# EPISTEMIC MODALITY:
# A CHOICE BETWEEN ALTERNATIVE COGNITIVE MODELS[*]

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***Abstract***: *Cognitive linguistics, with its experience-related background can naturally broaden the view of epistemic modality from the traditional truth-oriented probability judgment to the speaker's assessment of what is going on: a choice between alternative cognitive models. The speaker has to find an appropriate relationship and choose a set of participants from among a number of potential candidates. The paper will analyze linguistic evidence of some processes that may be involved.*
***Key words***: *cognitive predicates, epistemic grounding, ICM, 'raising', reference point*

## 1. Introduction. Formal semantics and modality

When semantics returned to the forefront of linguistic interest around the middle of the 20th century, this was done predominantly on a formal (mainly logical) basis. Apart from external or accidental factors, there was also the theory-internal reason that, following Saussure and later Chomsky, the theoretical linguistics of the time confined its scope of interest to the language system, leaving no room for any serious consideration of the role that language use and the user may have in its formulation.

This applies to a great extent to modality, which was defined entirely in terms of the possible worlds previously found useful in formal logic, although intuition and also more recent studies strongly suggest that it is crucially about relationships among human participants. It is not difficult to see that both natural language and the logical system suffer in this association.

Formal semanticists often profess their interest in *formal systems,* maintaining that their findings only apply to natural languages to the extent that it conforms to formal languages. There has been little development in this respect in the past decades, although the recent introduction of the notions of *Modal base* and *Ordering source* into formal systems (Giorgi and Pianesi 1997, Tóth 2008) may be a significant move in this direction, since it may be seen as the first steps away from a strictly system-based approach.

Cognitive grammar, to be introduced in the next section, offers more radical solutions to the discrepancies between the two systems referred to above. (Among other things, it resolves the problem of epistemic *must* by postulating a dynamic evolutionary model, based on the speaker's experience (Langacker 1991:240-9), which makes more room for *the actual world* in the system.)

## 2. The cognitive approach to modality: the grounding predication

Perhaps the most significant property of Langacker's cognitive grammar is that it is admittedly usage-based, a radical break from system linguistics. Modality (called epistemic grounding in this framework) appears as a relationship between the system and its use or users.

The *grounding relationship* is defined as relating (the linguistic expression of) a process or thing (a verb or a noun) to the situation of its use: speaker/hearer knowledge, time and place of utterance, etc. In Langacker's formulation:

> An entity is epistemically grounded when its location is specified relative to the speaker and hearer and their spheres of knowledge. 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)

Although we cannot go here into all the necessary detail, it is important to note that the grounding relationship, a product of the reference-point construction and of subjectification, has exceptional semantic (and, consequently, also syntactic) properties. Being a reference point, *the grounding predication* never remains in profile: attention shifts from it to the rest of the predication. In technical terms: the profile determinant is *the grounded head,* cf. Langacker (1991). As suggested in Mortelmans (2002, 2006), Nuyts (2002),

and Pelyvás (2000, 2001a, 2006), this property of the grounding predication, with an extension of Langacker's original system, can also account for a number of phenomena in the irregular syntactic behaviour of cognitive predicates.

In what follows we will briefly introduce Langacker's system, indicate possible modifications and extensions in the direction of cognitive predicates and then show how some marked syntactic constructions (e.g. *'raising'*), possible only or predominantly with cognitive predicates, like *likely* or *know* in the epistemic field, or *order* in the deontic one, can express modality. But this notion of modality is much closer to the *speaker's choice of a cognitive model* that s/he finds most approppriate for describing a state of affairs (or the modification of this choice), than to the traditional or logical understanding of the term.

## 2.1. Langacker

Although Langacker's semantic notion of epistemic grounding as given above is potentially all-inclusive, there is a formal property in his system of grammar that limits the range of possible grounding predications to almost a minimum. The situation is briefly as follows:

• since Tense is a property of the grounding predication (e.g. the modal auxiliary, which is always finite), the complement (grounded head) can never carry it (cannot be finite);

• since the ultimate profile determinant of the clause is the grounded head (cf. the shift of attention associated with reference points described in Section 2 above), this element must profile a process, since the whole clause profiles a process;

• a non-finite verbal form cannot profile a process, since in Langacker's system it is summarily scanned;

• *the grounded head cannot be finite (cannot have Tense), but cannot be non-finite (summarily scanned)*

This limits the range of possible grounding predications to the English modals (both deontic and epistemic), which characteristically take their complements in the bare infinitival form, which Langacker sees as the only form that is neither finite nor non-finite (the pure verb).

