Reportative evidentials and modal subordination

The Nature of Evidentiality
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1 Introduction

1.1 Background assumptions

Evidentiality: the grammatical marking of speaker’s source of information / grounds for making a speech act.

Modality: the grammatical marking of (the speaker’s evaluation) of the necessity/possibility of the proposition expressed in light of (i) what is known (epistemic), (ii) a set of rules/norms (deontic), (iii) the agent’s wishes (bouletic), (iv) the speaker’s beliefs (doxastic), (v) the facts (circumstantial), etc.

1.2 Research Questions

• Overarching: How are evidentiality and (epistemic) modality related to each other?
• If evidentials are modals, then they should participate in modal subordination. Today’s question: Does the German reportative modal sollen participate in modal subordination?¹

1.3 Modal Subordination

Modal subordination (Roberts 1987, 1989, 1996) refers to the phenomenon of a modal being interpreted semantically subordinate to a modal in a preceding clause. It is best illustrated by looking at anaphoric dependencies such as in (1) or (2) (with the indefinite being read de dicto).

(1) a. A thief, might have broken into the house. He, might have taken the silver. (adapted from (Roberts 1989))
   b. A thief, might have broken into the house.#He, took the silver.

(2) a. You should buy a lottery ticket, and put it in a safe place. It, might be worth a million dollars.
   b. You should buy a lottery ticket, and put it in a safe place. #It, is worth a million dollars.

¹I am not concerned here with contributing to or developing a theory of modal subordination at this point, but only use this empirical phenomenon as evidence for or against a modal analysis of Reportatives.
2 Reportative Evidentiality in German

- Reportive subjunctive (Fabricius-Hansen and Sæbø 2004):

  (3) Diese Vereinbarung sei noch nicht umgesetzt, sagt nun Bayerns Sozialministerin Christine Haderthauer (CSU).
  ‘This agreement has not yet been implemented, says Bavaria’s minister for Social Affairs Christine Haderthauer (CSU).’
  (http://www.spiegel.de/politik/deutschland/0,1518,723680,00.html)

- At least two modal verbs in German also have reportative interpretations, sollen and wollen.² They differ in that sollen does not require overt specification of the source, while with wollen the source of the report is always the referent of the subject NP.

  (4) a. Er soll weite Teile seiner Dissertation aus anderen Quellen abgeschrieben haben.
  He is said to have copied large parts of his dissertation from other sources.
  (http://www.tagesschau.de/inland/guttenberg872.html)
  b. In dieser Woche will Arbeitsministerin von der Leyen ihre komplette Hartz-IV-Reform vorlegen.
  The minister of labor von der Leyen wants to present her complete Hartz-IV-reforms this week.
  (http://www.spiegel.de/thema/bildungsgutscheine/)

3 Are Reportatives epistemic modals?

3.1 How are evidentiality and epistemic modality related to each other?

This question can be looked at in two ways (cf. Schenner (2010)):

(i) Is the concept of evidentiality a subtype of the concept of epistemic modality, or vice versa?

⇒ Most agree that they are conceptually distinct (Dendale and Tasmowski 2001); some argue that they overlap of Inference (van der Auwera and Plungian 1998) and others.

(ii) Do the elements that encode evidentiality also encode epistemic modality or vice versa?

⇒ some do, some don’t (Faller 2002), but see Matthewson (2011).

3.2 German sollen is not an epistemic modal

- German Reportative sollen does not encode any value for the speaker’s evaluation of the truth of p (Diewald 1999; Öhlschläger 1989; Mortelmans 2000). It can occur in contexts in which the speaker believes or knows p to be true, (5a), believes/knows p to be false, (5b), as well as in contexts in which they have no commitment either way, (5c).

²According to Wiemer (2010), the reportative use of sollen is restricted to the present tense. Ehrich (2001) also includes müssen ‘must’ in this set.
(5) a. Selbst SED-Generalsekretär Erich Honecker soll gesagt haben, wenn in der DDR das Salz rationiert werden müßte wie in der Sowjetunion, wäre er bereit über Perestrojka nachzudenken.
‘Even SED secretary-general Erich Honecker is claimed to have said that if in the GDR salt had to be rationed as in the Soviet Union, he would be willing to think about Perestrojka.’
→ Speaker “does not seem to doubt the fact that Honecker has made a particular statement.”
(Mortelmans 2000:135)

