

## Semantics of evidentials: German reportative modals

Mathias Schenner

German features a variety of evidential strategies, i.e. ways to express the speaker's type of source of information for a proposition. The evidential (reportative) uses of the German modal verbs *sollen* 'should' and *wollen* 'want' are typically given a purely modal analysis that yields correct predictions for unembedded cases, but fails to account for many embedded occurrences. Based on a corpus and a questionnaire study it is argued that these modals can receive three distinct kinds of interpretation when they occur embedded in clausal complements (partly dependent on the embedding predicate). A revised analysis of reportative *sollen* is offered that involves a reportative presupposition and a conditionally activated assertive component. Finally, *sollen* is compared to other reportative strategies in German, especially the reportative subjunctive, and the effects of having multiple evidentials in a single clause are pointed out (evidential concord).

### 1. Introduction

Evidentials are, at a first approximation, linguistic markers that indicate the type of the speaker's source of information, e.g. whether the speaker witnessed the described event himself (direct evidence), inferred it from other information (inferred evidence) or only heard about it from someone else (reportative evidence). Languages differ in the number and kinds of evidence types they distinguish grammatically, but the three types just mentioned are the typologically most common ones (for comprehensive overviews cf. Willet (1988) and Aikhenvald (2004)). In some languages evidential marking is obligatory. For example, in Tariana, an Arawak language in northwest Amazonia, one out of an inventory of five evidential suffixes has to be attached to the main verb of every matrix clause (Aikhenvald 2004).

In contrast, most European languages, like English or German, do not seem to possess such fully grammaticalized systems for expressing evidential distinctions. However, the possibility for the speaker to express his source of information is most probably a universal feature of human languages. For example, in German, there are both lexical and grammaticalized means of expressing evidential meanings. Among the lexical strategies are certain (uses of) complement-

taking predicates (e.g. *sehen* ‘see’, *sagen* ‘say’, *hören* ‘hear’) and adverbials (e.g. *angeblich* ‘allegedly’, *laut, so, zufolge* ‘according to’). Among the grammatical strategies for expressing inferential evidence are the constructions *scheinen* ‘seem’, *drohen* ‘threaten’, *versprechen* ‘promise’ plus *zu*-infinitive and *werden* ‘become’ plus infinitive. Diewald & Smirnova (2008) even argue that the latter four constructions build a paradigm in present-day German. This paper will focus on grammatical strategies to express reportative meanings, namely mood (the reportative subjunctive) and (at least) the modals *sollen* ‘should’ and *wollen* ‘want’.

German modals in general (*können* ‘can’, *dürfen* ‘may’, *mögen* ‘may’, *müssen* ‘must’, *sollen* ‘should’, *wollen* ‘want’) are polyfunctional: They systematically allow for both a circumstantial (root) and an epistemic interpretation. For example, *können* in (1) and *müssen* in (2) can receive both circumstantial readings, as paraphrased in (1a) and (2a), and epistemic readings, as paraphrased in (1b) and (2b).

- (1) Anna kann in Paris leben.  
Anna can in Paris live
- a. ‘Anna is able to live in Paris (in view of her abilities).’
  - b. ‘Anna possibly lives in Paris (in view of what I know).’
- (2) Anna muss in Paris sein.  
Anna must in Paris be
- a. ‘Anna is required to be in Paris (in view of her obligations).’
  - b. ‘Anna must be in Paris (in view of what I know).’

The modals *sollen* and *wollen* are special in that they give rise not to epistemic, but to evidential readings in addition to their circumstantial readings, as illustrated in (3) and (4). Both indicate that there is reportative evidence for (the truth of) the prejacent proposition. In the case of *sollen* the source of the report is subject-external (as is the source of the obligation in the circumstantial reading), in the case of *wollen* the source is the sentential subject itself (as is the source of the volition in the circumstantial reading).

- (3) Anna soll in Paris sein.  
Anna should in Paris be
- a. ‘Anna should be in Paris (in view of her obligations).’
  - b. ‘Anna is said to be in Paris.’
- (4) Anna will in Paris sein.  
Anna want in Paris be
- a. ‘Anna wants to be in Paris.’
  - b. ‘Anna claims to be in Paris.’

The following sections will focus on the reportative use of *sollen* ‘should’, henceforth, ‘*sollen*<sub>REP</sub>’, as illustrated in (3). Most of the results carry over to the reportative use of *wollen* ‘want’. However, the latter is much less frequent than *sollen*<sub>REP</sub> and *wollen* shows additional syntactic and semantic idiosyncrasies that are beyond the scope of the current paper (see e.g. Maché (2008) for an interesting discussion of some of the subtleties involved).

## 2. A standard modal analysis

Intuitively, by uttering  $sollen_{\text{REP}}(p)$  a speaker conveys that there is reportative evidence for  $p$ . But what does this exactly mean? In order to make this intuition more precise, the following questions are addressed in this section, resulting in a preliminary lexical entry for  $sollen_{\text{REP}}$  in the final subsection 2.4.

- (5) a. What exactly is the content of the reportative component? (cf. sec. 2.1)  
 b. What is the semantic status of this component (truth-conditional vs. illocutionary)? (cf. sec. 2.2)  
 c. Are additional meaning components conveyed (e.g. reduction/suspension of speaker commitment)? (cf. sec. 2.3)

## 2.1. Characterizing the reportative component

There are various ways to think about utterances and reports. In a simple case (sufficient for our purposes), an event of reporting involves a speaker, an addressee and a proposition that is conveyed. Like any event, a report is located at some spatiotemporal location (in some possible world). In our simplified setting, a report can be construed as a four-place relation, as in (6a), abbreviated in (6b) (' $\Delta$ ' for 'dicendi').

- (6) General form of an report:  
 a.  $x$  tells  $y$  in  $e$  that  $p$   
 b.  $\Delta(e, x, y, p)$

Reports about reports differ in whether both the speaker and the addressee of the reported report are specified as in (7a), or only the addressee as in (7b), or only the speaker as in (7c).

- (7) a. Anna told me that  $p$ , I've heard from Anna that  $p$   
 b. Somebody told me that  $p$ , I've heard that  $p$   
 c. Anna said that  $p$   
 d. It is said that  $p$ , There are rumors that  $p$

There are also reports about reports where neither the speaker nor the addressee of the original report is explicitly expressed.<sup>1</sup> A special case are reports about *rumors*, as in (7d). These are not reports about specific reports, but involve quantification over report events, roughly as in (8), a necessary condition for the truth of sentences like the ones in (7d). It is clear that additional conditions are at play, depending on the lexical items used. For instance, a rumor is not established by a single report, it requires some sort of spreading.

