Evidentials and attitudes: the big picture

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1 Introduction

Evidentiality is grammatical marking of the information source for the proposition expressed by a sentence (Aikhenvald 2004, WALS chapters 77 and 78). Three types of information source commonly signalled by the evidential markers are exemplified below by the Cuzco Quechua evidential system:[1]

Cuzco Quechua (Faller 2002, 3, ex.2)

(1) a. Para-sha-n-**mi**. — Direct
rain-prog-3-dir
'It is raining, *I see*.'

b. Para-sha-n-**si** — Reportative
rain-prog-3-rep
'It is raining, *I was told*.'

c. Para-sha-n-**chá** — Conjectural
rain-prog-3-conj
'It must be raining, *I gather*.'

All the above sentences express the proposition 'It is raining'. After Murray (2010), I will call it the *scope proposition* (also referred to as *embedded proposition* and *prejacent* in the literature). Each sentence also specifies type of evidence the speaker has for the scope proposition. This part of meaning will be called *the evidence requirement*, or *evidential contribution*. In Cuzco Quechua, morphemes *-mi, -si* and *-chá* are responsible for this part of the sentence meaning. They express, respectively, that the speaker has the best possible grounds to assert the scope proposition, namely, immediate visual evidence (1-a), has reported evidence for it (1-b), or makes an inference (1-c).[2]

The growing amount of formal semantic and typological research on evidentiality focuses, with some exceptions, on evidentials in root declarative clauses (on evidentials in complex sentences, see Sauerland and Schenner 2007; Schenner 2010a,b, Şener 2011, chapter 6; on evidentials in questions, see Murray 2010, chapter 6 and 8, Lim 2010, Lim forth.). As has been shown, evidentials exhibit a huge degree of variation vis-a-vis their interaction with the scope proposition, across languages and sometimes even within one language (Matthewson 2011). This raises the question of heterogeneity in this category, see e.g. McCready (2008). The now-common view is that evidentials fall into two classes (Faller 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; Davis et al. 2007; Murray 2010).

Such view suggests that cross-linguistic variation stems from, and can be reduced to, the basic distinction between propositional vs. non-propositional evidentials.[3]

I argue that this view is deficient and that the big picture is more sophisticated. To show it, I investigate interaction of evidentials and attitude predicates across languages and compare the behaviour of evidentials along the following dimensions (cf. similar suggestions in Schenner 2010b):

I. **Embeddability**
Can evidentials appear in the complements of attitude predicates?

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[1] Original translations are slightly modified.

[2] It is not essential for my prospectus, so I will follow the common practice and leave the very concept of evidence undefined. See e.g. McCready (2011); Kalsang et al. (2013) for discussion of what evidence is and attempts of a formal definition.

[3] In addition to a purely semantic explanation of the difference between the behaviour of evidential markers, there is a syntactic one, the Evidential Domain Hypothesis (Blain and Déchaine 2006, 2007). In this approach, different semantic patterns are due to the level of syntactic structure evidentials are introduced at – CP, IP, AspP or vP.

II. **Attitudes**
Which attitude predicates can embed which evidentials?

III. **Shifting**
Whose perspective do embedded evidentials take, that of the speaker or that of the attitude holder (or a mixed perspective)?

These questions largely define the vector of my dissertation. To make the discussion less abstract, consider an example from English:

(2) Newspapers say that Texas *reportedly* legalised marijuana.

Here the complement of a propositional attitude verb *say* contains – at least at the level of surface syntax – an evidential adverb *reportedly*. Potential interpretations of this sentence are as follows: (i) one where *reportedly* is speaker-oriented, and (ii) one where *reportedly* is oriented towards the attitude subject. The English adverb is a lexical rather than grammaticised expression conveying the evidential requirement. I will be looking at similar confugurations in languages with canonical, grammaticised, evidentiality.

In the prospectus, I will show that the emerging typology of evidentials under attitude predicates cannot be nailed down to the propositional vs. non-propositional distinction in the evidential domain and that the patterns observed are not entirely predicted by the current theories.

The roadmap is as follows. Section 2 briefly goes over most popular theories of evidentiality. Section 3 addresses (im)possibility of syntactic embedding of evidentials and ways to derive it. Section 4 presents several case studies on attitude predicates that can or cannot have evidentials in their complements. Section 5 is devoted to the evidential shift and, to some extent, indexical shift. Section 6 is conclusions.

