The illusory scope of French epistemics

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1. Epistemics and Tense

Received view: Epistemic modals scope above tense, while root modals scope below (Condoravdi 2002, Stowell 2004, Hacquard 2006)

But some cracks have started to show. The following allow for both **present** and **past possibility** readings:

(1)   a.   **English** (von Fintel & Gillies 2007):
        The keys might have been in the drawer.
   b.   **Dutch** (Rullmann & Matthewson 2012):
        De sleutels konden in de la   liggen.
        the keys   could   in the drawer lie

        'The keys could have been in the drawer.'
   c.   **St'át'imcets** (Rullmann & Matthewson 2012):
        wá7=k'a   t'cum i=Canucks=a
        IMP=EPIS win   PL.DET=Canucks=EXIS

        'The Canucks might have been winning.'

2. Homer (2010)

Homer (2010) shows that French is similarly flexible w.r.t. "scope":

(2)   Il pouv -ait / dev -ait pleuvoir.
   it might -IMP / must -IMP rain

   'It is (now) possible/certain that it was raining,'
   or 'It was (then) possible/certain that it was raining.'

But Homer provides morphosyntactic and semantic evidence showing that **French modals always scope under tense**, even at LF. So how do we get the alleged epistemic > tense reading?

Homer's solution: Epistemic modals have two separate time variables:

   Reference time (RT) (when is the alleged rain occuring?)
   Time of modal evaluation (TME) (based on our knowledge at what time?)

RT: the same on both readings of (2).

"Low epistemic" reading: TME = RT because TME variable is bound by tense.

"High epistemic" reading: TME = utterance time because TME is indexical.

3. Why Just Epistemics?

Why not root modals?

There is no "high root modal" reading. Why not?

Possibility #1: Root modals don't have separate TME variable, so we always get that TME = RT. (Not explanatorily adequate; essentially just a rephrasing of the problem)

Possibility #2: Root modals **do** have separate TME variable, but it can't be indexical.

   Why not? Because that reading wouldn't make sense? (E.g., I cannot have a current obligation to have gone to the store yesterday.)

   But is this sort of nonsensicality really blocked by the **grammar**? Seems a stretch to call this L-analyticity (Gajewski 2002).

Why not *sembler* ('to seem')?

sembler is syntactically and semantically similar to epistemic *devoir* ('must').

Unlike root modals, a "high *sembler*" interpretation makes perfect sense (e.g., English *It seems that John left* or *John seems to have left*).

But a "high *sembler*" reading is unavailable:

(3)   Jean sembl -ait être là.
   Jean seem -IMP be   there
   Jean seemed to be there.
   #Jean seems to have been there.

On Homer's approach, we cannot account for (3) except by stipulating that with *sembler*, TME always equals RT (i.e., no indexical reading).

The goal: Explain why epistemic modals, but not root modals or *sembler*, can give the illusion of scoping over tense.

4. Epistemics as Narrative-Based

I adopt a situation-semantic version of Kratzer (1981):

(4) $[\![pouvoir]\!]^c \equiv \lambda p \lambda s. \exists s' \in \mathrm{BEST}(s, f^c, g^c)[p(s')]$,
      where $\mathrm{BEST}(s, f^c, g^c) \equiv \{s' \in \cap f^c(s) \mid \neg \exists s'' \in \cap f^c(s)[s'' <_{g^c(s)} s']\}$.

No extra TME argument. We only need the reference situation (RS), which replaces RT.

Difference between epistemics and roots/*sembler*: what sorts of propositions can appear in $f^c(s)$?

Root modals and *sembler* are **future-blind**.

   If I have an obligation/ability in s, nothing that occurs afterwards can change the fact that I had that obligation/ability. If things seem a certain way, no subsequent events can change the fact that they seemed that way.

Epistemics aren't cumulative knowledge in s, but a context-sensitive **realistic narrative** of s (realistic in that it must be the case that $s \in \cap f^c(s)$).

   Narratives are **not** necessarily future-blind: Intuitively, when we relay information to each other, we frequently hop between times to provide background and explain the consequences of events.

Lack of future-blindness explains "high epistemic" reading. Hence root modals and *sembler*, which **are** future-blind, will lack "high" reading.

5. Future-Blindness

For a given situation s, let $\langle s \rangle^{id}$ be the set of spatiotemporally identical situations, plus or minus any metaphysical baggage (see Condoravdi 2002 for a similar concept using world-time pairs).

DUE: context-sensitive function from propositions and worlds to time intervals.

   Intuition: given sentence MODAL p, there's a context-sensitive time interval in which p is expected or permitted to occur. (E.g., when I say *You must do your homework assignment*, I mean you must do it before class tomorrow.)

(5)   A modal construction in context c with RS s is…
   a.   …**outwardly blind** iff $\forall p \in f^c(s) \cup g^c(s)[\forall s' \in p[\langle s' \rangle^{id} \subseteq p]]$.
   b.   …**future-blind** iff it is outwardly blind, and
        $\forall s' \in \cap f^c(s)[\neg \exists t \in \tau(s')[\forall t' \in \mathrm{DUE}^c(p, w_{s'})][t' <_T t]]]$,
        where $\tau(s')$ is the temporal trace of s', $w_{s'}$ is the world containing s', and $<_T$ is strict temporal precedence.

Outward blindness: Modal base and ordering source cannot differentiate between spatiotemporally identical situations. Future-blindness: No situation in $\cap f^c(s)$ extends past the due period.

Non-future-blind ("high epistemic") reading of (2)

We can include in $f^c(s)$ a proposition like $\{s' \mid$ Mary sees that it's not raining 30 seconds after s' in $w_{s'}\}$. (Entails non-future-blindness, since the interpretation won't be outwardly blind.)

This allows us to incorporate evidence arising after RS, giving the illusion that the modal is scoping over tense.

Future-blind ("low epistemic") reading of (2)

We can't include any propositions in $f^c(s)$ that differentiate between s and some spatiotemporally identical situation s'. This means we can't include any evidence that arises later, so we get no illusion of wide scope.

References

CONDORAVDI, C. 2002. Temporal interpretation of modals: Modals for the present and for the past. In Beaver, Kaufmann, Clark, & Casillas (eds.), *The Construction of Meaning*.

VON FINTEL, K. & A. GILLIES. 2007. An opinionated guide to epistemic modality. In Gendler & Hawthorne (eds.), *Oxford Studies in Epistemology: Vol. 2*.

GAJEWSKI, J. 2002. L-analyticity and natural language. Ms.

HACQUARD, V. 2006. *Aspects of modality*. PhD thesis, MIT.

HOMER, V. 2010. Epistemic modals: High *ma non troppo*. In *Proceedings of NELS 40*.

KRATZER, A. 1981. The notional category of modality. In Eikmeyer & Rieser (eds.), *Words, worlds, and contexts: New approaches in word semantics*.

RULLMANN, H. & L. MATTHEWSON. 2012. Epistemic modals can scope under past tense. Slides from a talk given for the Texas Linguistics Society.

STOWELL, T. 2004. Tense and modals. Ms.