- (8) a. There are report events (in some contextually salient spatiotemporal region) that involve members of some (contextually salient) speech community and convey that the proposition  $p$  is true

<sup>1</sup>There are many more complex cases conceivable that will not be considered here, e.g. if the current reporter only *overheard* the original report or if he reports a report for which he only has reportative evidence.

- b.  $\exists e \exists x \exists y (x, y \in C \wedge \Delta(e, x, y, p))$ , where  $C$  is a speech community

The crucial question in the present context is what kinds of report can be reported by using *sollen*<sub>REP</sub>? And the answer is that many kinds of reports can. The default (e.g. in (3)) seems to be the rumor reading paraphrased in (7d). But *sollen*<sub>REP</sub> can also be used to report a specific utterance whose producer (and/or recipient) is explicitly mentioned, e.g. by an adverbial *laut X* ‘according to X’, as in (9a), or anaphorically inferred, as in (9b).

- (9) a. Bea *soll*<sup>i</sup> laut Anna<sub>i</sub> in Paris sein.  
Bea should according to Anna<sub>i</sub> in Paris be  
‘Anna said that Bea is in Paris.’  
b. Anna<sub>i</sub> hat uns von Bea erzählt. Bea *soll*<sup>i</sup> in Paris sein.  
‘Anna<sub>i</sub> told us about Bea. She<sub>i</sub> said that Bea is in Paris.’

This being said, I will not be concerned with distinguishing the various types of reported reports in the following. The simplified abstract utterance predicate  $\Delta(x, p)$  (roughly, ‘ $x$  said that  $p$ ’) is sufficient for the purposes of this paper and will be uniformly used to represent the reportative component of *sollen*<sub>REP</sub>.<sup>2</sup>

## 2.2. Truth-conditionality

There is a long-lasting and still unresolved debate on whether epistemic modals are truth-conditional, i.e. contribute to the proposition expressed (cf. e.g. Papafragou (2006)). For evidentials, in particular *sollen*<sub>REP</sub>, the same issue arises. Several tests for truth-conditionality have been proposed in the past, including semantic embeddability in the antecedent of conditionals or under factive verbs, challengeability or scope interaction with propositional-level operators like negation.<sup>3</sup>

For example, according to the *embedding test*, introduced by Wilson (1975), an item is truth-conditional if it can be semantically embedded in the antecedent of a conditional. Ifantidou (2001) has used this test to argue that that reportative and evidential adverbials in English are truth-conditional. For instance, *allegedly* in (10) is interpreted in the scope of *if*, as is brought out in the paraphrase in (10a). This reading is clearly different from the one in (10b), where the reportative part does not affect the condition in the antecedent.

- (10) If the cook has allegedly poisoned the soup, the police should make an inquiry.  
a. If it is alleged that the cook has poisoned the soup, the police should make an inquiry.

<sup>2</sup>No specific model-theoretic interpretation of ‘ $\Delta$ ’ will be defended in this paper, the reader may use his favorite semantics of ‘say’ instead. However, cf. Brasoveanu & Farkas (2007) for some of the complexities involved.

<sup>3</sup>In recent semantic analyses of evidentials more specific diagnostics are used that are designed to test whether the element under investigation should receive a *modal* or an *illocutionary* analysis, the two dominant formal approaches to evidentials in the literature (cf. e.g. Faller (2006), Matthewson et al. (2007) and McCready (2008)). For a more comprehensive discussion of these diagnostics and their application to German *sollen*<sub>REP</sub> see Schenner (2008).

- b. If the cook has poisoned the soup, as it is alleged, the police should make an inquiry.

When we try to apply the test to *sollen*<sub>REP</sub>, we find both cases where *sollen*<sub>REP</sub> falls within the scope of *if* and is hence truth-conditional, e.g. in (11), and cases where it does not fall within the scope of *if* and hence qualifies as non-truth-conditional, e.g. in (12) (cf. Faller (2006) for similar examples). In the consulted corpora, the latter cases are much more frequent, but there are also many cases that allow for both a truth-conditional and a non-truth-conditional reading.

- (11) a. Wenn es morgen regnen *soll*, müssen wir die Fahrräder abdecken.  
 ‘If *it is said that* it is going to rain tomorrow, we have to cover the bicycles.’  
 b. Ich habe es nicht gerne, wenn es hinterher nur einer gewesen sein *soll*.<sup>4</sup>  
 ‘I don’t like it, if afterwards *it is said that* it has been only one.’
- (12) a. Wenn Herr Schröder das gesagt haben *soll*, dann müßte er die Konsequenz daraus ziehen und sagen ...<sup>5</sup>  
 ‘If Mr. Schröder said this (*as it is alleged*), he should draw the consequence and say ...’  
 b. Die Dame müßte mindestens um zehn Jahre älter sein, als sie [tatsächlich] ist, wenn sie zu dem Bilde Modell gestanden haben *soll*.<sup>6</sup>  
 ‘The woman would have to be at least ten years older than she actually is, if she had acted as a model for this painting (*as it is alleged*).’

According to the embedding test, *sollen*<sub>REP</sub> has both truth-conditional and non-truth-conditional uses.<sup>7</sup> However, it can be argued that the seemingly non-truth-conditional uses in (12) are rather *parenthetical* uses, as their English translation by means of *as*-parentheticals also suggests. Parentheticals fail the embedding test, but they can nevertheless be handled in truth-conditional semantics (cf. e.g. Asher (2000), Potts (2005)). The conclusion is that *sollen*<sub>REP</sub> is truth-conditional, but has assertive (non-parenthetical) and parenthetical uses (more on these in section 3.2).

### 2.3. Speaker commitment

Evidentials are often taken to not only indicate the type of source of evidence, but also a certain (increased or decreased) degree of speaker commitment. One can try to build scalar hierarchies that order evidentials according to their strength, i.e. the degree of speaker commitment they convey. A typical example is given in (13).

- (13) DIRECT > INFERRED > REPORTED

<sup>4</sup>*Berliner Zeitung*, 02.07.2003, p.23.

<sup>5</sup>*Die ZEIT* 32/1985.

<sup>6</sup>*Vossische Zeitung (Morgen-Ausgabe)*, 03.03.1903, p.5-6.

<sup>7</sup>The type of conditional clause may influence the preferred reading; cf. the distinction between central and peripheral adverbial clauses in Haegeman (2006).

Given such a scale, by using a DIRECT evidential marker a speaker indicates a high degree of commitment, whereas using a REPORTED evidential marker would indicate a low degree of commitment. However, these hierarchies are best conceived of as partial orders (cf. Faller (2002:ch.2)) and as context-dependent, as reflected in the formal model of speaker commitment (changes) recently proposed by Davis et al. (2007).