‘I have also read that we are said to have accomplished this. But this is not true in this way.’ (http://www.rhetorik.ch/Aktuell/Aktuell__Jul__18__2004.html)
→ Speaker believes/knows $p$ to be false

c. Das neue Playstation 3 Slim Modell soll der Meldung zufolge über eine 300 GB-Festplatte verfügen und 189,99 Britische Pfund (etwa 225 Euro) kosten.
. . . Ob die Gerüchte um ein Hacker-sicheres Playstation 3 Slim Modell tatsächlich der Wahrheit entsprechen, ist unklar.
‘The new Play Station 3 slim model is reported to have a 300 GB hard drive and to cost GBP189.99 (approx. EUR225). . . . Whether the rumours of a hacker-safe Play Station 3 slim model correspond with the truth, is unclear.’
(http://tinyurl.com/5s7afns)
→ Speaker is neutral

⇒ sollen does not encode the speaker’s degree of commitment to $p$ based on their own knowledge. It is not an epistemic modal.

- But, cross-linguistic variation: the St’át’ímcets Reportative $ku7$ requires the speaker to consider $p$ to be at least a possibility. It is infelicitous in a situation in which the speaker believes/knows $p$ to be false (Matthewson et al. 2007), just like typical epistemic modals such as may/must:

(6) # We may/must have accomplished this. But this is not true.

⇒ $ku7$ is an epistemic modal (as well as an evidential).

4 Modal subordination with Reportative evidentials

- The two modals in modal subordination can be of the same or of different types.

(7) a. epistemic—epistemic
A thief, might have broken into the house. He, might/would have taken (# took) the silver.
(adapted from example (13) in Roberts (1989:697))
b. deontic—epistemic
You should have eaten a bagel, It, would have filled (# filled) you up.
(adapted from (Roberts 1989:708))
c. bouletic—epistemic
   I wish Mary had a car. She would take (# takes) me to work in it. (Geurts 1999:200)

   d. epistemic–deontic
   I might get a dog. But I have to walk (# walk) it, every day. (Klecha 2011)

   “[The] speaker first establishes a set of worlds (possibly not including the actual world) in which some individual \( a \) is said to exist. So long as we continue to talk about these worlds, we may continue to assume \( a \)'s existence and to refer anaphorically to the discourse referent with which \( a \) was originally introduced into the conversation” (Roberts 1989:708). Explicit paraphrases:

   (8) a. A thief, might have broken into the house, and if one did, he would/might have taken the silver. (adapted from (Roberts 1989:699))
   b. You should have eaten a bagel,, and if you had eaten a bagel, it would have filled you up.
   c. I wish Mary had a car. If she did, she would take me to work in it.
   d. I might get a dog. If I do get a dog, I have to walk it every day.

   • Japanese inferential evidentials, e.g., mitai (which requires the evidence on which the inference is based to be visible, tangible or audible) licenses modal subordination (McCready and Ogata 2008) and can be subordinated.

   (9) a. ookami-ga kuru mitai da
      wolf-NOM come MITAI COP.PRES
      ‘A wolf will come in, it seems.’
   b. # anta-o taberu
      you-ACC eat
      ‘It will eat you.’
   c. anta-o taberu kamoshirenai
      you-ACC eat might
      ‘It might eat you.’

   (10) a. ookami-ga kita mitai/yoo da
      wolf-NOM came MITAI/YOO COP.PRES
      ‘A wolf/Some wolves has/have come, it seems.’
   b. yatsu(ra)-wa totemo onaka-o sukaseteiru mitai/yoo da.
      it(they)-TOP very stomach-ACC emptied MITAI/YOO COP.PRES
      ‘It/they seems/seem very hungry.’

   • In contrast, the Japanese Hearsay evidential does not create a modal context that can be picked up by a later modal, (11).

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3It seems to me that in Roberts’s (1989) original paraphrase A thief might break into the house, and if he does, he will undoubtedly take the silver., the use of the first he suggests that the speaker has a specific thief in mind.
(11) a. ookami-ga kuru soo da
   wolf-NOM come SOO COP.PRES
   ‘A wolf will come in, it seems.’
b. #anta-o taberu kamoshirenai
   you-ACC eat might
   ‘It might eat you.’

This is to be expected, because “propositions in the scope of soo-da need not be believed to any degree by the speaker” (McCready and Ogata 2008:165), and so it is not a modal.

• However, German Reportative sollen does create modal contexts which can be picked up by subsequent epistemic modals. (12c) is a valid paraphrase of (12a).