2 Major approaches to evidentiality

2.1 Two types of evidentials

It is common (Faller 2002, 2006; Matthewson et al. 2008) to attribute heterogeneity in evidentials across and within languages to the level of meaning evidentials operate at: propositional vs. non-propositional. Evidentials that operate at the propositional level are most often analysed as epistemic modals within possible world semantics. Evidentials that do not operate at the propositional level are typically regarded as illocutionary modifiers.[4] Below are some empirical differences that motivate such view (cf. Papafragou (2006), who uses similar diagnostics to argue that epistemic modals have propositional semantics):

	PROPOSITIONAL	NON-PROPOSITIONAL
1. possibility of syntactic embedding	✓	*
2. scopal interaction with semantic operators	✓	*
3. felicity of Ev p if p is known to be true/false	*	✓
4. assent/dissent test: possibility to doubt, challenge or deny the evidence requirement in the subsequent discourse	✓	*

Table 1: Propositional vs. non-propositional meanings

These tests and what they actually show have generated a lot of controversial discussion in the literature. Matthewson (2012), for example, argues, that the tests are invalid and none of them really proves that

[4]Some researchers claim that there is a third class of evidentials, such that evidential meanings are not encoded lexically by the respective morphemes but rather arise pragmatically due to various factors such as distance, or lack thereof, between the speech situation and the situation described by the scope proposition: Northern Ostyak (Nikolaeva 1999), Cuzco Quechua *sqa* (Faller 2004), Korean (Chung 2007; Lee 2008, 2011), Bulgarian (Koev 2011) for Bulgarian, Tibetan (Speas 2004; Kalsang et al. 2013).

evidentials have to do with speech acts. For instance, most, if not all evidentials fail the assent/dissent test (Turkish might be an exception, Şener 2011) but it only shows that the evidential contribution is not part of the main assertion and does not show that it belongs to the speech act level. It is debated whether the evidential contribution (i) is presupposed (Izvorski 1997), or (ii) is part of the sincerity conditions (Faller 2002), or (iii) is akin to the semantic contribution of supplements (Murray 2010).

Yet there is one more test that Matthewson overlooks, namely, (in)ability of evidentials to report speech acts that the current speaker did not perform. Faller (2002) uses this test, a.o., to show that Cuzco Quechua evidentials are illocutionary. Consider an example below:

Cuzco Quechua (Faller 2002, 235, ex.197b)

(3) Pi-ta-**s** Inés-qa watuku-sqa?
who-ACC-REP Inés-TOP visit-PST2
'Who did Inés visit?'
(i) *evidential contribution*: the speaker expects the addressee to have reportative evidence for their answer
(ii) *evidential contribution*: the speaker indicates that somebody else is asking

The first interpretation is very typical of evidentials across languages, e.g. Bulgarian (Roumi Pancheva, p.c.), Cheyenne (Murray 2010), German (Faller 2006), or Korean (Lim 2010). I will discuss it in section 5. The second interpretation, to my knowledge, is unique to Cuzco Quechua.

Another example of an evidential reporting a speech act comes from Mbyá:

Mbyá (Thomas forth., 3, ex.7)

(4) E-me'ẽ **je** ka'ygua chevy pe
2.IMP-give REP mate me to
'Give me the mate, *I heard*!'

In Mbyá, the reportative marker *-je*, along with 'say' and 'ask', is able to embed impertatives. Thomas demonstrates that this is not quotation. In such cases, the current speaker has no authority to perform a command and no directive commitments but s/he is merely reporting that a certain command was performed by a third party. Embedded imperatives are a typological rarity and I am not aware of other instances of evidentials co-occuring with imperatives.

After Faller (2002), I will take the ability to report speech acts (questions or imperatives) to be an unmistakable diagnostic of illocutionary evidentials. This property makes a possible world analysis untenable so, despite the controversy, I will take the modal vs. illocutionary dichotomy as a working hypothesis.

