Modal constructions?

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1 Introduction

This paper discusses the possibility of applying a Construction Grammar approach to the analysis of epistemic expressions containing modal verbs in Swedish and English. In case such an approach to modality is possible, a further question is posited - whether this approach to modality is adequate. The present investigation is based on the evaluation of authentic data retrieved from the English-Swedish Parallel Corpus.

2 Modal verbs

When speakers are confronted with modal expressions in their native language, especially those that contain a modal verb, they are immediately able to interpret these expressions as being either epistemic or non-epistemic[1]. What then is it that enables the speakers to interpret these modal expressions accurately? An apparent answer is that the meaning of an utterance containing a modal verb is inferred from the meaning of the modal itself, i.e. what we need is an appropriate way of accounting for the meaning of the modal verb in an utterance.

Let us consider two attempts at creating models for the interpretation of the English modal verbs based on this assumption, namely the ones presented in Hermerén (1978) and in Coates (1995).

Hermerén (1978) suggests an array of semantic components, for example ABILITY, POSSIBILITY, HYPOTHETICALITY, VOLITION, etc. These components may combine freely in order to express different modal meanings. This is one of the advantages of Hermerén's model since it allows him to account for the nuances of the modal meaning present in English. Hermerén's model also allows him to treat cases of indeterminacy, i.e. utterances where it is difficult to establish one or the other reading in a satisfactory manner.

On the other hand, it seems improbable that the English modal verbs carry the semantic wealth of meaning assigned to them in Hermerén (1978). If we take into consideration the historical development of the English modals, it is possible to argue that due to the process of grammaticalization the modals have lost most of their lexical meaning and, in turn, have acquired an array of different semantic/syntactic/pragmatic functions, that is, they are polyfunctional. Support for this claim can be found, for example, in the failure of many researches to find a basic or core meaning for each modal in English (see Palmer 1990:15-16).

The second model, presented in Coates (1995), suggests a number of semantic/pragmatic and syntactic criteria for the analysis of the modal verbs in English. These criteria include among others FORCE (i.e. somebody or something who is interested in

[1] This picture is of course simplified, since many of the occurrences of modals are indetermined between the two senses (see, for example, Leech & Coates (1979) and Coates (1983) for discussion of this phenomenon). In the corpus investigation on which this paper is based I disregarded (and thus did not count) ambiguous occurrences of modals.

the proposition of an utterance to be carried out)[2], DYNAMICITY (i.e. whether the main predicate is a state or action verb), SUBJECTIVITY (i.e. whether an utterance expresses the speaker's subjective attitude towards the proposition expressed in this utterance). However, the criterion that seems to play the crucial role in the interpretation of epistemic utterances in English is that of SUBJECTIVITY, so that the other criteria are of descriptive value at most, i.e. once it has been decided that a certain utterance is subjective, one can automatically conclude that this utterance is epistemic, which leaves us with a perfectly circular argument and no means to support our analysis on independent grounds.

This short discussion is intended to suggest that the "obvious" answer proposed at the beginning of this section is not at all that obvious – it does not seem to be the case that we can depend solely on the modal verb in order to interpret the modality of the utterance in which it is contained. Thus, in order to account for the fact that (epistemic) modal meaning is readily recognized as such we should consider other factors that may be of importance for the interpretation, be it the syntactic environment or the semantic contribution of the different parts of the utterance. Another possibility is to postulate the existence of a *modal construction*, which is easily recognized by the speakers and as such enables them to pick the accurate interpretation regardless of the polyfunctional nature of modal verbs. In the next section I will briefly introduce the theoretical approach that accommodates the notion of *construction* as a basic unit of language as presented in Goldberg (1996).

3 Construction Grammar

Within Construction Grammar (henceforth CG) one is, for example, not compelled to postulate that the meaning of an epistemic utterance is determined by the meaning of the modal verb, as in the models discussed above. Instead, the meaning of an expression is seen as "the result of integrating the meanings of the lexical items into the meanings of constructions" (Goldberg 1996:16). What is a construction then? The definition of a construction on which most researchers in the field agree is as follows:

> "C is a constriction iff$_{def}$ C is a form-meaning pair <F_i, S_i> such that some aspect of F_i or some aspect of S_i is not strictly predictable from C's component parts or from other previously established constructions." (Goldberg 1996:4)

Further elaboration on the nature of constructions is provided by Cruse & Croft (1999:28), who discuss constructions in terms of being "atomic" and "complex", consisting of "morphologically bound" as well as "morphologically free" parts, which may be "substantive" (i.e. contain lexical items, e.g. [*sky*]) and "schematic" (i.e. containing information about what elements may enter the construction, e.g. [S V-TNS OBJ$_1$ OBJ$_2$]).