## 2.2. An extension: Mortelmans, Nuyts, Pelyvás

One problem with Langacker's system, which we do not have the space

to examine here, is whether the set that his rules select is too large: do English deontic (or, for that matter, dynamic) modals really establish *epistemic* grounding? The problem that directly concerns us here is whether the set is too small, since the semantic definition of the grounding predication would certainly permit the inclusion of the (epistemic) modals in languages where the form they take is clearly non-finite (e.g. German), or cognitive matrix predicates like *likely, think, expect, believe, know*, etc., which take finite subject or object clauses, but are also noted for clearly non-finite complementation in structures called *Raising* or *Exceptional Case Marking* in generative grammar.

Langacker (2004:85), while acknowledging that *'[i]t would ... be quite reasonable to use the term grounding for this wider range of phenomena',* still chooses to *'understand grounding in the original, narrow sense'.* For a thorough discussion of this problem area, see also Mortelmans (2002, 2006), Nuyts (2002) or Pelyvás (1996, 2000, 2006).

In this paper, I propose to use the term *grounding* in the wider sense referred to above. This is partly because it seems possible to find ways of accommodating the semantic and syntactic side of Langacker's definition, by postulating that

• a non-finite form, being transitional in some sense, need not be summarily scanned;

• a finite form need not be grounded by definition.

Another reason is that Langacker's proposed way out--cognitive predicates *overriding* values of grounding (in the narrow sense) already established in the clause, seems decidedly counterintuitive: the explanation that in (1) the speaker first establishes John as a criminal and then withdraws or overrides it by introducing *likely* seems to lack psychological reality.

(1)     It is likely that John is a criminal.

The most important reason, however, is that it is exactly the inclusion of this set of cognitive predicates into the set of grounding predications that gives us an opportunity to break away from a conception of (epistemic) modality as basically a probability scale or probability judgment by the speaker (which Langacker's system still is). This step provides an opportunity to formulate epistemic modality in terms of the speaker's finding, selecting, modifying or discarding cognitive models that (s)he finds fit or unfit for talking about a situation, and that the most important evidence for this is the 'irregular' syntactic behaviour of cognitive predicates, which brings them in many ways

close to modal auxiliaries, and so makes them susceptible of being grounding predications (cf. Pelyvás 2001b:112-6).

Syntactic evidence is given in what follows.

As is well known, most cognitive predicates behave in 'irregular' ways in syntax ('Raising', ECM, long-distance movement, etc), which suggests that they are not easy clause members (disjuncts like *probably*) and not clearly matrix predicates, since movement with them can occur across what generative grammar regards as (transparent) clause boundaries. These phenomena find a natural solution if it is assumed that what we really have here is a *grounding predication + grounded head complex,* which is in many ways similar to what traditional grammar sees as a simple clause (but is in cognitive terms the combination of a grounding predication left implicit or expressed by a modal + a grounded head). The different acceptability of (2a) and (2b) clearly indicates a shift of attention from the grounding predication to the grounded head:

(2)     a.   *I don't think that John is a criminal, do I?
           b.    I don't think that John is a criminal, is he?

## 3. Further extension. Epistemic grounding as the formation of an Idealized Cognitive Model

### 3.1. The Idealized Cognitive Model (ICM)

The basic idea behind this extension is that replacing the notion of the speaker's probability judgment (of one option) with the speaker's assessment of a number of options: *his/her choice of an appropriate Idealized Cognitive Model* is easily seen as organic development in the system of cognitive grammar. All conceptualization is essentially subjective, as it essentially consists in the conceptualizer making and revising hypotheses about what is going on, that is the creation of cognitive models. Epistemic modality can be seen as a marked instance of this process, when there may be some factors that force the speaker/conceptualizer to stop and think his position over.

The ICM is best defined as *a situation: its participants and the relationships holding among them, as construed by the conceptualizer.* Besides being highly subjective, it is also a very active process. The effort required can be measured by the 'work' required when one sits down to watch a film that has been running for a while ('tuning in'), or when a psychotic patient tries to process a scene that would be child's play to almost anyone. The following

excerpt comes from a schizophrenic patient's attempt at describing the scene of a little girl buying ice-cream:

> *I saw a little girl who was moving a counter for some reason and I don't know what the heck that was about. She was pressing against it okay. In the beginning I saw a white car with a red vinyl top and then this little girl was looking in the store was looking in the trash can or something and then she turned around and she went on she talked to her mother  and her father and neither one was listening to her ...* (Chaika and Alexander (1986), discussed in terms of ICM formation in Pelyvás 1996: 95-102)

## 3.2. ICM formation

The complexity of the task may vary considerably in different situations. Sometimes it is easily seen as a simple probability judgment, as no alternative conceptualizations are imminent, as in (3),

  (3)     John may be an idiot

but in cases where participants and relationships can form a more complex network, the formation of the most likely ICM may be a more complex process, as in (4):

  (4)     Q: What's that noise?
          A: John may be building a ship in the basement.

