

# How to embed evidentials

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The agenda:

- step 1: discuss the typology of evidentials vis-a-vis their embedding properties
- step 2: review [Faller \(2002\)](#)'s semantics for evidentials as speech act modifiers
- step 3: show that explaining non-embeddability via speech-actiness makes incorrect empirical predictions
- step 4: introduce a theory wherein speech acts can be arguments to connectives and attitude predicates: [Krifka](#) (forth.)
- step 5: re-formulate [Faller \(2002\)](#)'s semantics within [Krifka](#) (forth.)'s framework
- step 6: re-think non-embeddability in syntactic but not semantic terms

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# 1 Introduction

- Evidentiality: grammatical marking of the information source for the proposition expressed by a sentence (Aikhenvald 2004, WALS chapters 77 and 78)
- Cuzco Quechua evidential system: three types of information source commonly signalled by the evidential markers in the world's languages:<sup>1</sup>

- |     |    |   |                 |
|-----|----|---|-----------------|
| (1) | a. | Para-sha-n.                             | PLAIN ASSERTION |
|     |    | rain-PROG-3                             |                 |
|     |    | ‘It is raining.’                        |                 |
|     | b. | Para-sha-n-mi.                          | DIRECT          |
|     |    | rain-PROG-3-MI                          |                 |
|     |    | ‘It is raining, <i>I see</i> .’         |                 |
|     | c. | Para-sha-n-si                           | REPORTATIVE     |
|     |    | rain-PROG-3-SI                          |                 |
|     |    | ‘It is raining, <i>I was told</i> .’    |                 |
|     | d. | Para-sha-n-chá                          | CONJECTURAL     |
|     |    | rain-PROG-3-CHÁ                         |                 |
|     |    | ‘It must be raining, <i>I gather</i> .’ |                 |
|     |    | (Faller 2002, 3)                        |                 |

- the *scope proposition*: ‘It is raining’
- the *evidential contribution*: type of evidence the speaker has for the scope proposition

## 2 Evidentials as illocutionary modifiers: Faller (2002)

### 2.1 Properties of Cuzco Quechua evidentials

- lack of scopal interaction with propositional operators (mood, tense, negation):

- |     |    |  |
|-----|----|--|
| (2) | a. | Inés-qa mana-chá qaynunchaw ñaña-n-ta-chu watuku-rqa-n.  |
|     |    | Inés-top not-CHÁ yesterday sister-3-ACC-CHU visit-PST-3  |
|     |    | ‘Inés didn’t visit her sister yesterday, <i>I gather</i> .’  |
|     |    | # ‘It is not the case that the speaker has conjectural evidence that Inés visited her sister yesterday’. |

- the evidential contribution cannot be directly challenged, doubted or denied:

- |     |    |  |
|-----|----|--|
| (3) | a. | Inés-qa qaynunchaw ñaña-n-ta-n watuku-rqa-n.                                   |
|     |    | Inés-top yesterday sister-3-ACC-MI visit-PST-3                                 |
|     |    | ‘Inés visited her sister yesterday, <i>I saw</i> .’ (Faller 2002, 157, ex.116) |
|     | b. | Mana-n chiqaq-chu. #Mana-n chay-ta riku-rqa-nki-chu.                           |
|     |    | not-MI true-NEG not-MI this-ACC see-PST-2-NEG                                  |
|     |    | ‘That’s not true. #You didn’t see this.’ (Faller 2002, 158, ex.118)            |

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<sup>1</sup>Original translations are slightly modified.

