

A Necessity Priority Modal and its Interaction with Tense in Korean

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1 Introduction

Previous literature has revealed that the interaction of a modal auxiliary with tense or aspect components often gives rise to some unexpected inferences. For example, in English, when interacting with the perfect *have*, simple modal sentences often convey the counterfactual interpretations. In this paper, I focus on a similar phenomenon in Korean. That is, when a necessity priority modal – *eya ha-* ‘should’ is combined with past tense morphology, the sentence yields the ‘non-actualization’ inference.

- (1) a. Chelswu-nun swukcey-lul hay-Ø-eya ha-n-ta.
Chelswu-TOP homework-ACC do-PRES-MOD-PRES-DEC
‘Chelswu should do his homework.’
INFERENCE: Ø
- b. Chelswu-nun swukcey-lul hay-ss-eya ha-n-ta.
Chelswu-TOP homework-ACC do-PAST-MOD-PRES-DEC
‘Chelswu should have done his homework.’
INFERENCE: He didn’t do it. (non-actualization)

The non-actualization inference found in (1b) is unexpected given the fact that priority modal sentences like *must p* or *should p* (i.e. with non-past complements, as in (1a)) are used to express necessities, not to convey either *p* or $\neg p$. The goal of this paper is to investigate (i) what the nature of the ‘non-actualization’ inference in priority modal sentences in Korean is: is it entailed, presupposed, or conversationally implicated? and (ii) how this inference is derived. Since the phenomenon is similar in English, it will be interesting to look at the cross-linguistic differences between these two languages.

2 Tense/aspect-modal Interaction in English

In this section, I briefly review how counterfactuality, which arises from the interaction between tense/aspect and modals in English, has been accounted for in the previous literature. After summarizing how counterfactuality has been discussed, I examine whether this analysis can be extended to account for a bigger set of data.

2.1 Scope-based Analysis

According to the standard analysis, modals quantify over worlds, and they quantify over times as well. Instead of assuming that the temporal interpretation of modals comes about through implicit tense operators, Condoravdi (2002) argues that modals directly contribute to the temporal interpretation. That is, modals expand the time of evaluation forward. Her discussion implies that we need two distinct notions that are relevant to the temporal interpretation of modals: temporal perspective and temporal orientation. *Temporal perspective* is a temporal parameter that is used to capture the time from which the modal base is accessed and *temporal orientation* is a parameter which concerns the temporal relation between the speech time and the time at which the complement of the modal operator is to hold (Portner 2009:2278). In Condoravdi’s (2002:77) proposal, *temporal perspective* of the modal is determined by the operator which directly takes scope over the modal.¹

¹In the extensional contexts, it is always the time of utterance.

Temporal orientation of the modal is determined by the aspectual class of the described eventuality which appears in the scope of the modal.²

Condoravdi (2002) argues that epistemic modals in English may receive either an epistemic interpretation or a metaphysical³ interpretation, depending on whether the modal takes scope over or under a perfect. For example, the sentence (2) can be interpreted as either (2a) or (2b), depending on the context.

- (2) He *might have* won the game.
 a. Reading 1: He might already have won the game.
 b. Reading 2: At that time, he might still have won the game. (But he didn't.)

By decomposing modals referring to the past (i.e. a modal auxiliary + *have*) into a modal (MODAL) and a perfect (PERF) operator, Condoravdi explains the ambiguity with an apparent scope reversal.

- (3) a. Reading 1: PRES (MIGHT (PERF (he win the game)))
 b. Reading 2: PRES (PERF (MIGHT (he win the game)))

In (3a), the modal *might* takes scope over the perfect whereas in (3b), the perfect takes scope over the modal. Accordingly, the perspective of the modal in (3a) is the time of utterance and temporal orientation of the modal is prior to the utterance time. In (3b), however, the perspective of the modal is not the time of utterance but some time in the past (due to the perfect raising) and temporal orientation of the modal is future since the predicate *win* is the eventive predicate (and lack of the perfect which has the backward-shifting effect).

According to Condoravdi, (3a) involves an epistemic modality, and has an epistemic reading. The speaker talks about an epistemic possibility about the past from the perspective of the present. On the other hand, (3b) involves a metaphysical modality, and yields a counterfactual reading. The speaker talks about a future possibility in the past: there was a possibility that the actual world could become a world in which he won the game, but this did not happen.

Now let's look at the semantics of *He might have won the game*, which involves present tense, the modal and the perfect.⁴ (4) is from Condoravdi (2002:73, 75 her (27) and (33)).