However, the ability to report speech acts is only applicable to reportatives. It is commonly believed that evidentials within a language constitute one semantic class if they occupy the same morphological slot. Faller reasons in this fashion to conclude that *all* Cuzco Quechua evidentials are illocutionary. I believe that paradigmatic reasons are insufficient. I argue that reportatives really stand out and can be illocutionary or non-illocutionary whereas other evidentials have indeed a lot in common with epistemic modals in that they encode speaker's (un)certainty. For instance, immediate sensory evidence is not required to justify the use of direct evidentials in e.g. Cuzco Quechua and Cheyenne. Such assertions can be based on the knowledge from an authority such an encyclopedia, which makes it similar to the semantic contribution of 'be sure'; Faller calls it *best possible grounds*. And conjectural evidentials are analysed as having a modal operator even within illocutionary theories citepfaller2002, murray2010. In the dissertation, I am going to further explore the assymetry between reportatives and other types of evidentials.

2.2 Evidentials as epistemic modals

Izvorski (1997) was the first to formalise the idea that evidentiality is part of modality (Bybee 1985; Palmer 1986; van der Auwera and Plungian 1998; Portner 2009). This approach gained a lot of popularity and was

applied to German *sollen* (Faller 2006, 2012), St'át'imcets (Matthewson et al. 2008), Cuzco Quechua (Faller 2011), Japanese (McCready and Ogata 2007).

Izvorski analyses Bulgarian indirect evidential within Kratzer's framework for modals (Kratzer 1977, 1981, 2012). She introduces an indirect evidentiality operator Ev that receives the semantics of a universal epistemic modal. The speaker's having certain type of evidence is presupposed:

(5) a. Presupposition: The speaker has indirect evidence for p
b. Assertion: □p in view of the speaker's knowledge state

Below is an example of an evidential sentence and how its meaning is spelled out within Izvorski's model.

(6) Ivan izpi-l vsičkoto vino včera.
Ivan drunk-EV all-the wine yesterday
'Ivan apparently drank all the wine yesterday.' (Izvorski 1997, 13, ex.13)

Conversational backgrounds

The modal base: f is a function that maps every world w to a set of propositions providing indirect evidence for the scope proposition p in w. The modal base associated with Ev thus contains only evidentially-possible worlds (my term; N.K.).

(7) $f(w) = \{p$: speaker considers p indirect evidence in $w\}$
$\cap f(w) = \{u \in W : \forall p$ [speaker considers p is the indirect evidence in $w \rightarrow u \in p]\}$[5]

These are propositions like *There are empty wine bottles in John's office* (inferential evidence) and *Mary said that p* (reported evidence).

The ordering source: g is a function that maps every world w to a set of propositions reflecting speaker's beliefs with respect to the available evidence for p in w.

(8) g(w) = {p: speaker believes p with respect to the evidence in w}
$\forall u, v \in W : v <_{g(w)} u$ iff$\{p : p \in g(w) \wedge u \in p\} \subset \{p : p \in g(w) \wedge v \in p\}\}$

These are propositions like *Normally, Mary is reliable as a source of information* or *If there are empty wine bottles in someones office, that person has drank the wine.*

Truth conditions

The evidential statement Evp is true in w with respect to conversational backgrounds provided by the modal base f and the ordering source g, iff p is true in all closest accessible worlds, and is undefined otherwise.

(9) $[\![\text{Ev}p]\!]^{f,g} =$
$\{w \in W : \forall u \in W [(u \in \cap f(w) \wedge \neg\exists v \in W (v \in \cap f(w) \wedge v <_{g(w)} u)) \rightarrow u \in p] \}$

Consider a case where the evidence for Ivan's wine drinking in (6) is such that Mary said that p. In this case, Mary-said-p worlds will constitute the modal base. If the speaker believes that Mary is reliable in w, then Ev will quantify over worlds where Mary said p and where Mary is right. Ev p will assert that such worlds are p-worlds. If, on the contrary, Mary is not reliable, worlds where Mary said that p and where Mary is right will not be the closest, which would mean that p is unlikely in w.

2.3 Evidentials as illocutionary operators

Faller (2002) argues that Cuzco Quechua evidentials are not epistemic modals. For instance, in a sentence with the reportative evidential *-si*, the speaker does not endorse the truth of the scope proposition and may know it to be false. In this case, the speaker is just reporting that someone said p. In interrogative clauses, *-si* can be used to report a question, which the speaker did not ask and is not interested in answers to.