Turning to *sollen*<sub>REP</sub>, does it indicate (as part of its lexical meaning) a reduced degree of speaker commitment or even doubt or skepticism, as is sometimes suggested? Here we can rely on Mortelmans (2000:136), who showed in a corpus study that, while *sollen*<sub>REP</sub> is compatible with speaker skepticism, this usage is in practice very rare (in 5 out of 137 cases, only one of which was a declarative clause). In addition, the speaker's skepticism is usually explicitly marked.

We conclude that *sollen*<sub>REP</sub> does not lexically encode speaker doubt. Skeptic overtones are pragmatic effects. The shift of responsibility conveyed by *sollen*<sub>REP</sub> arises as part of the reportative (truth-conditional) meaning: The speaker is not committed to the reported proposition, but to the existence of a report of the embedded proposition.

#### 2.4. A standard modal account

There are surprisingly few formal accounts of the evidential readings of German modals, a notable exception being Ehrich (2001). She proposes roughly the following lexical entry for *sollen*<sub>REP</sub> (cf. Ehrich (2001:168)):

- (14)  $\llbracket \textit{soll} \rrbracket^w = \lambda p. [\text{for every world } w' R w \text{ in which the claims of } x_c \text{ in } w \text{ are true, it holds that } w' \in p]$  (where  $x_c$  is understood as the contextually supplied source of the relevant claims)

The basic idea behind (14) seems to be that '*sollen*<sub>REP</sub>( $p$ )' is equivalent to ' $x_c$  said that  $p$ ' or, using the utterance predicate introduced in section 2.1, ' $\Delta(x_c, p)$ '. Using the formalism of Discourse Representation Theory (DRT) (Kamp & Reyle 1993), we get the Discourse Representation Structure (DRS) in (15b) for (15a), where  $\Delta$  is understood as a relation between an individual and a DRS.

- (15) a. Anna soll in Paris sein.  
'Anna is said to be in Paris.'  
b. [a o: Anna(a), Paris(o),  $\Delta(x, [: \textit{in}(a,o)])$ ]

Reportative *wollen*<sub>REP</sub> receives a parallel treatment, with the minimal difference that the source of the reported speech act is not a contextually supplied individual or group but rather the sentential subject itself.

- (16) a. Anna will in Paris sein.  
'Anna claims to be in Paris.'  
b. [a o: Anna(a), Paris(o),  $\Delta(a, [: \textit{in}(a,o)])$ ]

This analysis of German reportative modals correctly captures that *sollen*<sub>REP</sub> (and *wollen*<sub>REP</sub>) are truth-conditional (as noted in section 2.2) and do not involve a dubitative component (as noted in section 2.3). Moreover, without further assumptions, it predicts that *sollen*<sub>REP</sub> can be embedded (e.g. in complement clauses). Assuming that *sollen*<sub>REP</sub> receives the same interpretation in unembedded and embedded contexts, this analysis predicts that (17a) is grammatical and interpreted as in (17b).

- (17) a. Anna glaubt dass Bea in Paris sein soll.  
       Anna thinks that Bea in Paris be should  
       b. [a b o: Anna(a), Bea(b), Paris(o), think(a,[: Δ(x,[: in(b,o))])]]

In the following section, this prediction will be tested by investigating embedded occurrences of *sollen*<sub>REP</sub>.

### 3. Embedded evidentials: data and generalizations

Evidentials are typically considered to operate at the speech act level and hence to be unembeddable, cf. e.g. Aikhenvald (2004:8.1.3) for a list of languages that do not allow their evidentials to occur in embedded contexts. However, there are exceptions to this cross-linguistic tendency. Evidentials are embeddable in complement clauses in Tibetan (Garrett 2001), in Bulgarian (Sauerland & Schenner 2007), in German (see below) and even in certain types of complement clauses in Turkish (Schenner 2008). In all of these languages, the embeddability of evidentials is subject to certain restrictions. Reportative evidentials occur most naturally under *verba dicendi*, but there are additional types of embedding predicates that license evidentials in their complements.

Two questions will guide our investigation of the distribution of embedded *sollen*<sub>REP</sub> in German. First, in complement clauses of which matrix predicates can *sollen*<sub>REP</sub> occur (cf. sec. 3.1)? Second, how is embedded *sollen*<sub>REP</sub> interpreted (cf. sec. 3.2)?

#### 3.1. The distribution of embedded *sollen*<sub>REP</sub>

In order to determine whether *sollen*<sub>REP</sub> can occur in complement clauses, two strategies have been deployed: (a) a corpus study and (b) a questionnaire study.

In the corpus study, occurrences of embedded reportative *sollen* in the IDS and DWDS corpora<sup>8</sup> of written German were identified and collected. In total, about 300 corpus examples of reportative *sollen* in complement clauses of 160 different complement-taking predicates were considered. Some typical matrix predicates are listed in (18) in order of decreasing frequency:

- (18) *bekannt sein* ('to be known') (9%), *kaum/schwer (zu) glauben* ('hard to believe') and *nicht glauben können* ('cannot believe') (7%), *berichten* ('to report') (6,5%), *es heißt* ('they say') (3%), *schwer vorzustellen* ('hard to imagine') (3%), *behaupten* ('to claim')

<sup>8</sup>For the IDS corpora (DeReKo) cf. <http://www.ids-mannheim.de/kl/projekte/korpora/>, for the DWDS corpora cf. <http://www.dwds.de/>.

(2,5%), *erfahren* ('to find out') (2,5%), *hören* ('to hear') (2,5%), *abstreiten* ('to deny') and *leugnen* ('to deny') (2,5%), *dementieren* ('to deny') (2%), *wissen* ('to know') (2%), *kolportieren* ('to hawk') (1,5%), *erzählen* ('to tell') (1,5%), *lesen* ('to read') (1%), *sagen* ('to say') (1%), *bezweifeln* ('to doubt') (1%), *unwahrscheinlich sein* ('to be unlikely') (1%)

In addition, a questionnaire study was conducted. 18 native speakers of German were asked to rank the acceptability of a total of 25 test sentences on a scale ranging from 1 (totally unacceptable) to 5 (perfect). The main goals were to confirm the results of the corpus study and to identify matrix predicates that do *not* allow for embedded *sollen*<sub>REP</sub>. The main results are summarized in (19), where the matrix predicates are grouped according to the mean acceptability value of sentences with *sollen*<sub>REP</sub> in their complement clauses.

