A semantic account of mirative evidentials

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Many languages employ an indirect evidential to mark mirativity (i.e. speaker surprise). The two interpretations are variously conditioned by context or by the content of the asserted proposition. In evidential interpretations, the markers introduce a not-at-issue restriction that the speaker has indirect evidence for the asserted proposition p (Murray 2010, a.o.). In mirative interpretations, the markers are instead associated with, at the illocutionary level, the expression that p violates some relevant expectation (Rett 2011, a.o.).

In this paper we present a compositional semantics of mirative evidentials based on the behavior of the narrative evidential marker -$hoo'o$ in Cheyenne (Plains Algonquian, Montana), which has both indirect and mirative interpretations. We propose that mirative evidentials invoke a contextually salient epistemically accessible set of propositions E. We argue that the indirect and mirative interpretations are conditioned by the nature of E and the relationship between the speech event and the event in which the speaker learned that p.

Mirative evidentials across languages

The utterance of a mirative construction counts as an expression about the proposition denoted by that construction. We take the difference between the assertion in (1-a) and the exclamation in (1-b) to be all and only that of mirativity.

(1)   a.   *John arrived on time.*   b.   *(Wow,) John arrived on time!*

The exclamation intonation of (1-b) can be thought of as an independent mirative marker: it marks mirativity independent of context and the content of p. In contrast, mirative evidentials can be thought of as dependent on either the context (as in Tsafiki, (2) below, also in Turkish, Cuzco Quechua and Gitksan) or on the content of p (as in Cheyenne, (3) below, also in Hare, Ostyak and Georgian).

In languages like Tsafiki, the mirative evidential receives an indirect or a mirative interpretation, depending on the context. Tsafiki (2) gets an inferential interpretation in contexts where the speaker has reason to infer that p, but a mirative one in contexts where the speaker has direct evidence that p (Dickinson 2000).

(2)   *Moto   ju-**nu**-e*
       motorcycle be-INFR-DECL
       'It is apparently a motorcycle.' *or* 'It's a motorcycle!'

In languages like Cheyenne, the interpretation of the mirative evidential is conditioned by the content of p. The Cheyenne narrative evidential indicates narrative evidence for p in the remote past, as in (3-a), but has a mirative interpretation in present/recent past, as in (3-b). In addition to the tense requirement, the mirative interpretation in (3-b) is conditioned by context: the speaker has to have just learned that p.

(3)   a.   *É-x-hoo'kóhó-**neho**.*   b.   *É-hoo'kóhó-**neho**!*
             3-REM.PST-rain-NAR.SG.INAN   3-rain-NAR.SG.INAN
             'Long ago, it rained, it is said.'   'It's raining!'

Other dependent-on-content miratives are conditioned by aspect (e.g., in Hare, $l\tilde{o}$ is inferential in perfect clauses but mirative in imperfect clauses; DeLancey 2001).

As we argue in the next section, we take this to mean that a formal account of the meaning of mirative evidentials is responsible for the at-issue content p; the not-at-issue evidential content; the illocutionary-level mirative content; and the interaction between the three.

Theoretical preliminaries

Rett (2011) argues that both utterances in (1) assert the proposition p, but that they differ in that (1-b) additionally expresses that the speaker did not expect that p. Rett models this as '$p \notin E$', where E is a set of propositions corresponding to the speaker's expectations. We build on this to account for the mirative and indirect evidential interpretations, characterizing E more generally as accessible from some salient individual via some salient epistemic relation. In the case of mirative interpretations, E is the speaker's expectations, a set of propositions with a sufficiently high expected value (likelihood of being true).

Murray (2010) argues that Cheyenne evidentials contribute not-at-issue evidential content (the type of evidence for p) and interact with illocutionary mood. This correctly accounts for the evidential interpretation of the narrative evidential, (3-a), but not the mirative interpretation, in (3-b). The mirative content (that p was unexpected) behaves more like illocutionary mood. For instance, evidentials in Cheyenne participate in

a phenomenon called 'interrogative flip' (Faller 2002, a.o.), wherein the evidential content becomes hearer-oriented (not speaker-oriented) in questions, as reportative (4) and narrative (5) show.

(4) *Mó=é-hó′táheva-**séstse** Aénohe?*
    y/n=3-win-RPT.3SG   Hawk
    'Given what you heard, did Hawk win?'

(5) *Mó=é-x-hó′táhevá-**hoo′o** Aénohe?*
    y/n=3-PST-win-NAR.3SG   Hawk
    'Given the stories you heard, did Hawk win?'

However (6) is formed with the present/recent past tense, which conditions a mirative interpretation, yet is unacceptable. It cannot receive a mirative interpretation, either hearer-oriented nor speaker-oriented.

(6) ?? *Mó=é-hó′táhevá-**hoo′o** Aénohe*
       y/n=3-win-NAR.3SG   Hawk
       Intended: # 'Given that you're surprised, did Hawk win?' / # 'Did Hawk really win?!'

Additionally, Murray (2010) argues that a speaker's denial of the evidential content results in a contradiction (as opposed to infelicity). In contrast, a denial of the mirative component of these constructions results in something more like infelicity, akin to an example of Moore's paradox.

These data suggest that an account of mirative evidentials should: a) give a unified account of indirect evidentiality and mirativity (to the exclusion of direct evidence); b) account for why the two interpretations are manifested in different types of content; and c) account for the ability of the interpretations to be conditioned in a particular way by tense/aspect.

