Author's Reply - Epistemic Modality in Context

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Author's reply to 'Evidentiality in Epistemic Modality – Is It Enough to Look at Individual Markers in Isolation?' (Narrog 2010)

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I am very grateful to Heiko Narrog for the detailed comments on my paper, and it is my great pleasure to reply to the points made. Let me start by remarking that I find the title of his rejoinder slightly misleading, since I do not look at linguistic elements in isolation, but I explicitly compare elements with similar material from the same language or from other languages. So, no, it is not enough to look at individual markers in isolation, but that is not what a bottom-up model does anyway.

First, the purpose of the paper, in line with the goals of the workshop and this issue, was to put the emphasis on the nature of semantic maps and their usefulness in linguistic theory. To repeat from the call for papers: "This issue will primarily focus on conceptual underpinnings of the semantic maps approach, i.e. on theoretical and methodological issues, rather than on empirical issues. That is, the discussion of empirical data captured in individual semantic maps is expected to serve as an illustration of some general theoretical point." Any points made must be seen in that light, and the justification for the analysis is presented in de Haan (forthcoming). That said, the results from a semantic map analysis cannot stand alone, but need to be integrated into larger accounts, due to the very nature of semantic maps.

What is a semantic map? No matter which variety of semantic maps one advocates, one thing remains constant: a semantic map is a *measure of similarity* between linguistic elements. If two or more linguistic elements have some part of meaning in common, this will be reflected by the overlapping space. The more they have in common, the more overlap there will be. If they have nothing in common, there will be no overlap. Of course, how much of an overlap there is depends on the level of detail of a given semantic map. The entire line of thinking advocated in the main paper (de Haan 2010) started with a contemplation of the differences between English *must* and Dutch *moeten* 'must'. In the crudest possible semantic map, these two elements can be argued to be mostly overlapping, taking a notion such as *(strong) epistemic modality* as basic (as a function rather than a domain). Nevertheless, there are important differences between *must* and *moeten* which are not captured in such a crude map. We know there are differences because we can find contexts where one is found but the other cannot occur. That is, we find there are differences because we investigate the linguistic contexts directly, and if we find differences between *must* and *moeten*, then those differences need to be reflected in a bottom-up map.

The problem, as Narrog rightly points out, is to justify each distinction. In a bottom-up semantic map, each function must be linguistically justified. To put it bluntly, the less you map, the less you need to justify. If your semantic map only consists of, say, *inference* and *strong epistemic modality*, you have much less to justify than in a bottom-up model such as the one presented in the main paper. However, the bottom-up analysis is independently necessary, regardless of whether one uses a semantic map or not, in order to account for the differences in use between *must* and *moeten*. A top-down approach will not do that. It is perfectly reasonable to conclude that *must* and *moeten* mean *strong epistemic modality* if that is what you start with.

That would entail that *must* and *moeten* are completely interchangeable, and we know that is not the case.

This brings us to Narrog's next point, the labels. We are dealing with very fine distinctions, and finding and selecting a suitable label inevitably leaves a researcher open to scrutiny. There are two points to be made here: the first is linguistic, the second computational: linguistically, a label is a cover term for a linguistic analysis. Describing *must* as *evaluating evidence* is analyzing *must* as precisely that, evaluating evidence. That is, what all occurrences of statements with *must* have in common is precisely that: they are based on an evaluation of evidence. What is left open is the nature of the evaluation. While it may be true that in most cases a speaker will evaluate it with a high degree of confidence, it is not true in all cases. There are cases where an evaluation of *must* yields a low degree of confidence (or an outright falsehood), so a high degree of confidence is not a basic meaning of *must* and cannot be mapped. Similarly, because some occurrences of *must* have a degree of confidence more akin to the degree of confidence usually attributed to *may* shows that such a degree of confidence is not the right way to talk about *must* in its "epistemic" sense. This is a linguistic analysis which is subject to the same degree of scrutiny as any other linguistic analysis and may ultimately turn out to be false, of course, as can any other linguistic analysis (see also below on *bound to*).

Incidentally, the verb *may* was not mentioned at all in the paper because there is no semantic overlap between any of the linguistic elements discussed in the paper and *may*. For the purposes of the present semantic map, *may* is as relevant as *be*, *stop,* or *antidisestablishmentarianism*. The desire to reflect the "common notion that *must* and *may* stand in a paradigmatic relationship" (Narrog 2010) is a nice example of top-down thinking. In a bottom-up approach, there is no notion of paradigms. Such paradigms may be developed later, of course, but are not assumed a priori. Indeed, an analysis of *may* along bottom-up lines may prove that this modal has more interesting properties than just being a weaker variant of *must*, as a top-down approach would imply.

