

**MODAL AUXILIARIES ARE SEMANTICALLY EMPTY**

**1. Modal Concord:** Modal Concord (MC) is a phenomenon where two modal expressions do not yield a cumulative reading, but yield only one modal operator at LF. Geurts & Huitink (2006) have first observed this phenomenon:

- (1) a. You *may possibly* have read my little monograph upon the subject  
           ‘The speaker thinks that it is possible you read his little monograph’  
       b. Power carts *must mandatorily* be used on cart paths where provided  
           ‘It is obligatory that power carts be used on cart paths where provided’

As Geurts & Huitink correctly point out, deontic MC readings cannot be entailed from cumulative readings for readings, since the principles that would validate these entailments, the principles of Veridicality ( $\Box p \rightarrow p$ ) and Positive Introspection ( $\Box p \rightarrow \Box \Box p$  ( $\equiv \Diamond \Diamond p \rightarrow \Diamond p$ )), only apply to epistemic necessity. Since deontic MC readings cannot be derived from cumulative readings, MC must constitute a particular grammatical phenomenon. **2. MC and Negative Concord:** MC is reminiscent of Negative Concord (NC) where two negative expressions yield only one negation at LF. Ideally one would want to derive a theory of concord that explains both MC and NC in a unified way. However, there are at least two differences between MC and NC: first, MC seems not to be obligatory, contrary to NC; second, MC leads to some emphatic effect, whereas plain NC gives rise to a neutral reading. In this paper I will argue that despite appearances MC behaves on a par with NC and that if MC and NC are both considered being instances of syntactic agreement, these differences between NC and MC fall out immediately. **3. MC is syntactic agreement:** Following Zeijlstra (2004) who takes NC to be an instance of syntactic agreement, I argue that MC is also an instance of syntactic agreement. I propose that modal adverbs (*probably, maybe, possibly*) are phonological realisations of modal operators, but that modal auxiliaries (*must, can, may*) are in fact markers of the presence of a modal operator (thus behaving in a sense like inflectional morphology). This amounts to saying that modal adverbs have interpretable modal features, whereas modal auxiliaries carry uninterpretable modal features. A second assumption is that a modal operator may also appear abstract, just as negative operators may be abstract in NC languages (cf. Zeijlstra (2004)). This is what happens in cases of a single modal auxiliary:

- (2) You may read  
       [IP You [ModP Op<sub>[iMOD-DEON-∃]</sub> may<sub>[uMOD-DEON-∃]</sub> [VP read]]]

In the case of a modal adverb and an auxiliary of the same modal type, an Agree relation can be established:

- (3) a. You may possibly have read my little monograph upon the subject  
       [IP You [ModP possibly<sub>[iMOD-EPIS-∃]</sub> [Mod° may<sub>[uMOD-EPIS-∃]</sub> [VP ...]]]
- b. Power carts must mandatorily be used on cart paths where provided  
       [IP You [ModP Op<sub>[iMOD-DEON-∀]</sub> must<sub>[uMOD-DEON-∀]</sub> [VP ...]]]

Only if two modal adverbs co-occur in the same sentence or a modal adverb of a distinct type than the modal auxiliary, a cumulative reading will be yielded since no agreement can be established. Note that this also holds in cases in which, due to intonational patterns, no Agree relation between two modal elements can be established. This accounts for the fact that under different intonation the sentences in (1) still allow a cumulative reading. The idea that modal auxiliaries are semantically vacuous also explains their behaviour in negative sentences. Take sentence (4) in which negation outscopes the higher modal auxiliary:

- (4) You cannot swim                     $\neg > \Diamond$

If it is not the modal auxiliary *can* that is responsible for the introduction of the modal operator at LF, but an abstract operator, the semantics of (4) follow immediately once it is assumed that *can* must raise to a higher position than *not* for purely phono-syntactic reasons. *Can* must have been base-generated in a position below *not* where the abstract modal operator has been included as well in order to check *can*'s modal feature:

(5) [<sub>IP</sub> You [<sub>can<sub>i</sub>-not</sub>] [<sub>ModP</sub> Op<sub>MOD</sub> t<sub>i</sub> [<sub>VP</sub> swim]]]

**4. Optionality of MC:** MC is not established between adverbs/functional elements and arguments, but only between adverbs and modal auxiliaries/affixes. It is known by the work of Cinque (1999) that modal adverbs occupy high positions in the clausal hierarchy, at least dominating IP. This fact has been given an explanation by Ernst (2001) (but see Nilsen (2003) for a critical discussion of this particular analysis) who argues that modals operate on propositions rather than events. This explains the first difference between MC and NC. Herburger (2001) and Zeijlstra (2004) explain the obligatory occurrence of a first negative element in an NC construction as a result of the fact that sentential negation requires the negative operator to outscope the existential quantifier that binds the (highest) event variable. Assuming that this variable is base-generated by the highest verb in the clause ( $v^\circ$ ) an additional negative marker signals that the entire vP is under the scope of negation. If the n-word itself outscoops the entire vP no additional marker is required and is therefore ruled out (NC languages that do allow constructions as (6)b are taken to exhibit a negative marker that is semantically vacuous as well):

- (6) a. Gianni *\*(non)* ha telefonato a *nessuno* Italian  
 Gianni NEG has called to n-body ‘Gianni didn’t call anybody’  
 b. Ieri *nessuno* (*\*non*) ha telefonato (a *nessuno*)  
 Yesterday n-body NEG has called to n-body ‘Yesterday nobody called (anybody)’

Under this analysis the possibility of modal repair is expected (see Shields (2004)). Modal repair occurs when a second modal element is required in order to prevent the sentence from being ungrammatical. In English this happens after I-to-C movement. Modal auxiliaries in English must outscope the highest position of the finite verb in the clause. Normally this is  $I^\circ$  and a modal adverb, such as ‘probably’ in (7), c-commands this position. If  $V_{fin}$  is in  $C^\circ$ , however, this is no longer the case and a second modal auxiliary is required. Given that these auxiliaries themselves are semantically vacuous the reading of the sentence is not affected:

(7) Would/\*Does Mary probably sing?

**5. Emphatic effects:** Second, from the explanation that modal adverbs/auxiliaries do not have to participate in an MC relation, the emphatic effects from MC constructions immediately follow. In this sense, their behaviour is identical to that of optional NC languages. In a language such as Afrikaans, NC is optional and the NC sentences have emphatic effects, as shown in (8).

- (8) Sy is *nooit* (*nie*) beskikbaar *nie* Afrikaans  
 She is never NEG available NEG ‘She's never available’

Given the fact that the position of *nooit* marks the position of negation at LF, lexical semantics of the first *nie* (taken to be semantically non-negative, cf. Biberauer (2006)), this *nie<sub>i</sub>* is not required to participate in the sentence, but will not change the semantics once it is included. The emphatic effects can then be deduced from Gricean pragmatics (be brief).

**References:** Biberauer, Th. 2006. "Syntactic" OCP effects? *Insights from Afrikaans Negation*. paper presented at CGSW 21 | Cinque, G. 1999. *Adverbs and functional heads*. Oxford University Press, Oxford | Ernst, Th. 2001. *The Syntax of Adjuncts*. Cambridge: CUP | Nilsen, Ø. 2003. *Eliminating positions: syntax and semantics of sentential modification*. Utrecht: LOT Publications | Geurts, B. & J. Huitink. 2006. *Modal Concord*. Ms. University of Nijmegen | Shield, R. 2004. *Modal Repair*. Paper presented at NELS 35. | Zeijlstra, H. 2004. *Sentential Negation and Negative Concord*. Utrecht: LOT Publications