on gestalt perception. The basic facets of construal: image schemas, schematicity, scope, prominence (profiling, the figure–ground distinction), perspective (objective vs. subjective viewing arrangement), the reference-point construction, metonymy or metaphor (change of domain), to mention just the few that will be essential in our subsequent discussion, are equally applicable in the description of phenomena that would in traditional systems be regarded as strictly lexical, e.g. the legs of the table, fully grammatical, e.g. the possessive construction (Langacker 1991: 167-80, 1999: 73-90), voice and aspect (Langacker 1991: 200-25, 1999: 222-9) or would have to be left out of consideration altogether, e.g. epistemic grounding (Langacker 1991: 240-81, Pelyvás 1996: 159-96, 1998: 241-64), the object of our present study.

On the other hand, the system of cognitive grammar can also profit from the analysis of grammatical categories: the procedures followed are likely to impose a stricter control on analyses of lexical categories that sometimes appear to be vague. In fact, Pelyvás (1996, to appear) argues in detail that this can happen in the analysis of grammatical categories as well. We will refer to this briefly in discussing Sweetser’s standard (1990) study of may.

Such an analysis can, hopefully, also contribute to our better understanding of the cognitive notions mentioned above. The study of modal meanings may provide interesting details of the nature of scope relationships, the reference-point construction and subjectification.

2. Background to the modals

In posing the question whether the emergence of the grammatical category of the modal auxiliary is essentially the result of one reanalysis (around 1500, as in Lightfoot 1979) or is a gradual process concomitant with various stages in the development of what Langacker (1987, 1991) calls the grounding predication, this paper attempts to bring two strands of my recent research together: one is
concerned with the nature and linguistic expression of epistemic grounding in general: the important question is whether elements other than tense and modals (the latter only in English) can function as grounding predications. The other strand is the relationship between deontic (often referred to as root) modals and their epistemic counterparts in terms of grounding: are the two sets of modals similar enough in their image-schematic structure for both of them to be able to serve as grounding predications?

2.1. The nature of epistemic grounding

2.1.1. Preliminaries

In traditional grammars it has always been a matter of controversy whether the fact that the speaker is epistemically committed to what (s)he is saying\(^2\) is reflected in the form of the sentence (utterance). Three attempts at a solution should be mentioned briefly, as important forerunners to the cognitive analysis that highlight the issues to be resolved in this domain: Frege’s Principle, Hare’s (1970) introduction of the non-propositional neustic, tropic and the phrastic (for a detailed discussion, cf. Lyons 1977: 749ff), and performative analysis, the generative semanticist idea of a performative frame that surrounds the overt visible structure of any sentence (e.g. Boyd and Thorne 1969, Ross 1970).

The first two find a solution in postulating a non-propositional frame the exact nature of which has largely been left unexplained, whereas the third makes the mistake of regarding the performative frame as fully propositional (for a detailed critique of this view, cf. Gazdar 1979).

The unresolved issues center around two related questions:

- can the speaker’s epistemic commitment be regarded as (strictly) propositional? This should, apparently, only be a problem for a theory built on logical principles. But the essence is the different nature of anything expressing the speaker’s epistemic commitment, which remains a puzzle perhaps even in cognitive grammar, which uses the reference-point construction (Langacker 1993) to account for epistemic grounding. But the ‘dynamics’ of the reference-point construction required here may be rather different from its counterpart(s) used in the analysis of other grammatical phenomena, e.g. metonymy, a problem that will certainly require further study.
- is the linguistic expression (if any) of this commitment part of the clause that it relates to? It appears that clause boundaries may not be as rigid as they were once believed to be (cf. the transparent X-bar in GB, or a generative study of a Hungarian sentence by É. Kiss (1989), which simultaneously attributes a

\(^2\) A fact not left undisputed by some, cf. Palmer (1986: 2.6.)
complex and a simple clause analysis to the same structure). Langacker’s (1991) cognitive grammar stands for clause membership, if of a special kind. Pelyvás (1996: 47-57, 169-88, 1998: 241-64) discusses, within the same framework, an apparently different and certainly problematic case: that of cognitive matrix predicates (cf. our introduction to the formal aspects of grounding in the next section).

2.1.2. Langacker’s view: a critical analysis

Cognitive grammar defines epistemic grounding as a category that relates (the linguistic expression of) a process or a thing (a verb [clause] or a noun) to the situation of its use: speaker/hearer knowledge, and time and place of utterance. The latter are subsumed under the term ground.

Semantically the grounding predication will give conceptual integrity to a clause. Formally, it is the category that gives finiteness to a clause:

[Grounding is] a semantic function that constitutes the final step in the formation of a nominal or a finite clause. With respect to fundamental “epistemic” notions (e.g. definiteness for nominals, tense/modality for clauses), it establishes the location vis-à-vis the ground of the thing or process serving as the nominal or clausal profile. (Langacker 1991: 549)

For verbs, tense and mood ground an entity epistemically; for nouns, definite/indefinite specifications establish epistemic grounding. Epistemic grounding distinguishes finite verbs and clauses from nonfinite ones, and nominals (noun phrases) from simple nouns. (Langacker 1987: 489)

The conceptual system

As the definitions suggest, grounding is seen as a link between the linguistic system itself and the circumstances of its use: elements of the ground would be regarded as factors outside the scope of traditional linguistics—or system linguistics.

