

## Evidentiality and Intensionality: Two Uses of Reportative Constructions in Discourse

In addition to their standard intensional use, many reportative verbs and other constructions, verbs like *say*, *report*, *claim*, *acknowledge*, *concede...*, as well as adverbials like *according to Sharon*, appear to have an evidential use, as pointed out by (6):

- (1) a. A: Why is John absent from the meeting?  
b. B: Sharon said that he is out of town.

If the standard intensional use of *say* was at issue here, B's utterance would not count as an answer to A's question. It is not plausible that John is absent from the meeting because Sharon said that he was out of town; rather, what B is suggesting is that John is probably absent because he is out of town. The information that Sharon said what she did serves an evidential purpose: to support the claim that B is making.

The distinction between evidential and intensional uses of reportative constructions is important for theories of discourse interpretation, and partial implementations thereof, which aim to extract information from actual discourses. Examining the MUC6, MUC7 and ACE2 corpora, we have found a multiplicity of uses of reportative embedding verbs; moreover, we have found over 700 occurrences of various forms of *say* in MUC6 alone. Thus, a proper treatment of these verbs is necessary for a correct analysis of the semantics and discourse structure of stories in these corpora. The only extant theory that uses reportative verbs to mark segments is Marcu's version of RST (4), but it does not distinguish between the two uses of reportative verbs.

The evidential and ordinary intensional uses of reportative verbs are clearly different semantically and discursively. Semantically, the evidential use of *say* validates,

- Say  $\phi \vdash \phi$

whereas the intensional use plainly does not. This semantic difference has discursive effects. In their intensional use, non-factive embedding verbs should license modal subordination, but they need not support anaphoric links to elements in extensional contexts. In particular, they do not support anaphoric links from indefinites under the scope of the verb to elements in extensional contexts<sup>1</sup>.

- (2) a. Although there are no witches and what John says must be wrong, John said that a witch lives near him. #She belongs to a Wiccan society down the block.  
b. Although there are no witches and what John says must be wrong, John said that a witch lives near him. He also said that she belongs to a Wiccan society down the block.

On the other hand, evidential uses of reportative verbs allow felicitous anaphoric links from non-modal contexts to indefinites under the scope of the embedding verbs:

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<sup>1</sup>They may support anaphoric links from proper names and definites, but this is assumed to be because proper names and definites take wide scope over the embedding verb.

- (3) a. A: Why was John absent during our meeting?  
 b. B: Fred said he was calling about an apartment he wants to buy. It's on the Avenue de Lespinet.

The two uses of reportative verbs differ with respect to their responses as well, as this example from Mandy Simons demonstrates:

- (4) a. A: Why didn't Louise come to the party?  
 b. B: Henry thinks she left town.  
 c. C: She hasn't left town. I saw her at the market today.  
 d. C: He doesn't think that. I talked to him yesterday.

In (4c), C is assuming that B used the reportative verb as an evidential and is correcting and presenting counterevidence to B's claim that Louise left town. In (4d) C is assuming that B used the reportative verb in its intensional sense, and is correcting and presenting counterevidence to B's claim that Henry thinks that Louise left town.

Here is a curious use of the intensional use but with an evidential implication:

- (5) a. A: Why didn't Louise come to the party?  
 b. B: Well, Henry doesn't think she's left town  
 c. C: So there must be some other reason.

In our corpus, we have found numerous anaphoric links between anaphors and their antecedents, many in contexts under the scope of a reportative embedding verb, which would be blocked by DRT-like accessibility constraints if these verbs had their customary intensional sense. This is evidence that these embedding verbs are being used in an evidential manner. Here is an example from MUC6, after we have segmented the text into elementary discourse units (EDUs).

- (6) a. 1 :: Amr corp.'s American Airlines unit said  
 b. 2 :: it has called for federal mediation in its contract talks with unions representing its pilots and flight attendants.  
 c. 3 :: A spokesman for the company said  
 d. 4 :: American officials "felt  
 e. 5 :: talks had reached a point where mediation would be helpful"

We think that *mediation* in (6b) is an indefinite under the scope of an embedding verb, and that there is a reading of *mediation* in (6e) (equivalent to *such mediation*) that links (6b) and (6e) anaphorically. The MUC6 annotation concurs with this anaphoric interpretation. However, such an anaphoric link would violate SDRT constraints of availability as well as DRT constraints of accessibility.

