Mixed Moods and Unmixable Modalities.
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In my paper I will outline a semantics for imperatives and for deontic modalities which sheds some light on two problems that so far have been neglected by most of us.

Problem 1. Mixed moods

Most semanticists would say that declarative sentences have a truth value, and that imperatives do not. A declarative sentence denotes a proposition, an imperative denotes something else. (There is no consensus about what exactly the denotation of an imperative would be.) However, if declaratives and imperatives denote different kind of objects then what is the denotation of sentences like ‘Stop or I’ll shoot’ in which these different moods are put together? To deal with sentences like this we need a uniform notion of meaning on which we can base a notion of logical validity that is applicable to both declaratives and imperatives, and to sentences in which these moods are combined. I will argue that the framework of update semantics provides the notions required. In update semantics the meaning of a sentence is equated with the impact it has on the cognitive state of an addressee. A conclusion \( \psi \) follows from a sequence of premises \( \phi_1, \ldots, \phi_n \) if the conclusion \( \psi \) has no further impact on the cognitive state of anyone who has learnt the premises \( \phi_1, \ldots, \phi_n \). These definitions are broad enough to fit both declaratives and imperatives. The theory of imperatives that I will present gives a dynamic twist to the theory developed by Paul Portner, the basic idea being that an imperative sentence invites the addressee to update his or her plans for the future with the action described in the imperative.

Problem 2. Unmixable modalities

In all natural languages the possibilities to combine different modalities in one sentence are limited. It is easy to put a deontic modality in the scope of an epistemic modality, or an epistemic operator in the scope of an evidential expression, but it is impossible to do these things the other way around. Compare

\[ \text{• Maybe you should stop judging books by their cover.} \]
\[ \text{• Clearly, he must be a spy.} \]

with

\[ \text{• It ought to be case that he might be ill. (??)} \]
\[ \text{• Maybe he is clearly a spy. (??)} \]

How to explain this? Within the standard approach no explanation can be given. Actually, on the standard account, in which all modal expressions are treated as sentential operators that implicitly refer to some accessibility relation between possible worlds, it should be possible to mix all kinds of modalities in all possible ways. ‘Maybe it is the case that it ought to be the case that \( \phi \)’ says that there is some epistemically accessible world \( w \) such that \( \phi \) is true in all
worlds that are ideal from the perspective of \( w \). And ‘It ought to be the case that maybe it is the case that \( \phi \)’ says that in all ideal worlds there is an epistemically accessible world in which \( \phi \) is true. If there is nothing wrong with the first combination, what could be wrong with the second?

The treatment of deontic modalities that I will propose (and which is built on my analysis of imperatives) makes clear why it is odd, if not impossible, to have an epistemic modality in the scope of a deontic modality. I will compare this explanation with the explanation given by Nuyts[2004], who looks at the problem from a cognitive-functional perspective.

Literature.

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1 Actually, much of the work was done by my students Fabrice Nauze and Rosja Mastop.
2 See for example Portner, 2004.
3 *Locus classicus* is Kratzer, 1981.