In Langacker’s view (Langacker 1993, 1995), the essence of epistemic grounding lies in the combination of the reference-point construction and of subjectification.

In a reference-point construction the conceptualizer establishes temporary mental contact with an entity R (the reference-point) within the dominion of T (the target) for the sake of easier access to T. Once contact has been established with R, attention quickly shifts to T, the real focus of interest. A crucial factor of this construction is its dynamic nature: a shift of attention from the reference point to the target once contact has been established. As a consequence, the
construction, although occasionally retaining some prominence of the reference point, will ultimately profile the target.

This construction, which owes its existence to the greater cognitive salience of the reference-point that can ‘pave the way’ to the cognitively more remote target, has been used by Langacker with success in describing a variety of apparently unrelated grammatical phenomena, including passive and quasi-passive constructions, inalienable possession, the ‘dative shift’, cases of metonymy, embedded locatives, topicalization, or raising (Exceptional Case Marking), cf. Langacker (1999).

The dynamic nature of the reference-point construction is essential in epistemic grounding. This is the factor that distinguishes the grounding relationship from other ‘propositional’ relationships within the clause and explains why grounding displays important transitional properties: the grounding predication (the reference-point) is never left in profile. Once grounding has been established, the attention shifts to the target (the rest of the clause, which Langacker calls the grounded head. The sentences in (1) serve as examples:

(1)  
  a. *I think that John is a criminal, do I?
  b. I think that John is a criminal, is he?
  c. I regret that John is a criminal, do I?
  d. *You think that John is a criminal, is he?
  e. You think that John is a criminal, do you?

Subjectification can be briefly characterized as a change in construal:

Subjectification (...) is a semantic shift or extension in which an entity originally construed objectively comes to receive a more subjective construal. (Langacker 1991: 215-6)

Subjectification can occur in two degrees (Langacker 1991: 215-20):

In the objectively construed relation, no reference is made to the speaker/conceptualizer G (an element of the ground). A relationship XY runs along the objective axis: it holds within the objective scene (no reference is made to the ground).

In subjectification of the first type the situation changes radically. One element of the profiled relationship XY, originally between the trajector and the landmark, is replaced with a similar element X’, which, nevertheless, holds between G and the rest of the original profile: one facet of the profiled relationship has been reoriented from the objective to the subjective axis. As

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3 In a traditional system the ungrammaticality of (1a) would be an indication that I think is not propositional. In this example I assume that, as I have argued in Pelyvás (1996) and will suggest later on in this section, a cognitive predicate can also function as a grounding predication.
a consequence, \textit{G} (the speaker/conceptualizer) is now part of the objective scene: is brought into profile (in the cases that particularly interest us: at least temporarily, as a reference point). In this extension \textit{G} is construed more objectively, and the relationship between the trajector and the landmark – more subjectively.

In subjectification of the second type

... subjectification of \textit{X} is carried one step further by a diminution in the salience of \textit{X’}. (...) \textit{X’} recedes into the base, leaving \textit{Y’} to stand alone as the profiled relationship. The resulting configuration is equivalent to that of a grounding predication (...): although both \textit{G} and the relationship it bears to the designatum are essential to the expression’s meaning, and thus included in the scope of predication, they remain offstage and unprofiled. (Langacker 1991: 216)

Subjectification of the second type establishes \textit{G} as a reference point. We will return to a demonstration of how these two factors contribute to the grounding predication in 4.2., where we will be taking a detailed look at the image-schematic structures of various modal meanings.

\textit{The formal system}

There appears to be a discrepancy between Langacker’s broad semantic definition to epistemic grounding:

An entity is epistemically grounded when its location is specified relative to the speaker and hearer and their spheres of knowledge. (Langacker 1987: 489),

and his treatment of the category in terms of linguistic expression: he in effect restricts its expression, apart from tense, to modal auxiliaries in English by assuming, for reasons that need not concern us in detail here\(^4\) but are analyzed and criticized in detail in Pelyvás (1996, 1997, 1998a), that the form following the grounding predication is one that is finite or at least neither finite nor non-finite in nature (the English bare infinitive, compare also for section 3).

In Pelyvás (1996, 1997, 1998a) I argue that cognitive predicates (\textit{think}, \textit{believe}, \textit{know}, etc.) can also serve as expressions of epistemic grounding, and that, although they are not followed by the bare infinitive (a purely formal criterion that only applies to English and no other languages containing modals), the irregular syntactic behaviour of these predicates\(^5\) (first mentioned in this

\(^4\) The clause profiles a process, and Langacker associates a process with finiteness. Since the grounding predication (which is finite) does not remain in profile, the profile determinant is the grounded head. Since the profile is a process, the grounded head must be a process, therefore finite.

\(^5\) These irregularities are a continuous headache for formal theories of syntax. Pelyvás (1996) analyzes GB in this respect and finds that recourse to the lexicon and the introduction of the transparent X-bar are haphazard solutions at best that can contribute very little to a systematical solution of this problem, which appears to be one of the central ones in English syntax.
context by Kiparsky and Kiparsky, 1970) can be easily accounted for by assuming that the structures containing them and their ‘subordinate clauses’ are in fact composed of a grounding predication and its grounded head – a structure in many respects very similar to a simple clause containing an epistemic modal as a grounding predication\(^6\). Pelyvás (1996: 47-8) lists nine irregularities, of which (1) is an example, and we will now present another one in (2):

(2)  
   a. *Who is tragic to have seen the accident?  
   b. Who is certain to have seen the accident?