The proposal

Our unified semantic account of the Cheyenne mirative evidential is based on three core assumptions. First, that evidentials introduce as part of their not-at-issue content an event e_l of the speaker learning that p. (See also Nikolaeva 1999, Koev 2011, Torres Bustamante 2011.) Second, indirect evidence and mirativity have in common that they restrict e_l with respect to some epistemically accessible set of propositions E. And third, in mirative contexts (but not in indirect evidence contexts) the speech event e_s occurs in the consequent state of the learning event $\text{CON}(e_l)$.

We base our account on the update semantics detailed in Murray (2010). In this system, the semantic contribution of a sentence is divided into three components: the at-issue proposition, the not-at-issue restriction (which is directly added to the common ground), and the illocutionary relation (which structures the context, from the illocutionary mood of a sentence). These three components are listed for the examples below in tables, which are directly translatable into the update semantics detailed in Murray (2010).

Consider first a simple English declarative sentence like (7-a); its semantic contributions are represented in (7-b). The at-issue proposition is that Hawk won; there is no not-at-issue restriction. Declarative mood is analyzed as contributing an illocutionary relation representing the proposal to add the at-issue proposition p to the common ground CG. (Formally, this relation structures the worlds in the context set so that p worlds are ranked higher than $\neg p$ worlds, amounting to an assertion that p.)

(7) a. *Hawk won (the race yesterday).*

    b.

at-issue proposition	p = hawk won
non-at-issue restriction	
illocutionary relation	propose to add p to CG

Example (8) below translates the Rett (2011) account of sentence exclamations into this framework. Exclamations are analyzed as a semantic sub-type of declaratives: they assert the at-issue proposition p, but they also express mirativity, that p was unexpected. Following Rett (2011), we analyze this expression as part of the illocutionary mood, in part because it is always speaker-oriented. Like the assertoric component of mood, the mirative component is encoded as a structuring update. Unlike assertions, which affect CG, miratives affect E, the set of propositions corresponding to the speaker's expectations (including the speaker's beliefs). The mirative component is a revision of E with p. We use "revise E with p" as shorthand for two effects: removing $\neg p$ from E (if it was there), and adding p to E. This amounts to an expression that that the speaker did not expect p and that they have just learned it – they are adding p to their beliefs.

(8) a. *Hawk won (the race yesterday)!*

b.

at-issue proposition	p = hawk won
non-at-issue restriction	
illocutionary mood	propose to add p to CG
	revise E with p

The Cheyenne mirative evidential -*hoo′o* differs from both English constructions in that it introduces a learning event as part of its not-at-issue content. We assume that all evidentials introduce a learning event like this; indirect evidentials differ from direct evidentials in that they restrict this learning event with respect to an epistemically accessible set of propositions E (rather than, say, a perceptual event), as in (9).

(9) a. Hawk won-*hoo′o*

b.

at-issue proposition	p = hawk won
non-at-issue restriction	e_l = speaker learned that p in relation to E
illocutionary mood	propose to add p to CG
	$e_s \in \text{CON}(e_l) \rightarrow$ revise E with p

Recall that E is valued by context relative to some salient individual and some salient epistemic accessibility relation. On our account, indirect evidentials and miratives have in common that they relate a learning event to an epistemically accessible set of propositions. The evidential and mirative interpretations of a mirative evidential differ in part in terms of how E is valued. In a narrative evidential interpretation, E is valued as folklore, communal beliefs about legends and folktales, and e_l is the event of the speaker learning p in relation to these accounts. In a mirative interpretation, E is valued as the speaker's expectations, and e_l is the event of the speaker learning p in relation to their expectations.

The illocutionary mood of a mirative evidential builds on the account of exclamation in (8). However, the expression of speaker surprise is conditional on the relationship between the speech event e_s and the learning event e_l. (9) predicts that the utterance of a construction with the mirative evidential will count as an expression of speaker surprise if the speech event is in the consequent state of the learning event $\text{CON}(e_l)$.

Recall that the interpretations of the Cheyenne narrative evidential are conditioned by the difference between the remote past and present/recent past. On the proposed analysis, this is due to the fact that the tense of the sentence will determine the nature of the learning event. A speaker can have narrative evidence only for an event that happened in the remote past. Thus, if the sentence is in the present/recent past, the speaker can't have narrative evidence for the described event: E can't be valued by folklore, it must be valued by the speakers expectations. This sets the learning event as one where the speaker learned p in relation to their expectations, guaranteeing the mirative interpretation.

There are a number of ways to extend this treatment to mirative evidentials in other languages and to other mirative constructions. A mirative evidential like Hare's, whose interpretations are conditioned by (im)perfect aspect instead of tense, can also be reduced to inferences about the relationship between when a topic event ended and the nature of the learning event. A language like Tsafiki, where the interpretations of the mirative evidential are conditioned by context, would have the same illocutionary mood and similar not-at-issue content to the Cheyenne mirative evidential. Finally, Rett (2011) suggests that exclamations in English must also be spontaneous; it's odd to exclaim that p years after learning that p. This is an implicit requirement of the illocutionary mood component of (8): to be able to revise one's expectations and beliefs with p, a speaker cannot have previously believed that p.

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