- (19)
- a. 5-4: *hören* ('to hear'), *seltsam sein* ('to be odd'), *sagen* ('to say'), *lesen* ('to read'), *erzählen* ('to tell'), *erinnern* ('to remember'), *entdecken* ('to discover')
  - b. 4-3: *interessant sein* ('to be interesting'), *wissen* ('to know'), *bedauern* ('to regret')
  - c. 3-2: *glauben* ('to believe'), *träumen* ('to dream'), *fühlen* ('to feel'), *Hinweise geben* ('there be indications'), *bezweifeln* ('to doubt'), *lügen* ('to lie')
  - d. 2-1: *möglich sein* ('to be possible'), *überzeugt sein* ('to be convinced'), *wünschen* ('to wish'), *vermuten* ('to suppose'), *hoffen* ('to hope'), *befürchten* ('to fear'), *beobachten* ('to observe')

The results of the corpus study and the questionnaire study match in the following sense: The predicates that frequently occurred with embedded *sollen*<sub>REP</sub> in the corpora, received a high acceptability rank in the questionnaire study (e.g. *hören* 'to hear'), while low ranked predicates did not occur in the corpora at all (e.g. *hoffen* 'to hope'). The lists in (20) and (21) summarize and tentatively systematize these findings by grouping the relevant predicates.

- (20) Predicates that allow *sollen*<sub>REP</sub> in their complement clause
- a. speech/text production (utterance) predicates: e.g. *behaupten* ('to claim'), *erzählen* ('to tell'), *berichten* ('to report'), *kolportieren* ('to hawk')
  - b. speech/text perception predicates: e.g. *hören* ('to hear'), *lesen* ('to read')
  - c. epistemic (semi-)factives: e.g. *wissen* ('to know'), *bekannt sein/werden* ('to be/become known'), *erfahren* ('to find out'), *erinnern* ('to remember')
  - d. emotive (semi-)factives: *interessant sein* ('to be interesting'), *seltsam sein* ('to be odd'), *bedauern* ('to regret')
  - e. negative utterance (denial) predicates: e.g. *abstreiten* ('to deny'), *leugnen* ('to deny')
  - f. negative epistemic predicates: e.g. *kaum/schwer zu glauben* ('hard to believe'), *nicht glauben können* ('to cannot believe'), *bezweifeln* ('to doubt')
- (21) Predicates that do not (or only marginally) allow *sollen*<sub>REP</sub> in their complement clause
- a. direct perception predicates: e.g. *beobachten* ('to observe'), *fühlen* ('to feel')
  - b. desire predicates: e.g. *wünschen* ('to wish'), *hoffen* ('to hope')

- c. (non-factive, positive) epistemic predicates: e.g. *glauben* ('to believe'), *vermuten* ('to suppose'), *überzeugt sein* ('to be convinced')
- d. (non-factive) emotive predicates: e.g. *befürchten* ('to fear')
- e. predicates of (low positive) likelihood: e.g. *möglich sein* ('to be possible')

It is a non-trivial task to identify necessary and sufficient conditions for the embeddability of *sollen*<sub>REP</sub>, given the heterogeneity of the licensing predicates in (20). However, we can identify three main groups that might allow embedded *sollen*<sub>REP</sub> for different reasons (see below):

- (22)
- a. communication predicates
  - b. (semi-)factive predicates
  - c. negative (denial/doubt) predicates

It is clear that the set of predicates that license embedded *sollen*<sub>REP</sub> is distinct from the set of predicates that license embedded root phenomena, e.g. verb-second (V2) complement clauses in German (cf. e.g. Meinunger (2006), Truckenbrodt (2006)). There are both predicates that allow embedded V2 but not *sollen*<sub>REP</sub> (e.g. *befürchten* 'to fear') and predicates that allow embedded *sollen*<sub>REP</sub> but not V2 (e.g. *interessant sein* 'to be interesting').

However, there is some kind of interaction. It has been argued that an embedded clause can have V2 order if and only if the containing sentence can be used in such a way that the embedded clause constitutes the main point of utterance (cf. Bentzen et al. (2007)). In such cases, the embedding predicate is used parenthetically (cf. Urmson (1952), Simons (2007)). And if so, *sollen*<sub>REP</sub> can even occur in complement clauses of predicates in (21), especially non-factive epistemic and emotive predicates like *glauben* 'to believe' or *befürchten* 'to fear', as illustrated in (23a) and (23b).

- (23) (Anna does not want to meet Charly at the party today, and Bea knows this.  
Anna asks Bea, whether Charly will come. Bea answers:)
- a. Ich glaube/befürchte, Charly *soll* kommen.  
I think/fear Charly should come  
'I think / I'm afraid *it is said that* Charly will come.'
  - b. Charly ⊗ *soll* ⊗ kommen ⊗. (⊗ = glaube/befürchte ich)  
Charly ⊗ should ⊗ come ⊗ (⊗ = think/fear I)  
'I think / I'm afraid *it is said that* Charly will come.'
  - c. ?Ich glaube/befürchte, dass Charly kommen *soll*.  
I think/fear that Charly come should  
'I think / I'm afraid *it is said that* Charly will come.'

This does not show that we should add (or move) these predicates to the list of *sollen*<sub>REP</sub> licensers. It rather shows that *sollen*<sub>REP</sub> occurs in (23a) and (23b) essentially unembedded. Both the dependent V2 construction in (23a) (cf. Reis (1997)) and the parenthetical construction in (23b) (cf. Steinbach (2007)) differ from canonical (verb-final) clausal complementation, syntactically as well as semantically. As expected, if *sollen*<sub>REP</sub> is embedded in a canonical complement clause of *glauben* or *befürchten*, as in (23c), the sentence gets somewhat less acceptable. To conclude, the parenthetical use of matrix clauses can render *sollen*<sub>REP</sub> acceptable under those predicates in (21) that allow for such a use.

### 3.2. The meanings of embedded *sollen*<sub>REP</sub>

In the previous subsection it was shown that *sollen*<sub>REP</sub> can occur in complement clauses of a number of embedding predicates. But how is embedded *sollen*<sub>REP</sub> interpreted? In a second step, the corpus examples were semantically evaluated and categorized. This often required a closer inspection of the linguistic context in which the examples occurred. As a result, the following three kinds of reading have been identified:

- (24) a. A type reading: assertive (non-parenthetical, truth-conditional)  
 b. G type reading: global (parenthetical, non-truth-conditional)  
 c. C type reading: concord

The A type (assertive) reading is the one that the standard semantics for *sollen*<sub>REP</sub> in section 2.4 predicts: *sollen*<sub>REP</sub>(*p*) simply means ‘it is said that *p*’. However, if we only consider embedded occurrences of *sollen*<sub>REP</sub> this reading is surprisingly infrequent. While, by introspection, many corpus examples are in principle compatible with an assertive reading, this interpretation is in most cases contextually clearly dispreferred.