The operation called long-range \(wh\)-movement in GB is only possible with cognitive predicates. Since movement should not occur across clause boundaries, there is reason to suppose that no real clause boundary exists here.

In Langacker’s (1991) system, both deontic and epistemic modals can function as grounding predications, which is counterintuitive, since grounding is an \textit{epistemic} notion, and is in contradiction to facts of the language as well. If we assume that cognitive predicates are also grounding predications, the conclusion naturally follows that deontic modals can (and indeed must, since any finite clause must) be epistemically grounded, as shown in (3):

(3) \textit{I don’t think I must} (= am required to) \textit{know all the answers to your questions},

but two elements that would give clashing values of epistemic grounding are not acceptable, as in (4):

(4) *\textit{I don’t think I must have answered} (= have probably answered) \textit{all the questions correctly}.

Langacker’s (1991) system is not capable of making a distinction between the two sets of modals\(^7\), partly because he accepts Sweetser’s (1990) interpretation of the differences between the image-schematic structures of root (≈ deontic) and epistemic modals—a view that sees only relatively small differences between the two sets of meanings. This is the problem that the second strand of my research is concerned with.

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\(^6\) In fact, every clause has the structure \textit{grounding predication + grounded head} (compare also for 4.2.3.), even though the grounding predication is often left unexpressed (‘zero grounding’). For details, see Langacker (1991: 244) or Pelyvás (1996: 169-184).

\(^7\) Langacker (1999: Chapter 10) offers an alternative that leaves more room for the distinction. We will be returning to this briefly in Section 5.
2.2. Metaphorical extension of the modal meanings: Sweetser’s version

Sweetser (1990) devotes a chapter to the development of epistemic modal meanings, which, as she argues very convincingly, are metaphorical extensions of their root meanings into the epistemic domain. However, she reaches the disputable conclusion that the image-schematic structures of the two sets of meanings are very similar. The case of *may* could serve as an illustration. The root meaning is:

(5) *John may go*

“It is not barred by (my or some other) authority (in the sociophysical world) from going”

Metaphorical extension into the epistemic domain would give (6):

(6) *John may be there*

“I am not barred by my premises from the conclusion that he is there”

(Sweetser 1990: 61)

In Pelyvás (1994, 1996, 1998b, to appear) I present a variety of arguments that despite their apparent simplicity, Sweetser’s rules for the extension of modal meanings into the epistemic domain do not describe the epistemic meanings of the modals at all. The rule for extension quoted in (6) cannot, among others, account for the fact that deontic *may* and *may not* cannot be entertained together, while their epistemic counterparts can (owing to a change in the scope of negation). The rule can also be shown to violate the invariance hypothesis (Brugman, 1990, Lakoff 1990, 1993, Sanders–Spooren 1997) that states that in metaphorical extension ‘all the image-schematic structure of the source domain that is consistent with the image-schematic structure of the target domain is mapped onto the target’ (Kövecses, to appear), with sources mapped onto sources, targets onto targets, etc. This is not the case in Sweetser’s proposal, since *speaker* and *doer* roles are confused in the extension.

Although I still see metaphorical extension as a viable explanation for the relationship between root and epistemic modals (compare also for Traugott 1989, Langacker 1991, Nordlinger & Traugott 1997), I find it necessary to assume that it involves more complex changes in the image-schematic structure of the modals than it normally would in other cases. The changes (which are

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8 In Pelyvás (1996, to appear) an alternative is suggested in which the epistemic sense of *may* is extended from a now extinct ability meaning (an analysis consistent with the fact that epistemic *may*, unique in this respect among the modals, developed before its deontic counterpart, cf. Traugott 1989: 36). This meaning, with an image-schematic structure very close to that of transitive main verbs of Mod. English (a point to gain significance in sections 3 and 4), profiles the relative strength of the *doer* of the action. In my analysis the epistemic and deontic senses are based on the relative weakness (real or self-imposed) of the speaker-conceptualizer.
described in detail for *may* in Pelyvás 1986, to appear, for *must* in Pelyvás to appear, for *should* and *ought* in Pelyvás forthcoming) are seen to involve a change in scope, usually, but not necessarily simultaneous with the root → epistemic extension, and *subjectification* (Langacker 1991: 215-6), the essential factor in the extension. (This question will be discussed in detail in 4.2.)

The discovery of a substantial difference between the image schemas for root and epistemic modals can naturally lead to the hypothesis that this difference is great enough to justify regarding only epistemic modals as grounding predications. The changes in image-schematic structure that are necessary for the development of the deontic meanings and then for extension into the epistemic domain provide sound motivation for changes in syntactic structure.

In the next two sections I will try to show that even the earliest diachronic changes in the syntax of the premodals, which Lightfoot (1979) regards as accidental, are in fact strongly motivated by changes in image-schematic structure. I will also argue that some of the syntactic changes that ultimately led to the emergence of the syntactic category *modal auxiliary*, usually associated with the emergence of modal meanings as such, in fact reflect changes in image-schematic structure that are associated with the development of the epistemic senses.

In this way, the emergence of the syntactic category *modal auxiliary* will be seen as concomitant with the emergence of the notion of modality and with the development of the grounding predication. I will also be referring to similarities between the development of the modals and the status of cognitive predicates, which I regard as another means of expressing the grounding predication.