Moreover, like any item in the lexicon, constructions may be polysemous. Goldberg (1996:31) further suggests that constructions can have several related senses possibly organized around a central or prototypical sense.

The theoretical assumptions on the nature of language organization within CG differ radically from those adopted, for example, by the generative school. Thus, instead of arguing for the distinction between separate modules such as syntax, semantics, phonology and a

[2] Cf. the use of this criterion with the treatment of modality presented in Sweetser (1990) in terms of socio-physical concepts of forces and barriers. Sweetser claims that epistemic meanings derive "from the tendency to experience the physical, social, and epistemic worlds in partially similar ways" which in turn allows metaphorical mapping of socio-physical potentiality to the world of reasoning or the mapping of potential barriers to the conversational world (Sweetser 1990:52ff).

lexicon which contains semantic/syntactic information about lexemes, construction grammarians view language as "a network of constructions" in which grammatical and semantic knowledge is codified (Cruse & Croft 1999:1). In fact, CG assumes a syntax-lexicon continuum, that is, it postulates the existence of lexical and syntactic constructions which "differ in internal complexity, and also in the extent to which phonological form is specified", but which are essentially "the same type of […] data structure: both pair form and meaning" (Goldberg 1996:7).

This network of constructions is claimed to be structured in such a way that "systematic generalizations [are possible] across constructions" (Goldberg 1996:67). There are four psychological principles that are held to be crucial for the construction-based organization of language. These are:

I. *The Principle of Maximized Motivation*: if construction A is related to construction B syntactically, then the system of construction A is *motivated* to the degree that it is related to construction B semantically. Such motivation is maximized.

II. *The Principle of No Synonymy*: if two constructions are syntactically distinct, they must be semantically or pragmatically distinct. Pragmatic aspects of constructions involve particulars of information structure, including topic and focus, and additionally stylistic aspects of the construction such as register.

Corollary A: if two constructions are syntactically distinct and S[emantically]-synonymous, then they must not be P[ragmatically]-synonymous.

Corollary B: if two constructions are syntactically distinct and P-synonymous, then they must not be S-synonymous.

III. *The Principle of Maximized Expressive Power*: the inventory of constructions is maximized for communicative purposes.

IV. *The Principle of Maximized Economy*: the number of distinct constructions is minimized as much as possible, given Principle III.

(Goldberg 1996:67ff)

Apart from the above-mentioned principles which play a role in the organization of constructions in a language, constructions are said to be taxonomically related or linked to each other[3], which allows for the network of constructions rather than a strict hierarchy. The four major types of these links, which enable one construction to inherit some particular information from another (dominating) construction are, according to Goldberg (1996:75ff), (i) polysemy links (capture the nature of the semantic relations between a particular sense of a construction and any extensions from this sense, e.g. the ditransitive construction in English); (ii) metaphorical extension links (relate two constructions by metaphorical mapping, e.g. caused motion and resultative constructions); (iii) subpart links (are stated when one construction is a *proper subpart* of another construction and exists independently, e.g. the S(ubject)[4] in a verbal construction); and (iv) instance links (posited when one construction is a more fully specified version of another construction).

With this short introduction to CG, I will proceed with an attempt to apply the framework to the analysis of epistemic modal expressions.

[3] Michaelis & Lambrecht (1996) refer to this type of relations between the constructions as "inheritance hierarchies".

[4] Cf. the treatment of S in Radical Construction Grammar as presented in Cruse & Croft (1999)

4 The data

In this paper, I investigate the possibility of the application of CG in the analysis of epistemic modal utterances in English. The epistemic modal utterances[5] in question were retrieved form The English-Swedish Parallel Corpus (ESPC) (http://129.240.19.4/index-s.html). This corpus consists of two parts – the originals and the translations for each of the languages. In order to achieve a considerable uniformity of the data, I chose for the purposes of this paper to concentrate on two pairs of English modals, namely *may* and *must*, since these modals cover epistemic possibility meaning and differ only in the degree of speaker commitment to the truth of the proposition expressed in an utterance. Since this study does not concern translations, the modals *may* and *must* were searched for only in the originals. The search was conducted in both the Fiction and the Non-fiction parts of the corpus.