There are three factors that seem to favor an assertive reading: (a) if the embedding predicate is used parenthetically (cf. (23) above), (b) if the embedding predicate is factive and/or the embedded clause discourse-old or even echoic (cf. (25a)), (c) if the embedded clause is an indirect question (cf. (25b)). A real life example is given in (26).

- (25) a. A: Maria *soll* in Paris sein.  
           ‘It is said that Maria is in Paris.’  
       B: Ich weiß, dass Maria in Paris sein *soll*.  
           ‘I know that *it is said that* Maria is in Paris.’  
 b. Anna fragte, ob Charly zur Party kommen *soll*.  
       ‘Anna asked whether *it is said that* Charly is coming to the party.’
- (26) 90 mal 190 Zentimeter: Das waren die Abmessungen von Goethes bescheidenem Bett. Auf den Betrachter wirkt es heute ziemlich kurz, vor allem wenn er weiß, dass Goethe groß von Statur gewesen sein *soll*.<sup>9</sup>  
       ‘90 x 190 cm: That was the size of Goethe’s humble bed. To the beholder it seems quite short today, especially if they know that *it is said that* Goethe had been tall’

The C type (concord) reading of *sollen*<sub>REP</sub>(*p*) is simply *p*, provided that it is embedded under a communication predicate. The existence of this very frequent reading, illustrated in (27), has been noted before by Letnes (1997). While an A type reading is in principle available for these sentences, it is contextually strongly dispreferred. For example, the author of (27a) clearly didn’t intend to express that the newspaper had wrongly claimed that *it was said that* the princess gained her peerage dishonestly.

- (27) a. Die Zeitschrift hatte fälschlicherweise behauptet, daß sich die Prinzessin ihren Adelstitel unredlich erworben haben *soll*.<sup>10</sup>

<sup>9</sup>Die ZEIT 11/2004: “Wie man in Deutschland schläft und träumt”.

<sup>10</sup>Die Presse, 19.12.1992.

‘The newspaper had wrongly claimed that the princess gained her peerage dishonestly.’

- b. Es ist irgendwie kindisch, daß gleich behauptet wird, daß MS dahinterstecken *soll*.<sup>11</sup>

‘It is somehow childish that it is immediately claimed that MS is behind it.’

The G type (global) reading of embedded *sollen*<sub>REP</sub>(*p*) can best be paraphrased by a parenthetical construction: ‘*p*, as it is alleged’. Albeit its availability is somewhat unexpected, this type of reading is quite pervasive in all of the corpora that have been looked at. Some examples are given in (28). The term ‘non-truth-conditional’ for this reading is somewhat misleading and will be avoided in the following, but has been mentioned, because *sollen*<sub>REP</sub> in the G type reading fails the well-known embedding test for truth-conditionality, as mentioned in sec. 2.2.

- (28) a. Daß er dem Schüler auch auf den Kopf geschlagen haben *soll*, streitet der Lehrer entschieden ab.<sup>12</sup>  
 ‘The teacher resolutely denies that he hit the pupil also on the head (*as it is alleged*).’
- b. Daß es in ganz China im Vorjahr “nur” etwas mehr als 60.000 Verkehrstote gegeben haben *soll*, erscheint angesichts dieser rauen Sitten wie ein Wunder.<sup>13</sup>  
 ‘In view of these tough customs it seems like a miracle that there were “only” slightly more than 60.000 traffic deaths in China last year (*as it is alleged*).’
- c. Daß Legrenzi sein Lehrer gewesen sein *soll*, ist unwahrscheinlich.<sup>14</sup>  
 ‘That Legrenzi had been his teacher (*as it is alleged*), is unlikely.’
- d. Es ist schwer zu glauben, dass ich der Vater Deines Kindes sein *soll*.<sup>15</sup>  
 ‘It is hard to believe that I am the father of your child (*as it is alleged*).’

To summarize, embedded *sollen*<sub>REP</sub> can be used in the following three ways (where ‘CTP’ stands for the complement taking predicate that embeds *sollen*<sub>REP</sub> and ‘ $\Delta$ ’ for the reportative component conveyed by *sollen*<sub>REP</sub>):<sup>16</sup>

- (29) Readings of CTP(*sollen*<sub>REP</sub>(*p*))
- |    |               |  |
|----|---------------|--|
| a. | A (assertive) | CTP( $\Delta$ ( <i>p</i> ))                    |
| b. | G (global)    | $\Delta$ ( <i>p</i> ) $\wedge$ CTP( <i>p</i> ) |
| c. | C (concord)   | CTP( <i>p</i> )                                |

The contextually preferred type of reading depends on a variety of factors, the probably most important being the type of the embedding predicate. Even the few examples given above

<sup>11</sup><http://www.pro-linux.de/news/2002/4353.html>, accessed 04.04.2007.

<sup>12</sup>*Salzburger Nachrichten*, 18.01.1997.

<sup>13</sup>*Salzburger Nachrichten*, 26.11.1994.

<sup>14</sup>*Salzburger Nachrichten*, 27.07.1991.

<sup>15</sup>*Berliner Zeitung*, 07.06.2005, p.17.

<sup>16</sup>If ‘CTP(*p*)’ entails ‘ $\Delta$ (*p*)’, the G and C readings coincide. However, C readings cannot be reduced to G readings in general. The C reading of the following example (Uli Sauerland, p.c.) does not entail that somebody claimed or wrote that the princess is a fraud: *Keine Zeitung hat geschrieben, dass die Prinzessin eine Betrügerin sein soll* ‘No newspaper wrote that the princess is a fraud’.

suggest that there are correlations between the type of the matrix predicate and the available readings of embedded  $sollen_{\text{REP}}$ . The three main types of  $sollen_{\text{REP}}$  licensing predicates listed in (22) seem to be associated with the three types of reading distinguished in (24) and (29) as indicated in (30). The unembedded use of  $sollen_{\text{REP}}$  patterns with the (semi-)factives.

(30) Tentative correlations between the environment of  $sollen_{\text{REP}}$  and its preferred reading:<sup>17</sup>

<i>environment</i>	<i>typical type of reading</i>
a. unembedded, under (semi-)factives	A (assertive)
b. under negative (doubt/denial) predicates	G (global)
c. under communication predicates	C (concord)

In this section, the distribution of embedded  $sollen_{\text{REP}}$  and its possible readings have been characterized in a descriptive and informal way. The goal of the next section is to *explain* these findings by deriving the restrictions on embedding and the various readings from an adequate lexical entry for  $sollen_{\text{REP}}$ .