- reportative *-si* can be used to report assertions even if the speaker knows the scope proposition to be false:

- (4) Pay-kuna-s ñoqa-man-qa qulqi-ta muntu-ntin-pi saqiy-wa-n, mana-má riki  
 (s)he-PL-SI I-ILLA-TOP money-ACC lot-INCL-LOC leave-1O-3 not-SURP right  
 riku-sqa-yki ni un sol-ta centavo-ta-pis saqi-sha-wa-n-chu  
 see-PP-2 not one Sol-ACC cent-ACC-ADD leave-PROG-1O-3-NEG  
 ‘They left me a lot of money, *as it is said*, but, as you have seen, they didn’t leave me one sol, not one cent.’ (Faller 2002, 191, ex.152)

- reportative *-si* can be used to report questions:

- (5) Pi-ta-s Inés-qa watuku-sqa?  
 who-ACC-SI Inés-TOP visit-PST  
 ‘Who did Inés visit?’  
*evidential contribution*: the speaker indicates that somebody else is asking (Faller 2002, 235, ex.197b)

## 2.2 Faller (2002)’s analysis

- evidentials within speech act theory (Searle and Vanderveken 1985; Vanderveken 1990).
- flavours of *speech act*, depending on the *illocutionary force*: assertion, question, exclamation, promise, threat, etc.
- each speech act has several components:<sup>2</sup>
  - the propositional content  $p$ ;
  - the illocutionary force ILL;
  - the sincerity conditions SINC: a set of mental attitudes of the speaker towards  $p$  such that they should be met in order for the speaker to be sincere in performing a given speech act. E.g. in plain assertions the sincerity condition is for the speaker to believe  $p$  (cf. Gricean *Maxim of Quality*);
  - a degree of strength, e.g. 0 for plain assertions or  $-1$  for modal claims, often called *weak assertions*.
- Faller (2002): Cuzco Quechua evidentials modify sincerity conditions of an utterance and are functions from speech acts to speech acts.
 

<p>(6) a. Para-sha-n.          rain-PROG-3  <math>p</math> = ‘It is raining.’  <math>ILL = ASSERTS_s(p)</math>  <math>SINC = \{Bel(s, p)\}</math>  <math>STRENGTH = 0</math> (Faller 2002, 25, ex.15)</p>	<p>b. Para-sha-n-mi.          rain-PROG-3-MI  <math>p</math> = ‘It is raining.’  <math>ILL = ASSERTS_s(p)</math>  <math>SINC = \{Bel(s, p), See(s, e_p)\}</math>  <math>STRENGTH = +1</math> (Faller 2002, 25, ex.16)</p>
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<sup>2</sup>I only mention those that are relevant for the semantics of evidentials.

- c. Para-sha-n-si.  
rain-PROG-3-SI  
 $p$  = ‘It is raining.’

ILL = PRESENT( $p$ )  
SINC =  $\{\exists s_2 [ \text{Assert}(s_2, p) \wedge s_2 \notin \{h, s\} ]\}$  (Faller 2002, 25, ex.16)

- semantics of *-mi* (Faller 2002, 167, ex.130) (the simplified version; *-mi*’s meaning in questions, given in (Faller 2002, 192, ex.232))

$$(7) \quad \text{-mi:} \quad \begin{array}{c} \text{ASSERT}(p) \\ \text{SINC} = \{Bel(s, p)\} \end{array} \quad \mapsto \quad \begin{array}{c} \text{ASSERT}(p) \\ \text{SINC} = \{Bel(s, p), Bpg(s, Bel(s, p))\} \end{array}$$

*Bpg*: the speaker has best possible grounds to believe  $p$  such as direct visual evidence or knowledge from an authority, e.g. an encyclopedia

- semantics of *-si* (Faller 2002, 200, ex.167)

$$(8) \quad \text{-si:} \quad \begin{array}{c} \text{ASSERT}(p) \\ \text{SINC} = \{Bel(s, p)\} \end{array} \quad \mapsto \quad \begin{array}{c} \text{PRESENT}(p) \\ \text{SINC} = \{\exists s_2 [ \text{Assert}(s_2, p) \wedge s_2 \notin \{h, s\} ]\} \end{array}$$

### 3 Core data on evidentials under attitudes

#### 3.1 Embeddable evidentials

Languages that allow evidentials under attitude predicates: Bulgarian (Sauerland and Schenner 2007), Georgian (Boeder 2000; Korotkova 2012), German *sollen* (Sauerland and Schenner 2007; Schenner 2009, 2010a,b; Faller 2006), Japanese *soo-da* (Sauerland and Schenner 2007), Paraguayan Guaraní (Tonhauser forth.), St’át’imcets (Matthewson et al. 2008), Standard Tibetan (Garrett 2001), Turkish (Schenner 2010b; Şener 2011).