The examples were further analysed in terms of the syntactic/semantic environment in which modals appeared in the utterances. The factors taken into consideration were (i) the type of the subject, i.e. whether introductory or not; (ii) the form of the subject, i.e. whether expressed by a definite or indefinite NP or other; (iii) the type of the predicate, i.e. whether expressed by a state verb or an event verb[6]; and (iv) whether the verb was aspectually or otherwise modified. Some of the results of this analysis are presented in Table 1 in Appendix 1.

It is possible to conclude from Table 1 that epistemic utterances differ systematically from non-epistemic in terms of the environment specified by the above-mentioned factors. Some of the environments in which the modals appear may be grouped together on the basis of the association between these environments and the interpretation.

Thus, it appears that the epistemic interpretation arises in all the different variations of 'state-constructions'[7] and 'aspect-constructions', while the non-epistemic interpretation is not present in these environments. In the few exceptions to the first case, the modal part of the utterance states either explicitly or implicitly a condition in which the proposition contained in an utterance is/will be true. These seeming exceptions are nonetheless systematic, that is their "exception" status is due to the fact that only four factors were initially included in the analysis. Sentence (1), for example, is a case of a non-epistemic 'state construction' with an explicitly stated condition (underlined in the example).

(1) To climb the tower you must be in a group, be aged over 11 and have a letter of permission from your MP or embassy. (SUG1)

The absence of the non-epistemic 'aspect constructions' can be explained by the nature of the non-epistemic modality itself, i.e. it is performative (cf. the description of deontic modality in (Palmer 1990:69ff)), and thus simultaneous with the time of the utterance. Furthermore, the action described by the main verb is not actualized until the listener chooses to act in accordance with or in defiance of the permission, prohibition or command given by the

[5] These were later compared to a number of non-epistemic utterances retrieved from the same corpus.

[6] The verb typology used in this paper originates from Vendler (1967), who distinguishes between four situation types: (i) states (e.g. *live, hate*); (ii) activities (e.g. *swim, play*); (iii) accomplishments (e.g. *grow up, run a race*); and (iv) achievements (e.g. *arrive, die, win a race*). In accordance with Verkuyl's (1972) suggestion that the entire VP enters into the *aktionsart* the type of the direct object is accounted for in the classification of the situation types described above. For illustrative purposes the verbal types (ii)-(iv) are conflated in Table 1 on the basis of the common criterion of dynamicity and are presented in Table 1 as events.

[7] In this section I use the term 'construction' in a pre-theoretical sense.

speaker, which makes it quite impossible to express these notions in an aspectually modified utterance. e.g.,

(2)	You must go to the party.	→	*Command*
(3)	You must have gone to the party.	→	**Command*
(4)	You must be going to the party.	→	**Command*

The high number of 'Subject+event constructions' with non-epistemic meaning can also be explained since this is considered to be the "normal" way of expressing such notions as permission, obligation, command, etc. There are, however, some examples where such constructions are interpreted to have epistemic meaning. These cases are rather uniform, in that the interpretation is triggered by the presence of either an epistemic adverbial or an inanimate subject. Consider the following examples,

(5) Insects are not confined to the flowers, however, and a careful search of the foliage may reveal the amazingly colourful rhododendron leafhopper as well as oak bush crickets and speckled bush cricket. (SUG1)

Again the exceptional status of these and similar examples are due to the limited number of the factors initially chosen for the analysis.

5 A Construction Grammar approach to epistemic modality

As follows from the discussion above, by examining the data from the corpus it is possible to conclude that epistemic utterances differ from non-epistemic ones systematically. On the basis of this conclusion it is, perhaps, also possible to postulate the existence of an epistemic construction (or constructions) on the premises outlined in section 3 above. The fact that the 13 constructions displayed in Table 1 differ in terms of syntactic/semantic environment makes it possible to posit at least 13 epistemic constructions in English in accordance with Principle II ("No [syntactic] synonymy") outlined in Goldberg (1996)[8].