#### 4. Analysis revisited

The purely modal semantics of  $sollen_{\text{REP}}$  introduced in section 2.4 wrongly assigns the A type (assertive) reading to all occurrences of  $sollen_{\text{REP}}$ . There are two main options for revising the analysis: (a) an *ambiguity* analysis that treats  $sollen_{\text{REP}}$  as lexically ambiguous between A/G/C readings; (b) a *non-ambiguity* analysis that tries to derive the various readings of  $sollen_{\text{REP}}$  from a single lexical entry. These two options are explored in the following subsections, first the ambiguity approach in section 4.1, then a presuppositional version of the non-ambiguity approach in section 4.2.

##### 4.1. Ambiguity analyses

One way to account for the additional readings of embedded  $sollen_{\text{REP}}$  is to argue that it is lexically ambiguous between the standard semantics stated in section 2.4, a concord and a parenthetical reading. In the latter reading, the reportative component is not added to the local DRS, but to the global DRS. Informally stated and ignoring concord readings for the moment, we get the following two entries for  $sollen_{\text{REP}}$ :

- (31) a.  $sollen_{\text{REP},1}(p)$ : add the condition ‘ $\Delta(x_c, p)$ ’ to the local DRS  
 b.  $sollen_{\text{REP},2}(p)$ : add the condition  $p$  to the local DRS and the condition  $\Delta(x_c, p)$  to the global DRS

For example, using  $sollen_{\text{REP},1}$  we can derive the A reading of (32a), shown in (32b), and using  $sollen_{\text{REP},2}$  we can derive the G reading, shown in (32c).

<sup>17</sup>These correlations are of different strength: While unembedded  $sollen_{\text{REP}}$  can only get an A type reading, embedding under (semi-)factives frequently also allows for G type readings.

- (32) a. Bea sagt/weiß, dass Anna in Paris sein *soll*.  
 Bea says/knows that Anna in Paris be should  
 b. [a b o: Anna(a), Bea(b), Paris(o), say/know(b,[x:  $\Delta(x,[\text{in}(a,o)])$ ])] ]  
 c. [a b o x: Anna(a), Bea(b), Paris(o), say/know(b,[\text{in}(a,o)]),  $\Delta(x,[\text{in}(a,o)])$ ]]

There are other ways of implementing the basic idea that *sollen*<sub>REP</sub> has a non-parenthetical and a parenthetical reading, depending on one's favorite theory of supplements. For example, using the multidimensional framework of Potts (2005), we could replace (31) by (33).

- (33) a. *sollen*<sub>REP:1</sub>  $\rightsquigarrow \lambda p \lambda x_c \lambda w. [\Delta(p)(x_c)(w)] : \langle \langle s^a, t^a \rangle, \langle e^a, \langle s^a, t^a \rangle \rangle \rangle$   
 b. *sollen*<sub>REP:2</sub>  $\rightsquigarrow \lambda p \lambda x_c \lambda w. [\Delta(p)(x_c)(w)] : \langle \langle s^a, t^a \rangle, \langle e^a, \langle s^a, t^c \rangle \rangle \rangle$

The difference between (33a) and (33b) is that the assertive (non-parenthetical) entry (33a) contributes the reportative component to the at-issue content, while the parenthetical entry (33b) contributes it as a conventional implicature in the sense of Potts (2005).

No matter what version, the ambiguity approach suffers from several problems. Without further assumptions, it radically overgenerates in two cases. First, it does not predict that (and hence cannot explain why) *sollen*<sub>REP:1</sub> cannot be embedded in many (especially non-factive) contexts. Second, it does not predict that *sollen*<sub>REP:2</sub> cannot be used in matrix clauses. Of course we could come up with some principles that restrict possible disambiguations of *sollen*<sub>REP</sub>, e.g. along the lines in (34).

- (34) a. Do not commit the speaker to *p*, if she uttered ‘...*sollen*<sub>REP</sub>(*p*)...’  
 b. Prefer *sollen*<sub>REP:2</sub> to *sollen*<sub>REP:1</sub>

However, this line of thought will not be pursued in this paper, since there is an additional reason to disfavor the ambiguity approach. By economy considerations, a non-ambiguity approach that does not require a duplication of lexical entries is to be preferred over the ambiguity approach. Hence we shift our endeavors to developing a non-ambiguity account of *sollen*<sub>REP</sub> in section 4.2.

#### 4.2. Non-ambiguity analyses: a presuppositional account

If we want a single entry for *sollen*<sub>REP</sub>, its meaning has to be, in a sense, positionally flexible, since the reportative component conveyed by *sollen*<sub>REP</sub> sometimes seems to be contributed to the local DRS, sometimes to the global DRS. This kind of movement is reminiscent of the projection behavior of presuppositions, “agile creatures eager to leave their homes” (Geurts 1999:114).

In presuppositional DRT, DRSEs are constructed in two steps. First, a *preliminary DRS* for a sentence is built based on the lexical meanings of its parts. Presuppositions are explicitly represented where they are triggered. Second, the sentence is put in context, its presuppositions are resolved, ultimately leading to the *final DRS* of the sentence.

There are two basic options for the resolution of presuppositions (in the binding theory of presupposition, cf. van der Sandt (1992), Geurts (1999)): Binding, as in (35a), and accommodation, where we can further (minimally) distinguish between global (non-local) accommodation as in (35b) and local (non-global) accommodation as in (35c).

- (35) a. If Anna owns a cat, Anna's cat is black.  
 b. If Anna's cat is black, she must be happy.  
 c. Either Anna doesn't have a cat or Anna's cat is in hiding.

The basic idea of our non-ambiguity analysis of  $sollen_{\text{REP}}$  is that it triggers a reportative presupposition ' $\Delta(x_c, p)$ '. It turns out that the three readings of (embedded)  $sollen_{\text{REP}}$  correspond to the three basic projection possibilities of this presupposition:

(36)	type of reading	resolution	configuration	typical environments
	A (assertive)	local accomm.	$[CTP](\Delta(x_c, p))$	unembedded, under <i>know</i>
	G (global)	global accomm.	$\Delta(x_c, p) \wedge CTP(p)$	under <i>doubt</i>
	C (concord)	binding	$CTP(p)$	under <i>say</i>

There is one complication: In the G reading of  $sollen_{\text{REP}}(p)$ , the proposition  $p$  plays a double role, i.e. it is used twice in the semantic representation.<sup>18</sup> This will be reflected in the lexical entry.

The proposed semantics of  $sollen_{\text{REP}}$  (somewhat simplified: extensional and ignoring tense) is stated in (37). It consists of two parts: (a) a reportative presupposition, (b) an assertive part that is only activated if the resolution of the reportative presupposition violates local informativity. (The second part is required for deriving the G reading, as shown below.)