The second point about labels is computational: A semantic map measures similarity of meaning, so if we have two different functions for two or more linguistic elements, we have shown that there is a difference between these elements. Linguistically, we would like to know what the difference is (see above); computationally, the label is irrelevant and can be replaced by numbers, letters, or any other shape or color desirable. Indeed, one could dispense with labels altogether and just rely on relative position. Removing the labels from a semantic map will not impact the nature of the semantic map at all, but it will remove the linguistic justification for the analysis. In some situations, that may be preferable, e.g. in computational linguistic applications, where we want to introduce meaning through maps. This point is not pursued in the main paper, but for some thoughts on the matter see de Haan (2005).

On the analysis of *be bound to*: my analysis claims that *be bound to* differs from *must*. The point is not so much that *be bound to* cannot be used with (overt) evidence but that *be bound to* does something different with that evidence than *must*. I would invite Narrog and other readers to replace *be bound to* in examples (1) – (3) of his commentary with *must* and see if the meaning in the sentences is identical. I am intrigued by the question of whether *be bound to* and *may* stand in a contrastive relationship (another example of a top-down question!). If *may* were to be analyzed as having the function of *weak epistemic modality* (and I am not yet prepared to admit that, not having done the analysis), then I would have no problem endorsing this contrast. I do not find this problematic, although Narrog apparently does, since by the same token *may* would stand in contrast with adjectives such as *probably*, assuming they are taken to represent weak and strong

epistemic modality, respectively. Presumably, it would be a problem because *must* and *may* have similar syntactic properties (the NICE features), but under my analysis they would have diverging semantics. I do not see the problem with that, because there are any number of syntactically similar elements with diverging semantic meanings, witness the problems in assigning paradigmatic space to *should* and *ought to*. I would also like to know why Narrog calls *be bound to* 'marginal' or why this matters? Is it marginal because of frequency? If so, then that tells us something about the relative need for speakers to use grammaticalized expressions for strong epistemic modality (which in turn might explain why this notion is not consistently grammaticalized cross-linguistically).

On the notion of *predictive* versus *assertive*: Narrog asks whether they can form a relationship, since they both deal with evidence. This is where the distinction between functions and domains becomes crucial. They are different functions, since they can be shown to occur separately in linguistic elements (they are unique). Whether or not they belong to the same domain is another matter entirely. As stated in section 5 of the main paper (de Haan 2010), that question is to be answered by different criteria and outside the scope of a semantic map. To be sure, it is an important question, but not within the scope of the paper. The answer is no doubt to be found in the diachrony of the individual linguistic elements. What one can do is to draw semantic maps for different stages of each element (e.g. 13th century *will*, 14th century *will*, etc.), but this is an extension of the method. What one should not do is to accept relations a priori, as is done in a top-down approach.

Would the map look different if more linguistic material were included? I would hope so! The main paper showed the method, not the entire analysis. It may very well emerge from a more comprehensive analysis that some functions reported in the main paper turn out not to be primitive, but will call for further divisions. The main point is that the method outlined in the main paper allows one to do so without difficulty. Small samples may be distorting, but a bottom-up semantic map will need to take into account all possibilities, so more data can only add, never subtract. I would argue that small data sets pose more of a problem to top-down than to bottom-up approaches.

Yes, creating a bottom-up map is not an easy job, but this level of analysis needs to be done regardless of whether semantic maps are used or not. The typology of modality is a very different proposal than the typology of, say, word order phenomena, and far less susceptible to easy (read: top-down) solutions. Trying to fit modal elements in a pre-shrunk three-piece suit will not yield a satisfactory outcome. The semantic space is simply too large. This is true whether one accepts the analysis of the main paper or not. It is evidenced by the fact that there exists more terminology about modality than would be thought necessary (see Nuyts 2006, de Haan 2006). A bottom-up semantic map is simply another way of trying to come to grips with the wide variety of modal meanings. The approach in such a map is to embrace it, not to sweep it under the carpet.

It must be remembered, however, that semantic maps are still just tools. Even a detailed semantic map only presents us with a limited picture (the range of modal notions). But we do need this in order to be more confident of our analyses. There have been many fine examples of analyses of modality (Narrog mentions Nuyts 2001, indeed an exemplary work), but it is also true that many of these analyses are not mutually compatible or hard to reconcile because of differences in assumptions and terminology.

Finally, Narrog questions my example (11). He states it is not an example of *assertion*. That is true, it is an example of *prediction*, as clearly stated in the main paper, so I am not sure why he thinks it is assertive in nature.

To conclude, I am very grateful to Heiko Narrog for this stimulating exchange and hope to have clarified some of the ideas that have gone into the paper and others that are part of the same research program.

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