GEORGIAN<sup>3</sup>

- (9) masc’avlebel-ma daaskvna [rom viyaca-s pandzhara  
teacher-ERG conclude.3SG.A.3SG.O.AOR that someone-DAT window.NOM  
**gaayia**  
open.3SG.A.3SG.O.EV.PST  
‘The teacher concluded that someone opened the window, *I was told* / *I infer based on what I see*.’

NB: we know that it is embedding and not quotation because e.g. the possibility of bound anaphora into such clauses (Korotkova 2012)

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<sup>3</sup>The data come from my fieldwork, conducted in 2012 in Los Angeles and funded by the UCLA Linguistics department.

### 3.2 Non-embeddable evidentials

Some languages do not allow evidential markers under attitude predicates, e.g. Cheyenne (Murray 2010), Cuzco Quechua (Faller 2002), or Korean (Lim 2010) (though see Lee (2013)).<sup>4</sup> Consider an example from Cuzco Quechua below:

- (10) Marya ni-wa-raq-n Pilar-(\*si) chayamu-sqa-n-ta-s  
 Marya say-1O-PST1-3 Pilar arrive-PP-3-ACC-SI  
 ‘Marya told me that Pilar arrived, *as I was told*’. (Faller 2002, p. 222, ex.183b)

NB: evidential enclitics *mi*, *si* and *chá*

- normally can attach to any phrase without changes in the evidential meaning
- cannot occur inside the nominalised complement clause, only on its edge

## 4 The common view on non-embeddability

- common to attribute heterogeneity in evidentials across and within languages to the general distinction between the two classes of evidentials (Faller 2002, 2006; Matthewson et al. 2008):
  - those that operate at the propositional level; mostly treated as epistemic modals (Izvorski 1997; McCready and Ogata 2007; Matthewson et al. 2008)
  - those that operate at the speech act level (Faller 2002; Murray 2010)
- tests that distinguish the two classes are based on the properties such as in 2.1 above, cf. Papafragou (2006), who uses similar diagnostics to argue that epistemic modals have propositional semantics
- non-embeddability is a trait of illocutionary evidentials
- Faller (2002): if speech acts only correspond to root clauses and some (illocutionary) evidentials modify speech acts, then we expect such evidentials to be non-embeddable
- a one-to-one mapping between illocutionary evidentials and non-embeddable evidentials:
  - A. only non-propositional (illocutionary) evidentials are non-embeddable;
  - B. embeddable evidentials are non-illocutionary.
- these predictions are not borne out:
  - A. Korean evidentials: non-embeddable and non-illocutionary (rather temporal (Chung 2007) or modal (Lee 2013))
  - B. Tibetan evidentials: embeddable, illocutionary (according to Garrett (2001))

- (11) tashi kho dge.rgan red lab-gi-‘dug  
 Tashi he teacher IND.COP say-DIR-IPF  
 ‘Tashi<sub>i</sub> says he<sub>j</sub> is a teacher, *as Tashi was told or infers*.’ (Garrett 2001, 208, ex.4)

<sup>4</sup>According to Aikhenvald (2004, section 8.1.3: 253-256), plenty of languages ban evidentials from embedded contexts: Abkhaz, Eastern Pomo, Baniwa, Fasu, Chinese Pidgin Russian, Panare, Jarawara, Tucano, Tariana.