- (4) He might have won the game.
 a. PRES (MIGHT_{MB} (PERF (he win the game))):
 $\lambda w \exists w' [w' \in MB(w, \text{now}) \ \& \ \exists t' [t' < [\text{now}, _] \ \& \ \exists e [[\text{he win the game}](w')(e) \ \& \ \tau(e, w') \subseteq t']]$
 b. PRES (PERF (MIGHT_{MB} (he win the game))):
 $\lambda w \exists w' \exists t' [t' < \text{now} \ \& \ w' \in MB(w, t') \ \& \ \exists e [[\text{he win the game}](w')(e) \ \& \ \tau(e, w') \subseteq [t', _]]]$

The semantics in (4a) says that there is a world w' which is epistemically accessible from the base world w at the utterance time, such that the event of his winning the game in w' must be included in a temporal interval that precedes the interval $[\text{now}, _]$. Hence, the winning event precedes the time of utterance. The semantics in (4b) says that there is a time t' which precedes the

²According to Condoravdi (2002:69), modals have a future orientation obligatorily with eventive predicates and optionally with stative predicates.

³According to Condoravdi (2002:61), metaphysical modality is associated with “how the world may turn out, or might have turned out, to be.”

⁴The following semantic definitions are from Condoravdi (2002):

- a. MIGHT: $\lambda P \lambda w \lambda t \exists w' [w' \in MB(w, t) \ \& \ AT([t, _], w', P)]$
 b. PRES: $\lambda P \lambda w [AT(\text{now}, w, P)]$
 c. PERF: $\lambda P \lambda w \lambda t \exists t' [t' < t \ \& \ AT(t', w, P)]$
 d. $AT(t, w, P) = \exists e [P(w)(e) \ \& \ \tau(e, w) \subseteq t]$ when P is eventive
 $= \exists e [P(w)(e) \ \& \ \tau(e, w) \circ t]$ when P is stative
 $= P(w)(t)$ when P is temporal

time of utterance and there is a world w' which is metaphysically accessible from the base world w at some time t' such that the future of t' includes the event of his winning the game. This means that the complement of the modal has a future-shifted interpretation, and his winning in the actual world has not yet been determined at the time of the modal evaluation.

In Condoravdi's theory, the counterfactual interpretation arises as a conversational implicature. The speaker uses a 'modal for the past' instead of a 'modal for the present' to expand the domain of metaphysical possibilities and, therefore, to convey that this past possibility is no longer available (Condoravdi 2002:86).

2.2 Applying the Scope-based Analysis to the Bigger Set of Data

Condoravdi's scope-based analysis, which is based on a branching world-time model, is attractive, but her paper discusses non-root (epistemic/metaphysical) modals only. Stowell (2004) tries to apply Condoravdi's scope-reversal analysis to priority modals as well.

(5) You should have bought that book when you had the chance. (Stowell 2004:633)

Stowell (2004:633) notes that the two readings seem in fact possible: (i) the relevant deontic obligation held at the past time (past perspective), and (ii) obligating the subject at the utterance time to have arranged things in the past (present perspective). However, the first reading is much more plausible than the second reading,⁵ and it is not obvious whether the counterfactual interpretation is derived from the covert perfect raising⁶ because the counterfactual interpretation of priority modals is more salient than the counterfactual interpretation of epistemic modals. This suggests that the temporal interpretation of the modal-perfect combination of epistemic modals and priority modals may not be accounted for in a uniform way; thus, Stowell's speculation that the scope-reversal analysis can be extended to priority modals as well is not completely convincing.

In addition, Condoravdi's proposal cannot account for the Korean data, due to their cross-linguistic differences. First of all, scopal properties of temporal and modal operators in Korean are different from those in English.

(6) Jane-un kicha-lul tha-ss-eya ha-n-ta.
 Jane-TOP train-ACC take-PAST-COMP AUX-PRES-DEC
 'Jane should have taken the train.'

In Condoravdi's analysis, there is no tense in the scope of modal (only the perfect *have* is possible in the scope of the modal). Unlike English, however, Korean simple modal sentences are biclausal; therefore, tense can appear in the scope of the modal.

(7) PRES(MODAL(PAST(John take the train)))
 -n- (-eya ha- (-ess (John-i kicha-lul tha-)))

One may argue that the past tense morpheme *-ess* in the embedded clause marks the perfective aspect, not past tense, and there is no tense in the scope of modal. Consider (8):

(8) Mary must have left this by the time I get back. (Portner 2009:190)

Regarding this future event reading in (8), Portner (2009:190) points out that this is due to the aspectual meaning that the perfect *have* has. This is not the case in Korean.

(9) Chelswu-nun ecey/*nayil-kkaci swukcey-lul
 Chelswu-TOP yesterday/tomorrow-by homework-ACC

⁵Stowell (2004:633) notes that "the relevant semantic judgments are extraordinarily delicate and difficult to distinguish."