This answer can be regarded as the addressee's search for a cognitive model that appropriately describes the situation. Some of the options are:
• This may not be true.
• Perhaps John is building sth. else (one participant has changed – the *patient*).
• Perhaps John is repairing/destroying, etc. the ship (the content of the relationship has changed – still agentive)
• Perhaps it is the wind (the nature of the relationship changes radically – no longer agentive)
• Perhaps someone else is building a ship (one participant has changed – the *agent*) … etc., (e.g. *What's John building/doing? Who is building a ship? ....*)


## 3.3. Cognitive predicates

It must be admitted that the English expressions containing only modals

do not seem to provide much room for the linguistic expression of these differences, except perhaps for the possibilities given by passivization and stress or intonation, but it is possible to extend our means of expression by including cognitive predicates. There are marked differences between the examples in (5), similar to the ones that had to remain hidden in (4):

(5)    a. It is likely that John is building a ship in the basement.
         b. John is likely to be building a ship in the basement.
         c. *That John is building a ship in the basement is likely.

(5a) affords 'global' entry to the situation, (5b) symbolizes entry through a salient participant of the ICM – *a reference point* (cf. Langacker 1995). Since a reference point is normally taken for granted, *John* is firmly established as a participant in the situation, even though all else may not be very certain.

The ungrammaticality of (5c) is explained by the fact that a finite clause is normally taken to be grounded in immediate reality (*fact*) unless indicated otherwise, but the warning must be given in advance; the structure in (5c) would be grammatical if the matrix predicate were *'strange'*.

Are alternative constructions in free variation? It might seem so, if we compare (6a) and (6b):

(6)    a. It is likely that John is a criminal.
         b. John is likely to be a criminal.

But the structure in (6b) is about 13 times more frequent than (6a), in contrast with *unlikely*, where the two are roughly on a par (cf. Pelyvás 2002).

The explanation may take us to epistemic grounding again: u*nlikely* appears to be less of a grounding predication than its positive counterpart.

## 3.4. Raising and the correction of an ICM

One of the main tenets of cognitive grammar is that different grammatical forms are the manifestations of different conceptualizations. And, since there is a symbolic relationship between the two, the nature of the semantic difference motivates (if not determines in the strict mathematical sense) the grammatical form. One case in point is the raising (or Exceptional Case Marking - ECM) construction, which is often associated with the correction of a previously selected ICM. Let us begin with a few well-known examples.

*remember*
| (7) | a I remembered that John was bald. |
| | b I remembered John to be bald. |

*know*
| (8) | a I know that John is honest. |
| | b I know John to be honest. |
| | c ?I have known that John is honest. |
| | d I have known John to be honest. |

(8b) may express uncertainty. The problem with (8c) is that a kind of incompatibility appears between the Present Perfect form of *know,* which suggests that the situation is now changing, and the fully grounded finite form of the subordinate clause. The effect that a previously established ICM is being changed, because it has now proved incorrect or inappropriate, is particularly strong in (7b) and (8d).

Relying on the data obtained from the examples given in (5) to (8) concerning the nature of the 'raising' (ECM) construction, a hypothesis can now be formed that in most (if not) all cases there is a considerable difference in the factuality of the complement between the finite and the Raising (ECM) constructions. In the simplest cases, this means only unreliability of judgment (a probability scale), but in more complicated ones it may mark the speaker's intention to discard a cognitive model previously seen as appropriate for describing a situation in favour of an other one seen now as more adequate.

The conceptualizer can easily misconstrue a situation (a common source of misunderstanding among humans). When the mistake is understood and corrected, linguistic expression can be given to the correction, and a 'raising' construction appears to be a suitable tool for the purpose. It can also be hypothesised that the non-finite form occurring in the subordinate clause of the construction, with its less-than-fully grounded status, is in a symbolic relationship with this conceptual content.

Compare now the sentences in (9):

(9)  a. I saw Steve steal your car, but at the time I thought that he was only borrowing it.
b. I saw Steve stealing your car, but …
c. *I saw that Steve stole your car, but …

The difference between (9a and b) on the one hand and (9c) on the other is not in the *grounding* of the whole structure (something that the speaker does at the time of speaking), but in that of the subordinate structure marked in italics. The less than fully grounded non-finite form indicates a (now corrected) problem in conceptualization or ICM formation (*borrowing* vs. *stealing*), something that the conceptualizer does (or rather did) at the time of perception. The event was *not* conceptualized as stealing.