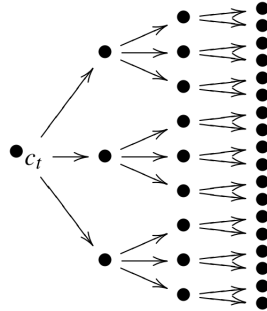
## 5 Proposal

### 5.1 The formalism; following **Krifka** (forth.) (see also **Thomas** (forth. for an empirical application))

#### 5.1.1 The general set-up

- four basic types:
  - individuals, type  $e$
  - truth values, type  $t$
  - indices, type  $s$ 
    - world-time points
  - contexts, type  $c$ 
    - triples of the form  $\langle c_s, c_a, c_t \rangle$  where  $c_s$  stands for the speaker,  $c_a$  for the addressee,  $c_t$  for the utterance index
- domain of individuals  $E$
- domain of indices  $I$ , ordered by a relation of precedence  $\leq$ 
  - transitive
  - reflexive
  - left-linear
- each index
  - is the root of an option space that represent the future
  - is the end of a linearly ordered set of indices that represent the past

(12)

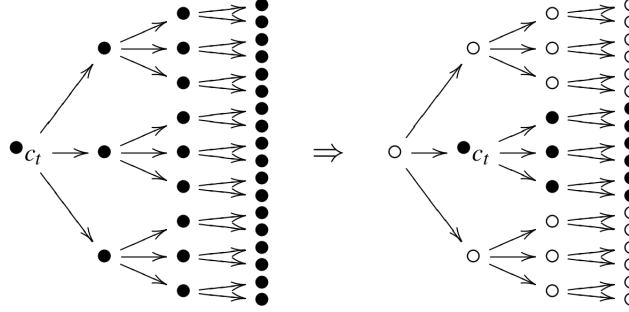


#### 5.1.2 Anatomy of speech acts

- performing a speech act leads to new commitments between interlocutors
- speech acts involve a change of states: from one where certain commitments do not hold to one where they do hold

- this change is recorded as the change in indices
- speech acts update the context so that the utterance index  $c_t$  moves forward in its option space (this idea follows (Szabolcsi 1982))

(13)



- index change is defined via *index incrementation*: find the closest index  $i'$  such that an illocutionary condition holds at  $i'$ ; NB: time is discrete

(14) an index  $i'$  increments  $i$  with an illocutionary condition  $F$ :  $i \leq i'[F(i')]$   
 $i \leq i'$  and  $i'$  is maximally like  $i$  and  $F$  is true of  $i'$  and  $F$  is possibly true of  $i$

- conditions on commitments are recorded with the help of illocutionary operators, which are defined in terms of predicates such as *Assert* for assertions or *Direct* for commands
- Speech Act Potential (SAP, an element that can be used to perform a speech act in a context): a function that maps a speaker  $x$ , an addressee  $y$  and an index  $i$  to an index  $i'$  that increments  $i$  with a specific condition on commitments of  $x$  and  $y$

(15)  $\lambda F.\lambda x.\lambda y.\lambda i.\iota i'[i \leq i'[F(x)(y)(i')]]$   
 where  $F$  is a variable over illocutionary predicates,  $x$  is the speaker and  $y$  is the hearer

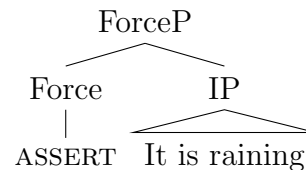
- a speech act is an update of the common ground with a speech act potential

### 5.1.3 How it works

Illocutionary operators

- head ForceP
- are functions from propositions to speech act potentials

(16) Para-sha-n.  
 rain-PROG-3  
 'It is raining.'



