Epistemic and Root Modality: Evidence for Two Structures

The distinction between epistemic and root modals has been argued to be syntactic (Cinque (1999)) or contextually determined in the semantic/pragmatic component, with no syntactic differences needed (Kratzer (1977)) and subsequent work). This paper adds to that discussion, showing that epistemic and root modals take different complements based on the novel data from Bosnian/Croatian/Serbian (BCS). The BCS modal verb morati ‘must’ appears in three different constructions. It can be followed by a clause containing a finite main verb (1), an infinitive (2) or a subjunctive (3). The distinction between present tense and subjunctive forms is obscured for all BCS verbs but one, bi-ti ‘to be’, used to show the distinction here.

(1) Rakapaika mora-Ø da je naš kralj-Ø. (epistemic)
   Rakapaika.M.NOM must-3SG.PRS COMP be.3SG.PRS our king.M-NOM.SG
   ‘Rakapaika must be our king.’

(2) Rakapaika mora-Ø bi-ti naš kralj-Ø. (deontic)
   Rakapaika.M.NOM must-3SG.PRS be-INF our king.M-NOM.SG

(3) Rakapaika mora-Ø da bud-e naš kralj-Ø. (deontic)
   Rakapaika.M.NOM must-3SG.PRS COMP be.SBJV-3SG our king.M-NOM.SG
   ‘Rakapaika must be our king.’

An epistemic interpretation is only available for (1), while only root interpretations (deontic in the examples here) are available for (2) and (3). I show that the syntax of epistemic modal constructions differs from root modal constructions. The two differ in default word order (4)-(5), where epistemic modals precede subjects unless the subject is moved as in (1), possibly through Topicalization, as suggested for Bulgarian and Macedonian by Werkmann (2007). There are also differences in agreement and tense morphology, where deontic modals show tense morphology and agree with the subject (7), while epistemic modals maintain the default 3SG.PRS form regardless of the main clause and subject φ-features (6).

(4) Mora-Ø da je Rakapaika kralj.
   must-3SG.PRS COMP be.3SG.PRS Rakapaika.M.NOM king.M-NOM.SG
   ‘Rakapaika must be the king.’ (epistemic, default w.o.)

(5) ??Mora-Ø da Rakapaika bude-Ø kralj.
   must-3SG.PRS COMP Rakapaika.M.NOM be.SBJV-3SG king.M-NOM.SG
   ‘Rakapaika must be the king.’ (deontic)

(6) Mora da (su bi-li)/ (če bi-ti) kralj-evi.
   must-3SG.PRS COMP (be.3PL.PRS be-PPT.M.PL)/(will.3PL.PRS be-INF) king.M-NOM.PL
   ‘They must have been kings.’ / ‘It must be the case that they will be kings.’ (epistemic)

(7) (Mora-li su)/ (Mora-ti će) da bud-u kralj-evi.
   must-PPT.M.PL be.3PL.PRS must-INF will.3PL.PRS COMP be-3PL.SBJV king.M-NOM.PL
   ‘They had to be kings.’ / ‘They will have to be kings.’ (deontic)

More evidence comes from NPIs. Progovac (1993) shows that BCS ni-NPIs are licensed by clausemate negation only. Negation that takes scope under the modal (and follows it – BCS has transparent scope) licenses ni-NPIs regardless of the modal flavor, (8)-(10):

(8) Mora-Ø da ne jed-u ništ-sa slatko.
   must-3SG.PRS COMP NEG eat-3PL.PRS NEG-what.NOM sweet-N.SG
   ‘It must be the case that they don’t eat any sweets.’ (□ > ¬, epistemic)

(9) Mora-ju da ne jed-u ništ-sa slatko.
   must-1PL.PRS COMP NEG eat-3PL.PRS NEG-what.NOM sweet-N.SG
   ‘They have to not eat any sweets.’ (□ > ¬, deontic)

(10) Mora-ju ne jes-ti ništ-sa slatko.
    must-3PL.PRS NEG eat-INF NEG-what.NOM sweet-N.SG
    ‘They have to not eat any sweets.’ (□ > ¬, deontic)
Contrary to this, we see that negation that scopes over epistemic uses of *morati* ‘must’ doesn’t license *ni*-NPIs (11), but negation that scopes over deontic uses of *morati* does (12), (13). This suggests that the negation scoping over the epistemic modal is not part of the same clause as the *ni*-NPI, as the *ni*-NPI should otherwise be licensed in (11).

(11) *Ne mora-Ø da jed-u ni-štva slatk-o.
   NEG must-3SG.PRS COMP eat-3PL.PRS NEG-what.NOM sweet-N.SG
   Intended: ‘It doesn’t have to be the case that they don’t eat any sweets.’ (¬ > □, epistemic)

   NEG must-3PL.PRS COMP eat-3PL.SBJV NEG-what.NOM sweet-N.SG
   ‘They don’t have to eat any sweets.’ (¬ > □, deontic)

(13) Ne mora-ju jes-ti ni-štva slatko.
   NEG must-3PL.PRS eat-INF NEG-what.NOM sweet-N.SG
   ‘They don’t have to eat any sweets.’ (¬ > □, deontic)

Negation that takes scope over the modal provides another piece of evidence in and of itself, unrelated to the NPIs. The only way for negation to combine with an epistemic modal is to introduce an infinitive *biti* ‘to be’, as in (14), which is neither required nor allowed in sentences where negation scopes over a deontic modal (15). Crucially, it is not the absence of *biti* that makes (11) ungrammatical. *Ni*-NPIs are only allowed when there is a negation scoping over the epistemic modal is for there to also be a negation scoping under it (but over the main verb). In this case, *biti* is also required, as in (16). Alternatively, *biti* can be replaced with *da bude*, mimicking the patterns of behavior of main verbs under deontic modals (omitted for space here).

(14) Ne mora-Ø *(bi-ti) da su djeca gladna.
   NEG must-3SG.PRS be-INF COMP be.3PL.PRS children hungry
   ‘It doesn’t have to be the case that the children are hungry.’ (¬ > □, epistemic)

(15) Djeca ne mora-ju (*bi-ti) da bud-u gladna.
   Children NEG must-3L.PRS be-INF COMP be.SBJV-3PL hungry
   ‘The children don’t have to be hungry.’ (¬ > □, deontic)

(16) Ne mora-Ø bi-ti da ne jede-mo ni-štva slatk-o.
   NEG must-3SG.PRS be-INF COMP NEG eat-IPL.PRS NEG-what.NOM sweet-N.SG
   ‘It doesn’t have to be the case that we aren’t eating any sweets.’ (¬ > □, epistemic)

The facts presented suggest that deontic and epistemic modals are merged in two distinct positions. I argue that the epistemic modals are merged higher, taking a VP complement headed by optionally silent infinitive *biti* ‘to be’ which takes a CP complement, making constructions containing an epistemic modal biclausal. For root (in this case, deontic) modals, I present evidence that their (non-finite) complements are no bigger than VP, or as Aelbrecht (2012) suggests for Dutch, MoodP. Some evidence for that comes from the availability of ellipsis – (17) is appropriate as a response to (2) and (3), but not (4).

(17) Ne mora-Ø.
   NEG must-3SG.PRS
   ‘No, he doesn’t.’

These conclusions are inconsistent with the model presented in Kratzer (1977), where the only difference between epistemic and root modals is the modal base, as the BCS data clearly shows that epistemic modals are higher than root modals, as argued by Cinque (1999), Drubig (2001), Butler (2003), Hacquard (2011), and others.