3. Lightfoot’s diachronic argument: a critical analysis

Although Lightfoot’s (1979) analysis of the diachronic development of the modals is now twenty years old and is known to have undergone a number of minor modifications (cf. Lightfoot 1991), it still often serves as a classic example of the way to treat phenomena of grammaticalization (e.g. in Hopper and Traugott 1993: 45-8). In an attempt to prove that the *Auxiliaries as main verbs* analysis (Ross 1969) is incorrect for Modern English, Lightfoot combines synchronic and diachronic considerations to show that the modals, clearly main verbs in the Old English period, underwent a radical reanalysis around 1500 that resulted in the emergence of the category *modal auxiliary*, undoubtedly a member of the clause that it appears in in surface structure. He sees the motivation for this reanalysis in five unrelated accidental changes in the Middle English period.
In this section I will rely chiefly on Lightfoot (1979), the ‘crude’ version of his analysis. I will accept all the data but will develop a different interpretation for them, focusing on two points that appear problematic to me:
• the accidental nature of the changes that led to reanalysis;
• the outcome of reanalysis. Although auxiliaries are very probably not normal matrix predicates, they do not appear to be unproblematic clause members, either. I will suggest alternatives to these claims in section 4.

Lightfoot’s argumentation can be presented in the following diagram:

**Lightfoot’s 5 ‘accidental’ changes (before 1500):**

I. Premodals lose the ability to take direct objects.

II. The premodals (members of the preterite-present class) begin to be identified as a separate morphological class (through the disappearance or removal from this class of the non-premodals).

III. Breakdown in the productivity of the present-preterite relationship in the premodals. Development of independent nonpast meanings for the originally preterite forms should, would, could, etc.

IV. In the development of word order from OE SOV to ME SVO, both deontic and epistemic modals conform to the same SMVO pattern. (Lightfoot postulates different initial structures for them in OE.)

V. Premodals resisted the to-infinitive. The to-infinitive is originally associated with an element of directionality – the meaning of the preposition, and pre(modals) seem to lack this element.

**Lightfoot’s 7 simultaneous changes (soon after 1500):**

1. Modals no longer appear in infinitival constructions.
2. Modals no longer occur with -ing affixes.
3. Only one modal can occur in a VP.
4. Modals no longer occur with have and an -en affix
5. Negative Placement places the negative between Aux and V.
6. Interrogation only possible with an auxiliary.
7. Periphrastic (or quasi-modal) forms (*be going to, have to, be able to*) begin to appear. Since they are true verbs, Lightfoot sees them as filling a gap left behind by the modals, which no longer are.

Lightfoot’s theory claims that reanalysis results in the creation of the new grammatical category *modal*, and that, in contrast to Old English premodals, which were clearly matrix predicates, the new category is base-generated (in transformational terms) as the member of the clause in which it occurs in deep structure.

To support his claims, Lightfoot (1979: 92-5) draws an analogy between modals and speaker-oriented -ly adverbs, as in (7):

(7) *John has probably finished by now,*

on the basis that the latter are incompatible with inversion

(8) a. *Did Frank easily beat his opponent?*

b. *Did Frank probably beat all his opponents?*

and that only one of them can occur in one clause.

Auxiliaries and S adverbs are in the same syntactic configurations, dominated directly by S and the semantic structures of epistemic modals are identical to those for speaker-oriented adverbs, as advocated by Jackendoff [1972]. (Lightfoot 1979: 96)

Lightfoot’s results appear to be controversial, for the following reasons:

• As Lightfoot himself observes (Lightfoot 1979: 96, 97), the analogies that he refers to apply only to epistemic modals rather than to modals in general (only epistemic modals are infrequent in interrogatives). In the light of this, the statement quoted above, which presupposes the basic identity of root and epistemic modals is seen as too strong.

• Speaker-oriented sentence adverbs have always been known to be uneasy clause members (generally referred to as *disjuncts*), and are often morphologically related to *cognitive matrix predicates*: grounding predication + grounded head complexes that superficially look like complex sentences but differ from them in irregular syntactic behaviour. In 2.1. I outlined an alternative that suggests that these predicates are not true matrix predicates, but grounding predications which, according to Langacker, occupy a special position in clause structure.

    *To summarize:* we now encounter two problems: on the one hand, cognitive matrix predicates appear to approach clause member status from above. On the other, speaker-oriented -ly adverbs (obviously related to cognitive predicates) appear to encroach on the clause boundary from below.

In Lightfoot’s view, modals have travelled the full path from matrix predicate status to clause membership in the course of their historical development. I suggest now that Lightfoot’s data permit an alternative analysis
in which cognitive predicates, speaker-oriented -ly adverbs and (epistemic) modals can receive unified treatment.

4. An alternative

4.1. The modified diagram

What I have outlined above will modify Lightfoot’s original idea in the following way:

In this schema epistemic modals never reach full clause member status. An intermediate level is created between main verb and clause member status: that of the grounding predication. And it is assumed that even the first changes are not purely accidental but are related to the development of an image schema specific to the modals (or to grounding predications in general). This is what we will set out to discuss in the next section.