- (17) a.  $\llbracket \text{ASSERT} \rrbracket^{M,g} = \lambda p. \lambda x. \lambda y. \lambda i. \lambda i' [ \text{Believe}(p)(x)(i) \cdot i \leq i' [ \text{Assert}(p)(x)(y)(i') ] ]$   
 b.  $\text{Assert}(p)(x)(y)(i)$  is true iff in  $i$ ,  $x$  is taking up assertive commitments with respect to  $p$ , and  $y$  is a witness to this commitment
- (18)  $\lambda x. \lambda y. \lambda i. \lambda i' [ \text{Believe} ( \llbracket \text{It is raining} \rrbracket^{M,c,g} ) (x)(i) \cdot i \leq i' [ \text{Assert} ( \llbracket \text{It is raining} \rrbracket^{M,c,g} ) (x)(y)(i') ] ]$

NB: I slightly modify Krifka's treatment of illocutionary operators by adding definedness conditions; this move incorporates sincerity conditions, which otherwise are conflated with the illocutionary force

- (19) cf. Krifka's/Thomas's version of ASSERT:
- a.  $\llbracket \text{ASSERT} \rrbracket^{M,g} = \lambda p. \lambda x. \lambda y. \lambda i. \lambda i' [ i \leq i' [ \text{Assert}(p)(x)(y)(i') ] ]$   
 b.  $\text{Assert}(p)(x)(y)(i)$  is true iff in  $i$ ,  $x$  is committed to act as though s/he believes that  $p$ , and  $y$  is a witness to this commitment

When the addressee knows that the speaker does not believe  $p$ :

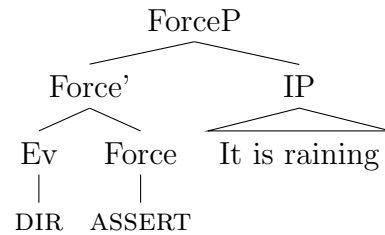
- under Krifka's and Thomas's treatment, the commitments are not fulfilled so assertion is not taking place
- under my treatment, the assertion takes place but the speaker is insincere and is judged as uncooperative

#### 5.1.4 Semantics for evidentials

- evidential markers as SAP modifiers: they take SAP as an argument and return a modified SAP
- the evidential contribution is recorded as the definedness condition: I pretend to be agnostic about whether it is a presupposition or something else, see e.g. (Murray 2010) for the discussion

#### Semantics for the direct evidential *mi*

- (20) Para-sha-n-mi.  
 rain-PROG-3-MI  
 'It is raining, *I see*.'

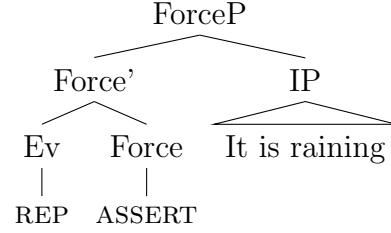


- (21)  $\llbracket \text{DIR} \rrbracket = \lambda A. \lambda p. \lambda x. \lambda i. \lambda i' [ \text{Bpg}(\text{Believe}(x, p))(x)(i) \cdot A(p)(x)(y)(i') ]$
- (22)  $\llbracket \text{ForceP} [ \text{Force}' \text{ DIR} \text{ ASSERT } ] [ \text{IP} \text{ It is raining} ]^{M,c,g} \rrbracket = \lambda x. \lambda i. \lambda i' [ \text{Bpg}(\text{Believe}(x, \llbracket \text{It is raining} \rrbracket^{M,c,g}))(x)(i) \cdot \text{Assert} ( \llbracket \text{It is raining} \rrbracket^{M,c,g} )(x)(y)(i') ]$

#### Semantics for the reportative evidential *si*



- (23) Para-sha-n-si.  
rain-PROG-3-SI  
'It is raining, *I was told.*'



- (24)  $\llbracket \text{REP} \rrbracket = \lambda A. \lambda p. \lambda x. \lambda i. \lambda i' [ \exists z [ z \notin \{x, y\} \wedge \exists i'' \leq i \wedge i'' = A(p)(z)(x)(i) \cdot \text{PRESENT}(p)(x)(y)(i') ] ]$

