

## Epistemic and metaphysical modality and the meaning of tenses in Greek

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**The phenomenon** This paper focuses on the meaning of Greek constructions corresponding to English sentences such as *John might have won the game*. While the English construction is ambiguous between an epistemic and a metaphysical interpretation (Condoravdi 2002), the ambiguity does not arise in Greek. The examples in (1) and (2) show that the constructions with a metaphysical reading (1) and an epistemic reading (2) have different forms. More specifically, in (1), the past tense modal verb *bori* 'might' combines with the future marker *tha*, while in (2), the modal verb *bori* has present tense morphology (cf. also the differences in tense and aspect on the embedded verbs). Since the modal verb and the embedded verb in both constructions are the same, it must be the meaning of temporal categories such as tense that affect modality (metaphysical in (1) and epistemic in (2)). In this paper, I present a compositional semantic analysis and show how the relevant modal bases are restricted by tenses on the modal and on the embedded verb.

**The analysis** I follow Condoravdi 2002 and assume that there is a correlation between the modal base with respect to which a particular expression is interpreted and the temporal orientation of the modal construction. The latter refers to whether the proposition expressed by the sentence in the scope of the modal is instantiated in the past or in the future with respect to the time of evaluation. The idea is that if at the time of evaluation the future is open (future orientation), that is, it is not known whether John will win the game, the modality is metaphysical. However, if at the time of evaluation the game is over, that is, the event under consideration is located in the past with respect to the time of evaluation (past orientation), the modality is epistemic. These assumptions allow us to explain the differences between (1) and (2) as follows. I propose that in constructions with a metaphysical reading (1), the future marker *tha* conveys that the event of winning the game is located in the future with respect to the time of evaluation. The past tense on the modal verb *bori* 'might' in (1) guarantees that the evaluation time with respect to which the embedded clause is interpreted (temporal perspective) is located in the past with respect to the Speech Time. These two conditions specify that at some point in the past the future was open. Therefore, the modal base is metaphysical. The construction in (2) has different temporal perspective and temporal orientation. The present tense on the modal verb *bori* 'might' ensures that the temporal perspective is present, that is, the time of evaluation for the embedded clause is the Speech Time. The past tense on the embedded verb in (2) guarantees that the temporal orientation is past. Past orientation correlates with settledness, and, as a consequence, the construction in (2) has an epistemic reading.

**Conclusions and wider implications** The proposed analysis shows how temporal categories, such as tense affect modal bases with respect to which constructions in the scope of modal verbs are interpreted. This analysis challenges the assumption that epistemic modals cannot appear in the scope of tenses (Stowell 2004), as well as the assumption that tense on the modal verb in constructions with metaphysical interpretations is 'pleonastic' (Iatridou 1990, Roussou 1999).

### (1) Metaphysical modality (counterfactual interpretation)

(Se auto to simio), tha borus-e na kerdhiz-i to mats.  
At that DET point, FUT can.IMPERF-3SG.PAST NA win.IMPERF-3SG.PRES DET match  
'At that point he might (still) have won the game.' ... but he didn't in the end

### (2) Epistemic modality

Bor-i na kerdhis-e to mats.  
can.IMPERF.3SG-PRES NA win.PERF-3SG.PAST DET match  
'He might have (already) won the game.' ... but I don't know the results