Due to the limited scope of this paper it will not be possible for me to consider all of the constructions in question. I will instead concentrate on the <NP AUX state> construction. This construction dominates in fact at least six more specified constructions, namely,

(i) $<_{NP\ AUX\ V_{state}}>$, e.g.

(8) "I may have something for you that you 'll like even more," said Harcourt-Smith. (FF1)

(ii) $<_{NP\ AUX\ BE\ AjP}>$, e.g.

(9) We have fragments from papers by Aeschines the Socratic and

[8] At the same time it rules out the possibility of examining these constructions as a family of polysemous constructions. Even if we, in violation of Principle II, are to postulate a prototypical construction among these, e.g. <NP AUX state>, and claim that this construction would be quantificationally and thus psychologically predominant, this will not gain an insight into the modal construction phenomenon, since there is nothing inherently more or less epistemic in the displayed constructions.

Antisthenes the Cynic that tell us Socrates really lived, and which may be spurious. (JH1)

(iii) <NP AUX BE NP>, e.g.

(10) Only a little; but it may be the thin edge of the wedge, the crack in the wall that will open, later, onto what? (MA1)

(iv) <NP AUX BE Ven_{STATE}>[9], e.g.

(11) "Or it may be parked somewhere in Ipswich. (DF1)

(12) This may well be considered tall by some races, such as the Asians whose average height is less than this, but not by others.(JPM1)

(v) <NP AUX BE Ving>, e.g.

(13) "Yes, very clever, darling, but I rather think I may be bleeding. (ST1)

(14) We may all of us be being punished now for sins we are about to commit. (FW1)

(vi) <NP AUX BE CompCl>, e.g.

(15) What 's turned up may not be as bad as you think. (RDA1)

These constructions are syntactically distinct, and according to the definition of pragmatic aspects which include "particulars of information structure, […], and additionally stylistic aspects of the construction such as register" (Goldberg 1996:67ff) they are P[ragmatically]-synonymous. It is, however, unclear whether these constructions are S[emantically]-synonymous. On the one hand, we have already identified these constructions as epistemic, and by virtue of being epistemic all these constructions can be considered synonymous[10]. On the other hand, if we take into account the taxonomic relations that hold between the constructions, we cannot argue for the synonymy of these constructions.

According to Cruse & Croft (1999:32-33) if we include modal elements into constructions, "then any construction in the hierarchy [will have] multiple parents". This means that it is possible to postulate a construction consisting of a modal verb with the

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[9] This particular analysis seems problematic in view of another postulated construction, namely the passive construction. In the data passive constructions have been mostly identified as non-epistemic, see Table 1. I cannot as yet scientifically argue for the difference between the non-epistemic passive construction and the epistemic <BE Ven> construction. Compare for example a non-epistemic passive below with the epistemic examples (11-12),

(i) Oliver said that words like *everyone* and *someone* and *no-one* are singular pronouns and must be followed by the singular possessive pronoun, namely *his*. (JB1)

The proposed progressive epistemic construction is less problematic, however, if the discussion accompanying examples (2-4) is taken into consideration.

[10] Goldberg (1996:108), however, dismisses any such claims by stating that "the existence of a given form with a particular meaning in no way motivates the existence of a different form with a closely related meaning. Therefore, inheritance links are not posited between constructions that are not related formally".

specification 'epistemic'[11] and, for example, a predicate adjective construction <NP BE AjP>, which will both parent the construction <NP AUX BE AjP>. The epistemic meaning of the construction will be inherited form the modal construction, and the predicate adjective construction will provide the modal construction with the meaning of some property being predicated of the Subject. The difference between the epistemic and non-epistemic adjectival modal constructions found in the data lies then in the fact that it is possible to posit at least three constructions as parents of the non-epistemic one, i.e. the non-epistemic modal construction, the predicate adjective construction, and a conditional construction which can in turn be expressed by a variety of constructions. A problem, however, arises when such a condition is implicit and is derived from the previous discourse, since constructions are posited only on the basis of the elements present in an utterance. If the meaning of the epistemic modal construction is kept constant, the differences between the epistemic predicate adjective modal construction and other epistemic state constructions can be, on the other hand, successfully accounted for in terms of the meanings of the different parent constructions.