- (25)  $[_{\text{ForceP}} [_{\text{Force}'} \text{REP ASSERT} ] [_{\text{IP}} \llbracket \text{It is raining} \rrbracket ]^{M,c,g} ] =$   
 $\lambda x. \lambda i. \lambda i' [ \exists z [ z \notin \{x, y\} \wedge \exists i'' \leq i \wedge \text{Assert} ( \llbracket \text{It is raining} \rrbracket^{M,c,g} ) (z)(x)(i'') \cdot$   
 $\text{Present} ( \llbracket \text{It is raining} \rrbracket^{M,c,g} ) (x)(y)(i') ]$

NB: Thomas's semantics for the Mbya reportative *je* is different (Thomas forth., 9, ex.41):

- (26)  $\llbracket je \rrbracket = \lambda A. \lambda x. \lambda i. \lambda i' [ \exists z [ z \notin \{x, y\} \wedge i' = A(z)(y)(i) ] ]$

It just shifts the speaker of a speech act with *je* to a third party and means that:

- a third party has assertive commitments with respect to *p* towards the current addressee
- the current speaker has no commitments whatsoever with respect to *p* towards the current addressee
- conflates illocutionary force and sincerity conditions

## 5.2 Embedded speech acts; following Krifka (forth.)

- speech acts correspond to root clauses that are of syntactic category ForceP (following (Rizzi 1997))
- certain root phenomena, such as German V2, can be embedded:

- (27) a. Mary sagte, dass sie John hasst.  
 Mary.NOM say.3SG.PST that she.NOM John.ACC hate.3SG.PRES  
 'Mary said that she hates John.'
- b. Mary sagte, sie hasst John.  
 Mary.NOM say.3SG.PST she.NOM hate.3SG.PRES John.ACC  
 'Mary said, she hates John.'

- provided a strict correspondence between syntax and semantics, such embedded root clauses should be interpreted as embedded speech acts
- this line of argumentation follows (Hooper and Thompson 1973) in that embedded root phenomena in English are licensed in assertive environments (though see (Heycock 2005))
- to avoid the type mismatch, we need to have speech-act-taking predicates
- Krifka argues that certain predicates, e.g. *tell*, *ask* and *wonder*, are ambiguous between a proposition-embedding reading and a speech-act embedding reading
- with the second reading, it is possible to perform two speech acts with one sentence

## 5.3 Predictions

### Prediction #1

- if evidentials are analysed as SAP modifiers, they should be able to appear in the complements of predicates that license embedded root phenomena
- Standard Tibetan: evidentials appear under verbs of speech and thought, such as ‘say’, ‘think’, ‘believe’ (28-a), but not verbs of knowledge (‘know’), perception (‘see’) or emotion/desire (‘hope’) (28-b):

- (28) a. bkra.shis kho dge.rgan **yin** bsam-gi-’dug  
Tashi he teacher [EGO COP] think-[DIR IMP]  
‘Tashi<sub>i</sub> thinks he<sub>i</sub> is a teacher.’ (Garrett 2001, ex.7-a, 211)
- b. \*bkra.shis kho dge.rgan **yin** ha.go-gi-yod.red  
Tashi he teacher [EGO COP] know-[DIR IMP]  
Intended: ‘Tashi<sub>i</sub> knows he<sub>i</sub> is a teacher.’ (Garrett 2001, ex.9, 212)

### Prediction #2

If illocutionary evidentials are not embeddable, we cannot attribute non-embeddability to the semantics of evidentials.