- (37)  $sollen_{\text{REP}}(p)$ : (a)  $\partial[x_c \mid \Delta(x_c, p)]$   
 (b)  $p$ , if the resolution of (a) violates local informativity

The idea that evidential expressions contribute a presupposition is not new (cf. e.g. Izvorski (1997)).<sup>19</sup> However, as will become clear in a moment, the presupposition of  $sollen_{\text{REP}}$  in (a) does not behave exactly like a run-of-the-mill presupposition (if there is such a thing). More specifically, the projection profile of the  $sollen_{\text{REP}}$  presupposition features a *low accommodation threshold* (thus the possibility of binding does not strictly exclude the possibility of accommodation). The second component in the semantics of  $sollen_{\text{REP}}$  in (37) is an instantiation of the idea that an expression has to have some effect on its local DRS (local informativity). This condition is violated, for example, if the reportative presupposition of  $sollen_{\text{REP}}(p)$  is non-locally accommodated. In such a case, local informativity is rescued by adding  $p$  to the local DRS (stripping off  $sollen_{\text{REP}}$ ).

Let's look at some applications.<sup>20</sup> The simplest cases are occurrences of unembedded  $sollen_{\text{REP}}$ , as in (38a). Since binding is not an option here, the reportative component has to be accommodated in the local (= global) DRS, satisfying local informativity.

- (38) a. Bea soll in Paris sein.  
       Bea should in Paris be  
       *'It is said that* Bea is in Paris.'

<sup>18</sup>This double usage is typical for supplemental expressions; cf. Potts (2005) for discussion.

<sup>19</sup>There is a conceptual problem with this idea: A core characteristic of presuppositions is that they are "taken for granted" – but evidential presuppositions typically are not (cf. Matthewson et al. (2007:36) for discussion). We will stick to the term 'presupposition' here, but use it in a technical sense for elements that can project.

<sup>20</sup>In the following examples, presupposed material is underlined, conditionally activated material is in italics.

- b. [b o  $\underline{x}$ : Bea(b), Paris(o),  $\Delta(x, [ : \text{in}(b,o) ])$ ,  $\text{in}(b,o)$ ]
- c. [b o x: Bea(b), Paris(o),  $\Delta(x, [ : \text{in}(b,o) ])$ ]

If *sollen*<sub>REP</sub> is embedded under an utterance predicate, as in (39a), its reportative presupposition can be bound to it. The presence of the conditionally activated complement of *sollen*<sub>REP</sub> might facilitate this process which results in the concord interpretation in (39c).

- (39) a. Anna sagt dass Bea in Paris sein *soll*.  
 Anna says that Bea in Paris be should  
 ‘Anna says that Bea is in Paris.’
- b. [a b o: Anna(a), Bea(b), Paris(o), say(a, [ $\underline{x}$ :  $\Delta(x, [ : \text{in}(b,o) ])$ ],  $\text{in}(b,o)$ )]
  - c. [a b o: Anna(a), Bea(b), Paris(o), say(a, [ :  $\text{in}(b,o)$ ])]

If the reportative presupposition cannot be bound, global accommodation is the preferred option, as illustrated in (40a). Since global accommodation is non-local here (in contrast to (38a)), local informativity is violated in (40c), which triggers the (b) component in (37). The resulting DRS in (40d) correctly captures the interpretation of (40a).

- (40) a. Es ist schwer zu glauben dass Bea in Paris sein *soll*.  
 It is hard to believe that Bea in Paris be should  
 ‘It is hard to believe that Bea is in Paris (as it is alleged).’
- b. [b o: Bea(b), Paris(o), hard-to-believe([ $\underline{x}$ :  $\Delta(x, [ : \text{in}(b,o) ])$ ],  $\text{in}(b,o)$ )]
  - c. [b o x: Bea(b), Paris(o), hard-to-believe([ :  $\text{in}(b,o)$ ]),  $\Delta(x, [ : \text{in}(b,o) ])$ ]
  - d. [b o x: Bea(b), Paris(o), hard-to-believe([ :  $\text{in}(b,o)$ ]),  $\Delta(x, [ : \text{in}(b,o) ])$ ]

If *sollen*<sub>REP</sub> occurs in embedded contexts, local accommodation is also an option, albeit usually a dispreferred one (cf. section 3.2). For example, (39a), repeated as (41a), can get the interpretation in (41c), if local accommodation is enforced.

- (41) a. Anna sagt dass Bea in Paris sein *soll*.  
 Anna says that Bea in Paris be should  
 ‘Anna says that *it is said that* Bea is in Paris.’
- b. [a b o: Anna(a), Bea(b), Paris(o), say(a, [ $\underline{x}$ :  $\Delta(x, [ : \text{in}(b,o) ])$ ],  $\text{in}(b,o)$ )]
  - c. [a b o: Anna(a), Bea(b), Paris(o), say(a, [ $\underline{x}$ :  $\Delta(x, [ : \text{in}(b,o) ])$ ])]

In section 3.2 it has been noted that (semi-)factive predicates seem to favor local accommodation readings. If we assume that presuppositions are resolved bottom-up, i.e. presuppositions of deeper embedded triggers are resolved prior to presuppositions of higher triggers, then we might be able to explain this finding. For example, semifactive *wissen* ‘know’ presupposes that its clausal complement is true. But the content of its complement in (42a) depends (assuming bottom-up resolution) on the resolution of the presupposition of *sollen*<sub>REP</sub>. If the presupposition of *sollen*<sub>REP</sub>(*p*) were accommodated globally, the complement of *wissen* and hence a presupposition of the sentence would be *p*, as shown in (42b). But this would render the contribution of *sollen*<sub>REP</sub> superfluous. By contrast, if the presupposition of *sollen*<sub>REP</sub> is accommodated locally, we get the sensible interpretation in (42c): “It is said that Bea is in Paris and Anna knows that”.

- (42) a. Anna weiß dass Bea in Paris sein *soll*.  
 Anna knows that Bea in Paris be should  
 b. [a b o x: A.(a), B.(b), Paris(o), know(a,[: in(b,o)]), Δ(x,[: in(b,o)]), in(b,o)]  
 c. [a b o x: A.(a), B.(b), Paris(o), know(a,[y: Δ(y,[: in(b,o)])]), Δ(x,[: in(b,o)])]

### 5. Other reportative strategies

In this section additional reportative strategies in German and their interactions are sketched. The first subsection compares the reportative modals to the reportative subjunctive, another prominent evidential strategy in German. The second subsection focuses on the interplay of multiple evidential strategies in a single clause.