   A thief, reportedly broke into the museum. He, might have stolen the jewels.
b. Ein Dieb, soll ins Museum eingebrochen haben.# Er, hat die Juwelen geklaut.
   A thief, reportedly broke into the museum.# He, stole the jewels.
c. A thief reportedly broke into the museum. If one did, he might have stolen the jewels.

Two naturally occurring examples are given in (13) and (14).

(13) a. Laut Hobbyhistoriker Gerhard Entfellner soll es früher einen zweiten Kreuzstadl gegeben haben . . . , dieser sei aber abgerissen worden.
   ‘According to hobby historian Gerhard Entfellner a second Kreuzstadl reportedly existed in earlier times, . . . but it was reportedly torn down.’
b. Unter diesem zweiten Stadl könnte das lang gesuchte Massengrab zu finden sein. (Burgenländische Volkszeitung, 13.05.2010, COSMAS II)
   ‘Underneath this second Stadl the mass grave that has been searched for for a long time could be found.’

(14) a. Bald soll an einem neuen Star Trek-Film gearbeitet werden.
   ‘Reportedly, a new Startrek movie will be made soon.’
b. Im neuen Film soll es noch mehr Kampfszenen geben.
   ‘In the new movie there are reportedly even more fighting scenes.’
   . . .
c. Da aber einige der Drehbuchautoren streiken, könnten sich die Arbeiten an dem neuen Film verschieben.
   ‘But because some of the script writers are on strike, the work on the new movie could be delayed.’
   (http://www.shortnews.de/id/228297/Neue-Gerüchte-um-neuen-Star-Trek-Film)

• The sequence epistemic modal—sollen is also possible.
(15) Sony arbeitet womöglich an einem neuen Playstation 3 Slim-Modell. Dieses soll sich einer Meldung zufolge insbesondere dadurch auszeichnen, dass es sicherer gegen Hacker-Angriffe ist. ‘Sony is possibly working on a new slim model of Playstation 3. This model is, according to reports, distinguished in particular by being safer from hacker-attacks.’

(16) a. \([\text{ku7}^w] = \{p \mid \text{it is said that } q\}\) for all worlds \(w, w' \in B(w)\) iff the relevant report made in \(w\) is made in \(w'\).

b. If defined, \([\text{ku7}^w] = \lambda f. \lambda p. \forall w' \in f(B(w)) \rightarrow p(w')\]

c. In words: A sentence of the form \(\text{ku7}(p)\) presupposes that the modal base only contains worlds in which the relevant report was made. If defined, it is true, if \(p\) is true in all worlds in which the report was made.

(16) captures correctly for \text{ku7} that the speaker must believe \(p\) to be at least possible, but won’t work for Reportatives that can be used when the speaker does not believe \(p\).

5 An analysis of reportatives in possible worlds semantics

- Formal accounts of evidentials often analyze them as epistemic modals with evidential presuppositions (Izvorski 1997). Rullmann et al.’s (2008) analysis of the St’át’imcets Reportative (simplified slightly):

(16) a. \([\text{ku7}^w] = \{p \mid \text{it is said that } q\}\) for all worlds \(w, w' \in B(w)\) iff the relevant report made in \(w\) is made in \(w'\).

b. If defined, \([\text{ku7}^w] = \lambda f. \lambda p. \forall w' \in f(B(w)) \rightarrow p(w')\]

c. In words: A sentence of the form \(\text{ku7}(p)\) presupposes that the modal base only contains worlds in which the relevant report was made. If defined, it is true, if \(p\) is true in all worlds in which the report was made.

- Kratzer (2012) introduces the notion of an informational background to capture this difference between reportatives. With \text{ku7}-type reportatives, the fact that someone said \(p\) is taken as evidence for \(p\), whereas \text{sollen}-type reportatives only convey that someone said \(p\) without that necessarily being taken to provide support for the truth of \(p\). The difference can be illustrated with reportative adverbials in English (Kratzer 2012).

(17) a. Given the rumour, Roger must have been elected chief (#but I wouldn’t be surprised if he wasn’t.)

b. According to the rumour, Roger must have been elected chief (but I wouldn’t be surprised if he wasn’t.)

(18) a. Epistemic background for \text{ku7}-type reportatives:
\(f_r(w) = \{p \mid p = \text{it is said that } q\}\)

b. Informational reportative background for \text{sollen}-type reportatives: the set of propositions constituting the content of the relevant report(s)
\(f_r(w) = \{p \mid p \text{ is the content of what is said in } w\}\)

- The semantics of \text{sollen} can then be given as (19) (cf. Ehrich (2001), (Faller 2011)).