4.2. Image schemas for the modals. Changes in the root $\rightarrow$ epistemic extension

In this section we will consider the nature of the changes that image-schematic structure may undergo in the root $\rightarrow$ epistemic extension. My purpose here is not the introduction or justification of these schemas (this has been done in Pelyvás 1996, and Pelyvás to appear for may and must and in Pelyvás forthcoming for should/ought). For lack of space, we will have to assume some degree of familiarity with the graphic conventions established in R. W. Langacker’s work, and will only be able to discuss what is essentially one modal in terms of image-schematic structure, should/ought. I will be using the schemas to illustrate how the changes in syntactic behaviour described by Lightfoot (1979) are motivated in the changes in image-schematic structure.
Should/ought is perhaps the best example, since, although it cannot reveal much about the earliest stage of modal development, the loss of direct NP objects (I in section 3: this is best illustrated on the ability → deontic extension of may, cf. Footnote 8), the image schemas clearly identify the roles of the two factors that are decisive in the development of the different senses: change of scope and subjectification, owing to the fact that a narrow scope and a wide scope deontic meaning can be clearly separated.

4.2.1. The ‘narrow scope’ deontic meaning

In this meaning (Figure 1) the immediate scope or objective scene (OS, cf. subjectification in 2.1.2.) includes a relationship between imposer and doer (interplay of forces, a crucial factor in any deontic meaning) as well as some purposeful action that the doer potentially takes part in. (The dotted line between the two occurrences of doer in the schema marks correspondence.) The imposer is strong compared to the doer, but not overwhelmingly so: the latter still has some scope for not complying with expectations—cf. must, where the imposer leaves hardly any ground for non-compliance. This is probably not unrelated to the fact that the prototypical imposer in must is the speaker (through correspondence with the speaker/conceptualizer) and explains why should/ought is the more polite form. In a deontic meaning the conceptualizer is not part of the scope of the predication at all: subjectification has not occurred. A deontic modal can (and must) be epistemically grounded (cf. 2.1.2).

![Diagram of 'Narrow scope' deontic should/ought](image)

Figure 1. ‘Narrow scope’ deontic should/ought: ‘You ought to help your mother’

This structure is characteristic of all deontic meanings. The only differences between this schema and the ones for may and must are, as referred to above, the

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... or has only occurred indirectly, through correspondence in may and must, where the prototypical permission giver or imposer is the speaker. This analysis is in contrast to Langacker (1991: 270-5), who sees both deontic and epistemic modals as subjectification of the second type, cf. 2.1.2.
relative strengths of the forces involved, and the fact that the imposer prototypically corresponds to the speaker/conceptualizer in the latter two.

It is clear that an image schema based on the interplay of opposing forces between participants would not be expressible in language without Lightfoot’s first ‘accidental change’ (I. in section 3). Premodals no longer take direct NP objects because that construction is incapable of expressing crucial aspects of the deontic image schema. This formal change is certainly motivated by semantic factors.

The schema can also provide good motivation for Lightfoot’s third ‘accidental change’ (III. in section 3). One important facet of the present-preterite relationship is the one of actuality vs. non-actuality. The modal meanings of originally preterite forms can be easily extended into the present because the present senses themselves do not express actuality—at least as far as the potential action is involved. This component, as we shall see, is within immediate scope in all modal meanings and will in fact be the only factor remaining in that position in the wide scope deontic and the epistemic senses. In the epistemic sense, potential action will receive grounded head status, the only element in profile.

For similar reasons, the deontic schema can also provide motivation for the fact that premodals resisted the to-infinitive (Lightfoot’s fifth ‘accidental change’: V. in section 3). As we have mentioned briefly, the to-infinitive is originally associated with an element of directionality—the meaning of the preposition, and pre(modals) seem to lack this element, at least as far as the subject, or doer is concerned. Langacker (1991) attributes crucial significance to the lack of to in the form following the modals in the development of the grounding predication—perhaps unnecessarily, cf. 2.1. What is certain is that if we accepted this aspect of Langacker’s view, we would have good reason to look on this ‘accidental’ change as THE STEP that creates the grounding predication. Although a tempting potential argument, we reject this option owing to the serious obstacles that it creates to a conceptually homogeneous theory of epistemic grounding (cf. 2.1.2).

The remarks on profiling made in the previous paragraph apply here as well.

4.2.2. The ‘wide scope’ deontic meaning

10 We do not claim that this change is a sufficient condition for the creation of the category modal, since the resultant structure can occur with other verbs as well. But it is certainly necessary and should by no means be seen as accidental.
In the ‘wide scope’ deontic meaning the force dynamics of the situation changes significantly: no obligation is laid directly on the doer—essentially because such a participant cannot be readily identified:

(9) *Mothers who have been raped, ... , by God, they have rights, too. And the bill ought to say that.* (4 July 1990, UPI)

(‘those who are responsible for the bill have a moral responsibility to ensure that it says that’) (Nordlinger & Traugott 1997: 302)

*OUGHT TO* [the bill (says that...)], or

*OUGHT TO* [those responsible for the bill (ensure that...)]

A deontic obligation of some sort is clearly involved, but its target is not identified with the subject of the clause and is often not possible to identify at all. (Langacker 1999: 300-6 would call this *attenuation.* ) The case can be interpreted as a sort of metonymy—the opposite of the situation described in Langacker (1995), where, in ‘raising’ constructions, one salient participant of a process can stand for the whole process. In this case, the process itself is more salient than the participant that has the obligation: an important first step in the direction of the epistemic meaning.

As Nordlinger and Traugott (1997: 309) observe, this type of deontic meaning frequently occurs with nonspecific, generic, or inanimate subjects, or in impersonal or passive constructions. The latter are clearly syntactic structures that are motivated by the changes in image-schematic structure.