⁶I adopt Laca's (2008:4) terminology of 'covert perfect raising' to refer to Condoravdi's scope reversal mechanism.

hay-ss-eya ha-n-ta.
do-PAST-COMP AUX-PRES-DEC
'Chelswu should have done his homework by yesterday/*tomorrow.'

The temporal adverbial modification pattern in (9) shows that the past complement is not compatible with non-past adverbials.

Also, the interpretation is different. While English *might have/should have* sentences are ambiguous, sentences like (6) in Korean conveys the 'non-actualization' interpretation only.⁷ Condoravdi argues that the counterfactual interpretation arises as a conversational implicature. As noted by Portner (2009), however, counterfactuality is not easily cancelled, even in English.

(10) ?At that point, he *might have* won the game, and in fact he did. (Portner 2009:226)

If the counterfactual reading is a conversational implicature, the continuation should sound natural; however, (10) is not perfectly natural.

The above discussion suggests that we have difficulty applying Condoravdi's scope-based analysis to a bigger set of data, even though this account well explains how we infer two distinct readings from *might have*. We have seen that the temporal interpretation of the modal-perfect combination of epistemic modals and that of priority modals may not come out uniformly. We have also seen that the scope-reversal mechanism does not work in Korean since the modal constructions are syntactically different and the status of tense-aspect morphology is also different.

3 The Nature of the Non-actualization Inference

In this section, I examine what the nature of the non-actualization inference in (1b) is. I discussed that, in Condoravdi's theory, the counterfactual reading of *might have* sentences is a conversational implicature. However, the counterfactual reading in Korean does act like a conversational implicature. Consider (11):

(11) Chelswu-nun swukcey-lul hay-ss-eya ha-n-ta.
Chelswu-TOP homework-ACC do-PAST-MOD-PRES-DEC
'Chelswu should have done his homework.
#Silceylo hay-ss-ta.
In fact do-PAST-DEC
In fact, he did it.'

As (11) shows, the non-actualization interpretation in (1b) cannot be canceled, and the property of not being canceled suggests that the non-actualization inference here cannot be characterized as a conversational implicature. Interestingly, as sentences with the actuality entailment do (Portner 2009:212), sentences like (1b) seems to convey two propositions: (i) Chelswu had an obligation to do his homework, and (ii) He did not do it. The non-actualization inference persists in the embedded clauses. (1b) is embedded in (12):

(12) Yenghi-nun Chelswu-ka swukcey-lul hay-ss-eya ha-n-ta-ko
Yenghi-TOP Chelswu-NOM homework-ACC do-PAST-MOD-PRES-DEC-COMP
malhay/sayngkakhay-ss-ta.
say/think-PAST-DEC
'Yenghi said/thought that Chelswu should have done his homework.'

(12) shows that (1b) invariably conveys two propositions (i) and (ii) when embedded under propositional attitude verbs (e.g. *malha-* 'say,' *sayngkakha-* 'think'). However, there is an intuition that the obligation reading and the non-actualization inference are different in terms of at-issueness. That is, while the obligation reading is at-issue (foregrounded), the non-actualization

⁷This will be discussed in section 3.

reading is not (backgrounded). We can test this by constructing a discourse eliciting a direct response. According to Kadmon (2001:12), only the non-backgrounding content can elicit direct responses, such as *Yes, I agree*, *No, I don't think so*, *Is that so?* and *Perhaps*. Let me consider the priority modal sentence in question and see whether or not the non-actualization interpretation elicits a direct response.

- (13) A: Chelswu-nun swukcey-lul hay-ss-eya ha-n-ta.
 Chelswu-TOP homework-ACC do-PAST-MOD-PRES-DEC
 'Chelswu should have done his homework.'
 B: Na-to kulehkey sayngkakha-y.
 I-too so think-DEC
 'I agree (that he was obliged to do it).'

In (13), B can agree or disagree with A about the proposition that 'Chelswu was obliged to do his homework,' not the proposition that 'he did not do his homework.' The fact that direct responses *I agree* (or *I don't think so*) cannot target the non-actualization reading suggests that the status of this inference is different from the at-issue, foregrounded content (the obligation reading). From this, it is tempting to conclude that the non-actualization inference is a presupposition. In fact, as Potts (2005) would predict for expressives or appositives, the non-actualization inference is not affected by the negation.

- (14) Chelswu-ka swukcey-lul hay-ss-eya ha-nun-kes-un ani-ta.
 Chelswu-NOM homework-ACC do-PAST-MOD-PRES-BN-CF NEG-DEC
 'It is not the case that Chelswu should have done his homework.'