(19) \([\text{sollen}(p)]^{w, f} = 1 \text{ iff for all } w' \in \bigcap f_r(w), [p]^{w'} = 1\]
\(\text{sollen } p\) is true iff \(p\) is true in all worlds which are compatible with the content of the reports in the actual world.
Under this analysis *sollen*-type Reportatives are not epistemic, as desired.

- In sum, while Reportatives in some languages are epistemic modals, in other languages they are not. The latter can still be analyzed as quantifiers over possible worlds, but they take an informational modal base and are not epistemic.

6 Constraints on modal subordination with *sollen*

- Modal subordination involves adding the proposition under the first modal to the modal base of the second. (Exactly what the right mechanism is for this is still being debated). This is similar to what happens with conditionals.

(20) 
  a. A thief, *might* have broken into the house. He, *might* have taken the silver.  
  b. If a thief, broke into the house, he, *might* have taken the silver.

In (20a) and (20b), the proposition *A thief broke into the house* is temporarily/hypothetically added to the modal base against which *might* in the second clause/consequent is interpreted (Roberts 1989; Geurts 1999). Similarly:

(21) 
  a. You *should* buy a lottery ticket, it, *might* be worth a million dollars.  
  b. If you buy a lottery ticket, it, might be worth a million dollars.

(22) 
     A thief, reportedly broke into the house. He, might have stolen the jewels.  
  b. Wenn ein Dieb, ins Museum eingebrochen hat, *könnte* er, die Juwelen geklaut haben.  
     ‘If a thief, broke into the museum, he, might have stolen the jewels.’

- Modal subordination is infelicitous if adding the proposition of the first sentence to the modal base of the second modal would lead to some kind of contradiction or incompatibility (semantic or pragmatic) (Roberts 1996).

(23) 
  a. You must find a bear. [Then] you may take its picture.  
  b. You may find a bear. # [Then] you must take its picture. (Roberts 1996:234) 
     (but see Geurts’ judgment of (24a))

“The relative to a single authority, the worlds which reflect what a subject must do are a subset of the worlds which reflect what she may do. […] [t]here is a contradiction involved in asserting that one must do something which presupposes something that one needn’t to” (Roberts 1996:234).

- There are also temporal constraints:

(24) 
  a. Harry may carry an umbrella but he must leave it at the reception.  
  b. ?Harry may carry an umbrella but he must have left it at the reception. 
     (Geurts 1999:191)
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“Presumably, the domain of a deontic modal is a subset of possible futures.” (Geurts 1999:191). *may* in the first clause in (24a), whether interpreted epistemically or deontically, makes available a set of possible futures.

- Reportative *sollen* requires a modal base that contains propositions that are the content of what someone said. We can therefore not simply add propositions *p* to it that we hypothetically assume to be true. We would also have to assume that someone said *p*. This constrains the possible interpretations when *sollen* appears in second position.


(25) seems to be felicitous only under the assumption that the speaker considers it possible that a thief broke into the museum based on what someone said. Similarly for (26).


‘Sony is possibly working on a new slim model of Playstation 3. This model is, according to reports, distinguished in particular by being safer from hacker-attacks.’

(26) is the first sentence in an article with the title *PS3 Slim: Sony soll an neuem Modell arbeiten*.


(27a) talks about a lottery ticket that will be bought in the future, but the second sentence talks about one that already exists. *sollen’s* modal base seems to be past/present-oriented.

7 Conclusion

1. German reportative *sollen* can be analyzed as a modal, but not an epistemic one.

2. *sollen* participates in modal subordination but comes with a set of constraints that is different from that of epistemic modals. Exactly what these constraints are, requires further work. St’át’ïmcets *ku7*, as an epistemic modal, might pattern with epistemic modals.

3. The Japanese hearsay evidential does not participate in modal subordination and might therefore be truly non-modal.

4. Most analyses of modal subordination rely on the assumption that modals presuppose their modal base. E.g., Roberts (1989) assumes that the relevant proposition is added to the modal base of the subordinated modal via presupposition accommodation. I am not convinced that presupposition is the right type of meaning to capture evidential meaning. If evidential meaning is not presupposed, then a different account of the modal subordination cases in which *sollen* is ”subordinated” is required.
References