Nordlinger and Traugott (1997), who see scope change as the only driving force in the deontic → epistemic extension\(^{11}\), account for the differences between this meaning and the one described above in terms of logical scope and find that *ought* has wide scope here. I use inverted comas in the names referring to the modal meanings because a cognitive interpretation of scope leads to the opposite result: in cognitive terms *immediate scope* (OS) is restricted in this meaning, involving only the *potential situation*, which therefore no longer has to be deliberate action (cf. Pelyvás, forthcoming). The imposer still remains in (overall) scope (Figure 2)\(^{12}\).

\(^{11}\) I think, erroneously, cf. Pelyvás forthcoming.

\(^{12}\) In terms of Langacker (1987, 1991) we could say that the *doer* role remains schematic, which is only possible because the *imposer* role, in contrast to *may* or *must*, is rather schematic in nature as well.
From our present perspective this stage in the development of *should/ought* is of particular importance because it reveals that the change in immediate scope, associated with the root → epistemic extension in Pelyvás (1996) can in fact take place within the deontic domain.

Lightfoot’s fourth ‘accidental change’ (IV. in section 3) suggests that in the transition of English from SOV to SVO, root and epistemic modals conform to the same pattern SMVO by accident.

He analyses ME (pre)modals (along the lines of Ross’ (1969) analysis for Mod.E) in terms of different deep structures for deontics and epistemics. In his argument the change to SMVO is natural for deontics, which he considers to be matrix predicates with object complements. Epistemic modals, however, which he analyses for ME as matrix predicates taking subject complements, should have conformed to an SVOM pattern (Lightfoot 1979: 82, 105-8). But the differences between the structures postulated for the two kinds of modals are based on the presence (in the syntactic structure for deontics) vs. the absence (in the structure for epistemics) of a *speaker* argument granting permission, issuing an order, etc. to a morally responsible *doer* argument. If either of these participants does not necessarily occur in the deontic sense either, as the image schema for ‘wide scope’ deontic *should/ought* suggests, or if, as we shall see, the *speaker/conceptualizer* appears in the schema for epistemics as well, then there is not much justification left for postulating two different initial syntactic structures (and of an ‘accident’ that abolishes the differences between them).

Epistemic meanings must always have ‘wide scope’, and the existence of such a deontic meaning in *should/ought* explains why sentences like (10)

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13 Ross’ (1965) analysis, as Lightfoot argues, is not yet in terms of what came to be called *generative semantics*. The deep structure, and the arguments in it, are not to be regarded as semantic in nature, although the presence of the matrix subject *I* in the deontic sense points in this direction.
(10) *They should all be dead by now,*
in which the meaning is predominantly epistemic, can nevertheless retain a ‘deontic overtone’: (10) would only be likely to be said by someone who does not only believe but also *wishes* the situation to be true—e.g. the person who planted the bomb on the plane carrying the referents of the subject\textsuperscript{14}.

The scope change described here appears to be a ‘duck – rabbit’ phenomenon: epistemic meanings (necessarily of ‘wide scope’) cannot have a ‘narrow scope’ ‘deontic overtone’. Deontic meanings do not seem to have overlapping narrow scope and wide scope meanings (for details, see Nordlinger & Traugott 1997, and Pelyvás forthcoming)\textsuperscript{15}.

4.2.3. The epistemic meaning

The decisive step in the extension of the modal meanings into the epistemic domain is *subjectification*, a process in which one facet of a relationship previously interpreted objectively is reinterpreted along the subjective axis (Langacker 1991: 215-6, cf. 2.1.2.). In the case of the modals this means that some of the forces active between the participants of OS in the root meaning will be rearranged (reoriented to the subjective axis) to include the *speaker/conceptualizer* directly, as a *reference point*.

As we have seen, the essence of the reference-point construction is that it selects a salient entity (the reference point) for the purposes of easy access to another entity (*the target*). Once the target has been reached, the reference point recedes into the background\textsuperscript{16}. This is exactly what happens in the grounding predication.

\textsuperscript{14} In *should/ought* the source of deontic obligation is different (cf. Figures 1, 2), but the ‘deontic overtone’ of the epistemic meaning is already related to the speaker (Figure 3).

\textsuperscript{15} This does not exclude ambiguity between the two meanings.

\textsuperscript{16} In *may* and *must* correspondence between the *speaker (conceptualizer)* and *permission giver/imposer* roles is part of the OS of the deontic sense as well. The latter roles are not temporary and are at most weakly subjective, in opposition to the reference point construction described here.
The image-schematic structure of epistemic *should/ought* is not quite clear-cut in this respect, owing to the ‘deontic overtone’, a typically deontic correspondence relationship between S/G and what used to be the *imposer* role of the deontic senses (cf. Figures 1 and 2).

In a typical epistemic image schema the objective scene is restricted to contain only the potential situation. This is necessary rather than sufficient: Figure 3 clearly qualifies in this sense, but so does Figure 2: the schema of the ‘wide scope’ deontic meaning. The decisive step in the creation of an epistemic modal is subjectification: extension of overall scope to include S/G directly, if only temporarily, as a reference point. Figure 4 (epistemic *may*), which contains nothing but this relationship, can serve as an illustration.
As indicated by Figures 3 and 4, the image schema of an epistemic modal is very different from that of a deontic one. In deonticity a significant part of the objective scene is taken up by force-dynamic relationships between the doer of a typically purposeful action and a source of obligation/permission, typically associated with the speaker (indirectly, through correspondence with the speaker/conceptualizer of the ground).