To return to inheritance links, even the "simple" predicate adjective construction will have to have at least two parents: (i) the copula *be* construction (different from but related to that which requires combination with an NP), and (ii) an adjective construction which requires to be combined with the copula construction (which is again different but related to the pre-nominal adjective construction). By now I have mentioned at least eight constructions that will be needed in a construction network defining the epistemic adjective modal construction applying Principle I ("Maximized motivation"). If all the networks for the variety of epistemic modal constructions found in the data are taken into account as well as other modal constructions including modal adverbials, modal adjectives and other means of expressing modality in English, we would satisfy Principle III ("Maximized expressive power"). What we face then is a bewildering web of constructions "generalized to encompass the full range of grammatical [and semantic][12] knowledge of a speaker" (Cruse & Croft 1999:27). In this context Principle IV ("*Maximized*[13] economy"), the only means of restricting the theoretical apparatus in CG, seems to be much less powerful than the other principles. I find this difficult to accept.

6 Summary

In this paper I applied a Construction Grammar approach to the analysis of epistemic modality in English on the basis of the corpus examples collected for this purpose. Epistemic examples were shown to differ systematically from non-epistemic ones. This observation led to the proposal of an array of epistemic constructions. One of these constructions, <NP AUX state> was discussed in some detail. Thus, to the first question posited in this paper, whether it

[11] Already at this stage the CG analysis can be deemed fruitless, since CG does not give us the possibility of identifying epistemic and non-epistemic constructions within its theoretical apparatus, but leaves such identification to be taken care of by some other unidentified mechanisms. Thus, if one's research question is posited as at the beginning of this paper, CG cannot provide a satisfactory answer. Furthermore, if one accepts the argument above that we cannot depend solely on the modal verb in order to interpret the modality of the utterance it is contained in, it is difficult to see what CG contributes to the analysis of modal expressions that has not been suggested within other frameworks.

[12] My addition.

[13] Italics added

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is possible to apply CG to the analysis of modality, the answer is – yes. To the second question, whether such approach is fruitful, the answer is – it is doubtful.

7 References

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Appendix 1

	MUST		***MAY***	
	E[14]	**NE**	**E**	**NE**
1. NP+AUX+state e.g. *John must love Mary*	52	10	127	0
2. Intr.S+AUX+state e.g. *There must be a cat on the mat*	23	2	18	0
3. NCl+AUX+state e.g. *What John said was interesting*	0	0	6	0
4. CondCl+AUX+state e.g. *Whether or not we go for a walk may depend on the weather*	0	0	2	0
5. NP+AUX+PERF+state e.g. *John must have been ill*	40	0	19	0
6. Intr.S+AUX+PERF+state e.g. *There must have been a party here*	8	0	19	0
7. NP+AUX+PERF+event e.g. *John must have taken the dog out*	27	0	21	0
8. Ind.NP+AUX+PERF+event e.g. *An axe must have destroyed the desk*	3	0	2	0
9. NP+AUX+PROG+event e.g. *John may be going out with Mary*	2	0	4	0
10. NP+AUX+PASS+event e.g. *Alfa Romeos may be bought from authorized dealers*	0	11	8	1
11. NCl+AUX+PASS+event e.g. *What he plans must be carried out imediately*	0	1	0	0
12. NP+AUX+event e.g. *John must do it*	0	68	73	30
13. Ind.NP+AUX+event e.g. *A solder must do his duty*	0	1	11	0
TOTAL:	**155**	**93**	**310**	**31**

Table 1, The environments in which modals occur in the corpus

In Table 1 I marked the epistemic examples forming a pattern of distribution in white, whereas the non-epistemic examples forming a pattern of distribution are shaded grey. All exceptions from the alleged pattern are shaded yellow, while cases that I find difficult to explain are shaded blue.

[14] List of abbreviations is included in Appendix 2.

Appendix 2

Abbreviations
CompCl – comparative clause
CondCl – conditional clause
E – epistemic
Ind.NP – indefinite noun phrase
Intr.S – introductory subject
NCl – noun clause
NE – non-epistemic
Ven_{state} – past participle of a stative verb
V_{ing} – present participle
V_{state} – stative verb