#### 5.1. Reportative subjunctive

In addition to *sollen*<sub>REP</sub> there is another grammaticalized reportative strategy in German, namely the reportative subjunctive (cf. Fabricius-Hansen & Sæbø (2004)). In many contexts, the reportative subjunctive (RS) and *sollen*<sub>REP</sub> can be used interchangeably, e.g. embedded under utterance predicates, as in (43), or to indicate free indirect discourse, as in (44).

- (43) a. Anna sagte, dass Bea in Paris gewesen *sei*.  
 Anna said that Bea in Paris been be.RS  
 b. Anna sagte, dass Bea in Paris gewesen sein *soll*.  
 Anna said that Bea in Paris been be should  
 ‘Anna said that Bea was in Paris.’
- (44) a. Anna erzählte uns von ihren Freundinnen. Bea *sei* [RS] in Paris gewesen.  
 b. Anna erzählte von ihren Freundinnen. Bea *soll* [REP] in Paris gewesen sein.  
 ‘Anna told us about her friends. [She said that] Bea was in Paris.’

However, there are crucial differences between the RS and *sollen*<sub>REP</sub>: First, unlike the RS, *sollen*<sub>REP</sub> can be used in unembedded sentences outside free indirect discourse, as shown in (45). Second, unlike the RS, *sollen*<sub>REP</sub> can be embedded in certain non-reportative contexts and receive an assertive (A type) reading, as illustrated in (46).

- (45) a. \*Bea *sei* [RS] in Paris gewesen.  
 b. Bea *soll* [REP] in Paris gewesen sein.  
 ‘It is said that Bea was in Paris.’
- (46) a. \*Anna weiß, dass Bea in Paris gewesen *sei* [RS].  
 b. Anna weiß, dass Bea in Paris gewesen sein *soll* [REP].  
 ‘Anna knows that it is said that Bea was in Paris.’

Fabricius-Hansen & Sæbø (2004) proposed an analysis of the German reportative subjunctive that captures these properties. The basic idea is that the RS turns a DRS into a “DRS in intension” (a proposition) and additionally introduces the presupposition that somebody says that proposition.

There are two main differences between this analysis of the RS and our analysis of *sollen*<sub>REP</sub> in (37) that are responsible for their different behavior in (45) and (46). First, the assertive component of *sollen*<sub>REP</sub> is activated only if local informativity is violated, whereas it is always present in the case of the RS. Second, the projection profiles of the triggered presuppositions differ: While the RS presupposition has to be at least partly bound, the *sollen*<sub>REP</sub> presupposition with its low accommodation threshold (cf. sec. 4.2) can easily be accommodated, e.g. in cases like (45) and (46).

### 5.2. Multiple reportatives: evidential concord

In addition to grammatical reportative strategies (*sollen*<sub>REP</sub> and the reportative subjunctive), there are, of course, lexical ways to indicate reportative evidence in German, e.g. reportative adverbials (*angeblich* ‘allegedly’, *laut, so, zufolge* ‘according to’) or clausal complement taking communication predicates in non-parenthetical or parenthetical use (e.g. *sagen* ‘say’, *flüstern* ‘whisper’, etc.).

If two or more of these reportative strategies co-occur in the same clause, usually both a cumulative reading and a concord reading is available, as illustrated in (47). In most contexts the concord reading is strongly preferred.

- (47) a. Anna *soll angeblich* krank sein.  
 Anna should allegedly sick be  
 Cumulative reading: ‘It is said that it is said that Anna is sick.’  
 Concord reading: ‘It is said that Anna is sick.’
- b. Anna *soll laut* Bea krank sein.  
 Anna should according.to Bea sick be  
 Cumulative reading 1: ‘It is said that Bea says that Anna is sick.’  
 Cumulative reading 2: ‘Bea says that it is said that Anna is sick.’  
 Concord reading: ‘Bea says that Anna is sick.’

Evidential concord is possible with more than two evidential expressions, as illustrated in (48a) with three reportatives, but there are limitations: There is no full concord reading for (48b) with four reportatives.

- (48) a. Anna, *sagt<sub>i</sub>* Bea, *soll<sub>i</sub>* *angeblich<sub>i</sub>* gestern angekommen sein.  
 Anna, says Bea, should allegedly yesterday arrived be  
 ‘Bea says, Anna arrived yesterday.’ (full concord reading)
- b. Anna, *sagt<sub>j</sub>* Bea, *soll<sub>i</sub>* *laut<sub>i</sub>* Cynthia *angeblich<sub>i</sub>* gestern  
 Anna, says Bea, should according.to Cynthia allegedly yesterday  
 angekommen sein.  
 arrived be  
 = ‘Bea says: according to Cynthia: Anna arrived yesterday.’  
 ≠ ‘Bea and Cynthia say: Anna arrived yesterday.’

The phenomenon of evidential concord is reminiscent of the phenomenon of modal concord that recently attracted the attention of formal semanticists (cf. Geurts & Huitink (2006), Zeijlstra (2007)). It remains to be seen whether a uniform account of modal and evidential concord is viable.

## 6. Conclusion

This paper investigated reportative strategies in German, in particular the evidential use of the modal *sollen* ‘should’. It has been argued that *sollen* in its reportative use is truth-conditional (cf. sec. 2.2) and does not lexically encode a reduced degree of speaker commitment (cf. sec. 2.3). In section 3 it has been shown that *sollen*<sub>REP</sub> can be embedded in complement clauses of at least three classes of embedding predicates: communication predicates, (semi-)factive predicates and negative (denial/doubt) predicates. Embedded occurrences of *sollen*<sub>REP</sub> can have one of three readings that have been labeled A (assertive), G (global) and C (concord). The availability of G and C readings is problematic for standard accounts of *sollen*<sub>REP</sub> and necessitates a more fine-grained analysis. In section 4, two proposals have been considered that are capable of deriving the additional readings. The presupposition-based non-ambiguity account from section 4.2 is favorable on conceptual grounds and invites for a straightforward analysis of the evidential concord phenomena mentioned in section 5.2 in terms of presupposition binding.

## Acknowledgments

I wish to thank the ConSOLE XVI audience and an anonymous reviewer for valuable comments as well as Hans-Martin Gärtner, Manfred Krifka, Rainer Ludwig, Jakob Maché, Fabienne Salfner, Uli Sauerland, Magdalena Schwager, Frank Sode and Hubert Truckenbrodt for stimulating discussions on the topic. The research for this paper was funded by the project CHLaSC (Characterizing Human Language by Structural Complexity) in the FP6 Pathfinder Initiative “What it means to be human” of the European Commission.

Mathias Schenner

ZAS Berlin

[schenner@zas.gwz-berlin.de](mailto:schenner@zas.gwz-berlin.de)

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