The prototypical epistemic meaning no longer relies on such correspondence: subjectification of the second type reorients what remains of the force-dynamic relationships of the deontic sense into the subjective axis and includes the speaker/conceptualizer directly, as a reference point.

An example taken from Dutch can provide direct syntactic evidence of this important difference between correspondence and direct involvement. In the deontic sense, it is possible in Dutch to indicate the source of an obligation that is different from the speaker:

(11) Jan moet van Klaas thuisblijven.

‘Jan must [by order of Klaas] stay at home’ (Sanders – Spooren 1997: 97), but this is not possible with the epistemic sense. In this construction, only the speaker/conceptualizer can be given reference-point status: syntactic structure is motivated by the image schema of the modal.

Epistemic modals are grounding predications owing to subjectification and the temporality of the reference-point construction. The semantic role of the grounding predication (cf. 2.1.), its temporal nature and the fact that in many cases it is left unmarked (‘zero grounding’, cf. Footnote 6) can again be assumed to have a consequence on syntactic structure as well: the ground (≈ factuality or probability) of a situation has to be provided before the situation itself is given, to prevent misunderstanding or a need for reanalysis. This could explain why epistemic modals conformed to the SMVO word order rather than to SVOM, where grounding information would be provided at the end of the clause only. This is seen as new evidence against the accidental nature of Lightfoot’s fourth ‘accidental change’ (IV. in section 3).

Cognitive predicates conform to a similar pattern, which can be interpreted as evidence that they can function as grounding predications. As Kiparsky and Kiparsky (1970) note, extraposition is obligatory for cognitive predicates, as in (12):

(12) a *That John is a criminal is likely
    b It is likely that John is a criminal,

but is optional with the rest of the predicates where considerations of the kind mentioned above need not apply. Cognitive predicates also tend to occur in
positions that are comparable to the auxiliary position in simple sentences, as in (13), which is not available for other predicates:

(13) a. *John is likely to be a criminal
   b. *John is tragic to be a criminal.

Although the epistemic meanings of the modals began to emerge at very different times, from c1300 (*may*) to c1650 (*ought*), it is clear that the most important stage in their development, *increasing subjectivity* can be dated to after 1500 (cf. Traugott 1989: 42-3, Nordlinger & Traugott 1997: 314-5). We can assume, therefore, that any syntactic changes associated with the development of their image-schematic structure will fall within the domain of what Lightfoot calls the 7 related changes (1 to 7 in section 3) that mark reanalysis (all deontic meanings had long been established by 1500).

Lightfoot’s claim of reanalysis is substantially weakened if we observe that the changes he refers to do not appear to be independent at all: 1 to 4 can be generalized as ‘*modals have no non-finite forms*’ (which, in its turn, may be a consequence of their origin—II. in section 3). 6 and 7 do not only concern the modals and can be summarized as ‘the appearance of aux. as operator’. 1 to 4 and 5 to 6 together can be generalized as ‘*modals cannot take do-support since they lack the required non-finite forms*’.

The last change mentioned by Lightfoot, however, raises an important point. Around 1500 periphrastic (or quasi-modal) forms (*be going to*, *have to*, *be able to*) begin to appear. Lightfoot argues that they are true verbs that fill the gap left behind by the modals, which are no longer true verbs. In the spirit of what has been said above, we can see their appearance as the direct consequence of the fact that modals have no non-finite forms and so only one of them can appear in a VP.

The interesting question is why these forms had to appear: what sort of a gap was left behind the modals? Why should two modals ‘want’ to appear? A change in category status, on its own, is not likely to create a gap, especially if it is motivated, as we have seen, by semantic factors. My answer is that the appearance of periphrastic forms marks the clear separation of epistemic and deontic meanings. Their appearance is a necessity arising from the need to be able to express two different (epistemic and deontic) modal meanings. This is a consequence of the increasing subjectivity of epistemic modality.
5. Conclusions and further issues

One purpose of the paper was to show that changes in image-schematic structure (either within the deontic meaning or in the deontic → epistemic extension) provide sound motivation for changes in syntactic structure for the modals. On several grounds, we reject Lightfoot’s (1979) hypothesis of five unrelated accidental changes leading to a reanalysis marked by seven simultaneous changes. Even the earliest changes are necessary for the linguistic expression of changes in the image schema, and some of the later ones (if separable at all) are the consequence of the development of strongly subjective epistemic meanings.

The image schemas of deontic and epistemic modals have been shown to be considerably different. Both schemas contain a potential situation in the objective scene, but typical (‘narrow scope’) deontic schemas will also include an element of interacting forces between a permission giver/imposer of obligation (typically the speaker) and the doer of some deliberate action. Speaker – permission giver/imposer identity is established as necessary through correspondence rather than by direct inclusion into the scope of the predication, as in the epistemic senses. Deontic senses are at most weakly subjective.

Subjectification is the crucial property of the epistemic senses. Direct reorientation of the force-dynamics remaining after elimination of the doer argument from the objective scene includes S/G in overall scope as a reference point: the epistemic modals always express the speaker’s epistemic commitment. The transitory nature of the reference-point construction makes sure that the image schema will profile the target: the potential action that is now the only participant of the objective scene.