In (14), the non-actualization interpretation remains constant. Unlike regular presuppositions, however, the inference is not presumed to be in the common ground, and it can provide new information.

- (15) A: Chelswu-nun way honna-ko.iss-e?
 Chelswu-TOP why being.scolded-PROG-INT
 'Why is Chelswu being scolded?'
 B: Chelswu-nun swukcey-lul hay-ss-eya ha-Ø-y.
 Chelswu-TOP homework-ACC do-PAST-MOD-PRES-DEC
 'Chelswu should have done his homework.'

As illustrated in (15), the non-actualization inference is added to the common ground, and functions as an answer to A's question.

To summarize, the non-actualization inference is not cancelable, not presupposed, but asserted. The non-actualization inference is not part of the at-issue content, but it can contribute new information. Therefore, we need to distinguish this inference from the obligation reading. Given these properties, I conclude that the non-actualization inference is a 'not-at-issue assertion.'

4 The Derivation of the Non-actualization Inference

Based on my discussion on what the nature of the non-actualization inference is, in this section, I examine how we can derive this inference. Following Condoravdi, I assume that modality involves two times: (i) the time from which the modal background is accessed, and (ii) the time at which the eventuality/situation described by the complement of the modal holds. In her terminology, (i) is temporal perspective, and (ii) is temporal orientation. Laca (2008) uses MOD-T and EV-T, and Demirdache and Uribe-Etxebarria (2010) use MOD-T and SIT-T for (i) and (ii), respectively. I use Demirdache and Uribe-Etxebarria's terms MOD-T and SIT-T, since their terminology is simple and straightforward. The time of utterance (UT-T) is always given as the present.

- (16) a. MOD-T (modal time): the time from which the modal base is accessed
 b. SIT-T (situation time): the time at which the eventuality/situation described by the

- complement of the modal instantiates
 c. UT-T (utterance time): the time of utterance, i.e. present

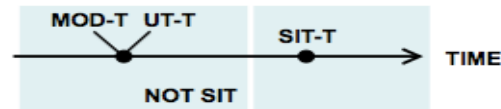
In Korean, MOD-T is determined by the tense of the modal expression. This is the tense of the auxiliary predicate. SIT-T is set by the embedded tense, which is realized within the main predicate. The embedded tense receives a relative tense meaning with respect to the matrix tense. UT-T is the time of utterance, which is always given as the present. The difference between English and Korean is that while MOD-T is always present in English, it can be either present or past in Korean.

Now turning back to (1), the difference between (1a) and (1b) is the embedded past tense, which determines SIT-T.

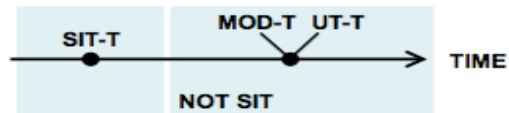
- (1) a. Chelswu-nun swukcey-lul hay- \emptyset -eya ha-n-ta.
 Chelswu-TOP homework-ACC do-PRES-MOD-PRES-DEC
 ‘Chelswu should do his homework.’
 INFERENCE: \emptyset
- b. Chelswu-nun swukcey-lul hay-ss-eya ha-n-ta.
 Chelswu-TOP homework-ACC do-PAST-MOD-PRES-DEC
 ‘Chelswu should have done his homework.’
 INFERENCE: He didn’t do it. (non-actualization)

I illustrate the temporal relations among MOD-T, SIT-T and UT-T in sentences (1) as follows:

- (17) a.



- b.



In (17a), MOD-T and UT-T are simultaneous, and SIT-T has a future orientation, while in (17b), SIT-T is prior to MOD-T and UT-T. In order to derive the non-actualization inference in (17b), I argue that priority modal sentences invariably convey that ‘it is necessary that the event/situation described by the main predicate be actualized, but it has not been actualized yet by the time of utterance.’ If the modal combines with a present complement, the sentence implies that ‘the event/situation has to be done at or after the time of utterance.’ Since UT-T is prior to SIT-T, the event/situation can be actualized; hence, there is no non-actualization inference in (17a). When the modal is combined with a past complement, as in (17b), however, since SIT-T is prior to UT-T in deontically accessible worlds, the sentence implies that ‘the event/situation cannot be actualized at the time of utterance,’ which yields the non-actualization inference.

5 Conclusion

In this paper, I showed that the non-actualization inference found in priority modal sentences in Korean is a not-at-issue assertion. Since the non-actualization inference in Korean behaves differently from English (i.e. it cannot be cancelled, it is not affected by negation and it can provide new information) and the modal constructions in both languages are syntactically different, it is difficult to apply the scope-based analysis directly to the Korean data. Instead, I analyzed that the non-

actualization inference arises from the temporal relations between SIT-T, MOD-T and UT-T.

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