There is a question as to whether reportative verbs should be segmented at all. Mann and Thompson do not segment out attributions. Webber and co. excise evidential uses of reportative verbs from the discourse structure, though they do not make this distinction. But these approaches run into

problems with a dialogue sequence like that in (4), where two different responses are possible. At the very least, it seems, we cannot tell which use is intended, given the preceding discourse context and the EDU with the reportative clause. Further, it appears that often with the evidential use, we need both constituents:

- (7)
- a. Why didn't Louise come to the party?
  - b. B: Henry said she left town.
  - c. C: He's wrong. I saw her at the market today.

(7b) is clearly to be understood as an evidential given that it is the content of the embedded clause that determines the answer to the *why* question. On the other hand, to fully understand C's response the reportative verb clause must be part of the discourse structure.

At the other end of the spectrum, (4) use a relation of Attribution to capture evidential uses. It's quite unclear what the arguments of this relation are in (4) but we can fit such a relation into the SDRT framework by making the relata the constituent given by matrix clause filling the *that* clause's argument slot with a variable and the constituent given by the embedded clause in sentences like (1b) or those segmented in (6). The matrix clause is a satellite in RST (check) and so when two segments are so related, the constituent under the scope of the embedding verb remains on the right frontier of the discourse structure and so is predicted, if a Right Frontier Constraint is adopted, to be available for further attachment and also to be a source for antecedents in the text. It can also function as an argument for previous relations. It's not clear what the semantics of the relation is, nor exactly what the scope or the interpretation of the reportative verb is. But let us suppose that it's veridical in the SDRT sense (1) with respect to the embedded clause argument. This gets us the right result for (1b): it attributes John's absence to the fact that he is out of town. It also licenses the anaphoric link between *mediation* in (6e) and its intended antecedent. Finally, it provides an intuitive analysis of the discourse structure in (6). (6b) and (6d) are intuitively related by Explanation; AMR has called for mediation because they felt it would be helpful.

On the other hand, this analysis, cannot make sense of simple examples like:

- (8)
- a. 24 :: Rep. James Traficant (D., Ohio), said
  - b. 25 :: the amendment, which passed 271-147, would "let the American worker know that we consider them occasionally."
  - c. 26 :: But Rep. Hammerschmidt said
  - d. 27 :: that the provision, which he dubbed a "special interest" amendment, was likely to make the bill even more controversial.

In (8), the two views are contrasting and the author means to endorse neither view. Further, handling reportative verbs univocally in their evidential sense fails to explain the contrast in (2). Using SDRT we account for evidential uses of reportative verbs, as well as their discourse structure, by using an Evidence relation, based on the Counterevidence relation in (1). But we also postulate that reportative verbs have an intensional reading as well.

INTENSIONAL USE

EVIDENTIAL USE

$$\begin{array}{c} \tau : x \text{ say} \\ | \\ \tau_\varphi \end{array}$$

$$\begin{array}{c} \tau_\varphi \\ | \\ \tau : x \text{ say } p \\ p = K_\varphi \end{array}$$

Evidence, like Counterevidence, is a subordinating relation. But unlike Counterevidence, it is veridical in both arguments (2). The intensional use gives us a discourse structure, where the embedded clause is subordinate to the main claim; with the evidential use it's the other way around. The intensional use involves a relation that is non-veridical with respect to its right argument.

Whether a non-factive embedding verb has an evidential or a standard intensional reading does not appear to be a lexical matter (5). Rather, discourse moves that precede or follow a particular use of a reportative verb determine whether the use of that verb is evidential or intensional. For example, if we have a contrast between two points of view, the intensional use is preferred, especially if the two views clash semantically. On the other hand, if the content under the scope of the embedding verb is used to determine a discourse relation to the next constituent or a previous constituent, the evidential reading will be preferred. SDRT's glue logic allows us to write rules to this effect. Parenthetical uses of reportative verbs is another important clue to the evidential use.

Nevertheless, the two uses of the verbs are clearly related. We postulate in fact that the evidential use derives from the intensional use using Gricean reasoning from SDRT (principally Competence and Sincerity give us a derivation that what is said is true, and from this it's an easy step to get to the evidential use). A study of embedding verbs in discourse has wider implications for the architecture of any theory of discourse interpretation. The semantics of embedding verbs is a good case study for examining the interactions between discourse and lexical semantics. Embedding verbs show that the standard pipeline architecture is not correct; discourse structure seems to be responsible for disambiguating or specifying the lexical content of reportative verbs. The study of reportative verbs suggests a complex interaction between lexical and discourse semantics of the sort postulated by (1).

## References

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