The two image schemas are not simply different: the characteristics of the two schemas clearly suggest that deontic modals cannot, whereas epistemics can serve as grounding predications.

One objection can be made at this point: it is sometimes argued that not much of these differences is seen in syntactic structure: deontic and epistemic modals have ‘almost identical syntax’ (e.g. Lightfoot 1979: 95). This may not be far from the truth, but the differences that have nevertheless developed can be motivated by the differences in image-schematic structure. I have mentioned the case of Dutch moet (11). In English, only epistemic modals can be used with the perfect infinitive to refer to an action that is still in the realm of possibility:

(14) a John *should have stayed at home* (but he didn’t)
    b John *must have stayed at home* (I am not fully certain that he did)
Whereas in the deontic sense the obligation was in the past (and not fulfilled), the epistemic sense expresses anteriority of the situation to the reference point: the speaker’s here and now.

Langacker (1999: 307-9) offers an analysis of the modals that is rather different from the 1991 approach and reveals greater differences between the image-schematic structures of root and epistemic modals. This analysis emphasizes the force-dynamic nature of the modals and the fact that ‘the event expressed by the verb’s complement remains potential rather than being actual’ (Langacker 1999: 307-8):

The profiled relationship involves some kind of effectiveness or potency tending toward realization of the type of action expressed by the complement, but no actual instantiation of that action is implied. (Langacker 1999: 308)

A potential problem in this approach is that Langacker (similarly to Sweetser 1990) does not pay attention to the forces that must be associated with the doer in order for force dynamics to become a really effective factor in modal meanings (cf. Pelyvás 1996: 135-6, Figure 1 and Footnote 8 of this paper). These forces holding (typically) between speaker and doer are actual rather than potential.

As a consequence, Langacker sees the attenuation of subject control (progressive diffusion in the locus of potency) as a crucial factor in the development of the modals—a phenomenon that finally leads to transparency.

In the deontic sense, as Langacker argues,

… the source of potency is no longer associated with the subject, but is implicit and subjectively construed. It may be the speaker but it need not be … It is not necessarily any specific individual, but may instead be some nebulous, generalized authority. In other words, the source of potency is highly diffuse. (Langacker 1999: 308)

I think that this is a generalization that holds true to deontic modal meanings to varying degrees. In the prototypical deontic modal the source of potency is the speaker (apart from should/ought). Even in the sentences that Langacker quotes in support of his view, e.g. You must go home at once–your wife insists, the second part does not altogether cancel the speaker’s authority. The speaker would not use must if (s)he wanted to dissociate himself/herself from the mand. In the light of what we have said above about the counterforce associated with the doer (the subject in ‘narrow scope’ deontic meanings—the prototypical deontic meaning), it cannot be taken for granted that no potency is associated with the subject at all (except in ‘wide scope’ deontic should/ought).

Nor is the subject necessarily the target of potency, which is also diffuse. Although the modal force may be directed at a specific individual—be it the subject, the addressee, or some third party, … this is not always the case. The force is simply directed toward realization of the target event, to be apprehended by anyone who might be in a position
to respond to it. Because the subject is usually not the source of potency, and need not be its target, the root modals exhibit transparency. (Langacker 1999: 308)

This passage is certainly true of ‘wide scope’ deontic should/ought, but does not appear to me to have general validity. Except for one sentence, all the examples Langacker uses to illustrate this point are passive constructions. Although passives with modals are clearly different from passives with other verbs taking clausal complements\(^\text{17}\), the transparency that modals exhibit may have different reasons: even in cases where the (active) subject is clearly a target of the potency, transparency remains.

In Langacker’s view

\[\text{[e]pistemic modals are widely diffuse in regard to the source and target of potency, hence transparent. I have described their potency as inhering in the evolutionary momentum of reality itself, as assessed by the speaker/conceptualizer (Langacker 1999: 309, for a detailed discussion, see Langacker 1991: 240-9, 275-81)}\]

As for the target of potency, it clearly remains diffuse: the forces associated with doer are no longer present in the epistemic modals. I think, nevertheless, as the quote itself suggests, that the source of potency can in some sense associated with the speaker–with the speaker/conceptualizer chosen as a reference-point, it cannot be associated with anyone else. This may be interpreted as the conceptual content of the reference-point construction. Epistemic meanings are clearly more subjective than deontic ones:

\[\text{… the force dynamics are inherent in the conceptualizer’s mental activity, hence subjectively construed in the strong sense (Langacker 1999: 309),}\]

which is in good agreement with our findings.

Modals have many characteristics that suggest that they are not ordinary clause members. Accepting Lightfoot’s argument that they are not ordinary matrix predicates either, this paper tried to outline an intermediate position: that of the grounding predication, an essential part of clause structure in Langacker’s (1987, 1991) cognitive grammar. I hope that I have been able to show that there is sound motivation for assuming that the essential properties of the grounding predication are shared by (epistemic\(^\text{18}\)) modals, speaker-oriented -ly adverbs and by cognitive predicates.

\(^{17}\) but not all that different from passives with verbs that take NP objects:

(i) \[\text{John wants to kiss Mary ≠ Mary wants to be kissed by John, but}\]

(ii) \[\text{John wants an apple ≈ An apple is wanted by John, to the extent that the latter is acceptable.}\]

\(^{18}\) Whether deontic modals are ordinary clause members or serve as predications establishing deontic grounding is a question that requires further study. The latter appears to be the more plausible alternative.
References


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