## 3.5. Other structures marking the correction of an ICM

To find further support and also a higher level of generalization for the hypothesis that the forms appearing in the complement of a cognitive predicate are in a symbolic relationship with its status relative to grounding, we can examine another language. Hungarian almost totally lacks raising, but still seems to have a much wider array of choices in the expression of ICM correction. Consider the possible Hungarian equivalents of the English sentences in (9):

(10)    a. Láttam,          hogy Pista          *ellopta          az autódat,
         I-see-Past         that  Steve         steal-Perf.-Past  your car

         de akkor azt   hittem,          hogy csak      kölcsönveszi.
         but  then that I-believe-Past  that  only      he-borrow-Pres.= relative past

        b.                 ?ellopja
                           steal-Perf. Present = relative tense

        c.                 *lopta
                           steal-Imperf. Past

        d.                 *lopja
                            steal-Imperf. Present = relative tense

The unacceptable (10a) combines a finite object clause with the Past Tense, which is to be seen here as *absolute*: it relates the time of the situation to the time of utterance, giving it fully grounded status, in contrast to the *relative tense* appearing in (10b). The Present Tense form of (10b) relates the time of the event 'only' to the time of the matrix clause, but even that change will make the sentence only marginally acceptable. The imperfect forms in (10 c and d) only make the situation worse: they appear to strengthen a false link between seeing something and conceptualizing it as stealing at the time of the event.

In (11) the object clause is replaced with a clause of manner, which improves the situation considerably, since the sentence is now *more* about the ingredients of the ICM that were observable to the conceptualizer at the time of conceptualization than about his/her formation of an (incorrect) cognitive model. The status of (11 c and d) do not seem to change:

(11)  a. Láttam,  *ahogy* Pista  *ellopta*           az autódat,       de akkor …
        I-see-Past  *how*   Steve  *steal-Perf.-Past*   your car          but then...

      b.  *ellopja*
          *steal-Perf. Present = relative tense*

      c.  *\*lopta*
          *steal-Imperf. Past*
      d.  *\*lopja*
          *steal-Imperf. Ppresent = relative tense*

In (12) we have a time clause in subordination, which only permits absolute tense. The marginal acceptability of (12b) may be attributable to the fact that the imperfect form, in opposition to its role in (10), an object clause, now marks the incompleteness of the experience, making its conceptualization more difficult. This contrast is similar to the difference between the English sentences in (9a) and (9b):

(12)  a. Láttam, *amikor* Pista  *ellopta*         az autódat,   de akkor …
        I-see-Past  *when*  Steve  *steal-Perf.-Past*   your car      but then …

      b. *?lopta*
        *steal-Imperf. Past*

Finally, structures similar to English 'raising' are also possible in Hungarian, even though only (13a) would be more than a very rough equivalent. In (13b) to (13d), the subject NP is easily seen as part of the conceptual content of the matrix clause as well:

(13)  a. Láttam        *Pistát*        *ellopni*        az  autódat, de akkor azt hittem …
         I-see-Past  *Steve-Acc*  *steal-Inf.*      your car      but then …

      b. Láttam        *Pistát,*       *ahogy*        *ellopta*        az autódat, de akkor...
        I-see-Past  *Steve-Acc*  *as/how*   *he-steal-Past*   your car    but then

      c.       *ahogy*       *ellopja*

*as/how    he-steal-Present = relative tense*

d.    *amikor   ellopta*
       *when    he-steal-Past*

These sentences bring us back to an observation made in Section 3.3, in connection with the sentence (5b): the matrix object status (even if only transformationally introduced, but cf. Langacker (1995)) establishes the given participant as a reference point, whose correct conceptualization *at least* is to be regarded as certain. The reference point provides a salient point of entry to the situation—other participants or relationships in it may not be quite as certain.

## 4. Conclusion

Let me now give a brief summary of the constructions that may be regarded as being in a symbolic relationship with a less-than-fully grounded ICM:

• *The 'raising' (reference-point) construction.* The ʽraised' NP, serving as a reference point,  provides an ideal entry to a situation, also making sure that at least this participant's status is unchallenged in the process of ICM selection. Almost anything else may be subject to change.

• *Absolute vs. relative tense.* Tense is a grounding predication, which is always absolute in English (it relates a situation to the time of utterance). In Hungarian a relative tense also occurs in some constructions, which relates a situation to another situation – *a less than fully grounded* construction: this is only possible with a non-finite form in English. Absolute tense suggests that the original conceptualization is still valid. Only relative tense can convey the meaning that the original conceptualization (now seen as incorrect) has now been changed.

• *The type of clause.* An adverbial clause establishes a far weaker connection from the point of view of conceptualization than an object clause does: the object is a conceptual reification that often requires fully established grounding. The adverbial clause does not have to say *what* I saw: it can afford to concentrate on only some of the participants or relationships observed on the scene, leaving the precise formulation of the ICM till later.

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