## 5.4 Non-embeddability

- Cuzco Quechua
  - in (10), the embedded clause is a nominalisation
  - I do not have relevant data from Cuzco Quechua, but its relative Imbabura Quechua lacks finite complementation (Korotkova 2013)
- Turkish evidential morphology (Şener 2011, 82)
  - not possible in nominalisations
  - appears in finite complements
- Daghestanian languages (Timur Maisak, p.c.)
  - evidential distinctions are impossible in non-finite clauses
- Cheyenne (Murray 2010, Chapter 2: 8-42):
  - evidential markers are part of the illocutionary mood paradigm
  - illocutionary mood is complementarily distributed with dependent mood, which is obligatory in all subordinate clauses
  - no space for the evidential markers in subordinate clauses

- ⇒ nominalisations across languages are known to have a reduced functional structure, as opposed to full-fledged clauses (Alexiadou 2001)
- ⇒ Rooryck (2001a,b) and Speas (2010) (after Cinque (1999)): evidentials occupy a dedicated functional projection
- ⇒ nominalisations might lack structural space for it
- ⇒ hypothesis: evidentials are confined to finite clauses

## 6 Conclusions

- the paper summarises the cross-linguistic facts on the (non-)embeddability of evidential markers
- it has been argued (Faller 2002) that non-embeddability is a feature of speech acts in general
- I argue against the view that equates non-embeddability and being a speech act since such view does not predict the typology we have
- I develop a new theory that allows to embed speech acts while being faithful to the spirit of Faller (2002)’s proposal
- advantages of this theory
  - a new empirical application of Krifka (forth.)’s formalism
  - a more articulated syntax for evidentials
  - correct predictions with respect to the environments that license embedded evidentials
  - broaden the typology of embedded speech acts
  - shift the locus of cross-linguistic variation to syntax
- I offer a preliminary investigation of syntactic constraints on embedding evidentials

## 7 Further issues

### 7.1 Embedding speech acts

- syntactic explanation:
  - (embedded) speech acts correspond to (embedded) root clauses
- semantic explanation:
  - perform two speech acts with one sentence
  - the actual difference between embedded assertions and embedded propositions not clear
  - maybe, we need a better understanding of semantic and/or pragmatic contrasts between sentences with regular complements as in (27-a) and embedded-root complements as in (27-b)

## 7.2 Illocutionary evidentials as root phenomena

- we expect to find correlations between contexts where we find illocutionary evidentials and embedded root phenomena within one language
- whether there are indeed such correlations is a question for the future research.

## 7.3 Illocutionary vs. modal evidentials

- inability of certain evidentials to scopally interact with semantic operators is one of the main motivations for the modal vs. illocutionary distinction
- is this distinction sensible if speech acts can be denegated, conjoined, or quantified into, as Krifka argues is the case?
- if all evidentials are SAP modifiers, we expect their distribution in embedded contexts to match the distribution of embedded root phenomena
- this seems to be the case for Tibetan
- but this is not the case for German *sollen* (Schenner 2010b): it can appear under predicates that do not license verb second and the other way round

## 7.4 Selection

- we need to take care of selection:
  - speech act potentials are of the same semantic type
  - different predicates select for different speech acts: English *say* subcategories for assertions and *wonder* for questions

## 7.5 Conjectural evidentials

- in Cheyenne (Murray 2010) and Cuzco Quechua (Faller 2002), conjectural evidentials constitute one morphological class with respective direct and reportative evidentials
- for paradigmatic reasons conjectural evidentials are treated on a par with other evidentials
- Faller (2002, 185, ex.147)’s semantics for Cuzco Quechua *chá* as in (1-d), repeated below as (29)

(29) Para-sha-n-chá  
rain-PROG-3-CHÁ  
‘It must be raining, *I gather*.’

(30)    -chá:     $\frac{\text{ASSERT}(p)}{\text{SINC} = \{Bel(s, p)\}} \mapsto \frac{\text{ASSERT}(\Diamond p)}{\text{SINC} = \{Bel(s, \Diamond p), Rea(s, Bel(s, \Diamond p))\}}$

- such evidentials seem to operate at both levels at once: sincerity conditions and the propositional content
- Faller is not agnostic of this problem
- a Krifka-style analysis of evidentials makes it more prominent.

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