[5]The semantics is slightly modified; in the original paper, the second line contains 'p is the indirect evidence in w'.

Faller proposes an alternative account of evidentials within speech act theory (Searle and Vanderveken 1985; Vanderveken 1990).

Speech act, or *illocutionary act*, refers to the communicative situation and is a fairly intuitive notion. Speech acts come in different flavours, depending on the *illocutionary force*: assertion, question, exclamation, promise, threat, etc. Each speech act has several components:[6]

— 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 argues that Cuzco Quechua evidentials modify sincerity conditions of an utterance and are functions from speech acts (assertions or questions) to speech acts. How this system works is exemplified below for a plain assertion (10-a) and for an assertion modified with the reportative evidential *-si* (1-b), repeated here as (10-b).

CUZCO QUECHUA (Faller 2002, 25, ex.15-16)

(10) a. Para-sha-n.
rain-PROG-3
p ='It is raining.'
ILL = $\text{ASSERTS}_s(p)$
SINC = $\{Bel(s,p)\}$
STRENGTH = 0

b. Para-sha-n-**si**.
rain-PROG-3-REP
p ='It is raining.'
ILL = PRESENT(p)
SINC = $\{\exists s_2\ [\ Assert(s_2,p)\ \wedge\ s_2 \notin \{h,s\}\ ]\}$

(10-a) is a plain assertion without evidential markers. Its sincerity condition is just that the speaker believes p, namely, that it is raining. When *-si* is used (10-b), the situation is more complex. As Faller argues, it is not an assertion. With assertions, the speaker believes the asserted content, which is not the case for statements with *-si*:

CUZCO QUECHUA (Faller 2002, 191, ex.152)

(11) Pay-kuna-**s** ñoqa-man-qa qulqi-ta muntu-ntin-pi saqiy-wa-n, mana-má riki riku-sqa-yki ni
(s)he-PL-REP I-ILLA-TOP money-ACC lot-INCL-LOC leave-1O-3 not-SURP right see-PP-2 not
un sol-ta centavo-ta-pis saqi-sha-wa-n-chu
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.'

The speaker does endorse the truth of the scope proposition and in fact knows it to be false. To account for this property of *-si*, Faller enrichs the speech act inventory with the illocutionary force of *presentation* (cf. Murray (2010)'s notion of *taking note*). The sincerity conditions associated with *si*-statements are as follows. A third party made an assertion about p and the speaker is reporting it, without taking up any assertive commitments with respect to p. This is how the semantics of *-si* is represented (Faller 2002, 200, ex.167):[7]

(12) **-si**: ASSERT(p), SINC = $\{Bel(s,p)\}$ $\longmapsto$ PRESENT(p), SINC = $\{\exists s_2\ [\ Assert(s_2,p)\ \wedge\ s_2 \notin \{h,s\}\ ]\}$

This entry specifies that *-si* takes a plain assertion as its argument and returns another speech act, that of presentation. Other Cuzco Quechua evidentials are modelled likewise.

[6] I only mention those that are relevant for the semantics of evidentials.
[7] Note that this is a simplified version that does not account for *-si*'s meaning in questions.

Murray (2010) argues that Cheyenne evidentials are illocutionary[8] but finds Faller (2002)'s theory not suitable based on the meanings Cheyenne evidentials receive in questions. She develops a new speech-act theory of evidentials wherein evidential contribution is regarded as part of the non-at-issue content. Meanings that are united under the non-at-issue umbrella share the following feature: they do not contribute to the main assertion (or the main question-under-discussion). Not-at-issue content can be further divided into several types (Tonhauser et al. 2013), which include, but are not limited to, canonical presuppositions and Pottsian conventional implicatures triggered by various supplements: appositives, expressives, parentheticals (Potts 2005, 2007).

Murray models the at-issue vs. not-at-issue contrast as the difference in how these meanings enter the common ground. For the at-issue content, the speaker merely proposes to add it to the common ground, while the not-at-issue content directly updates the common ground. Under this view, the evidential contribution is a secondary assertion. Precise meanings of evidentials are implemented within Update Semantics (Bittner 2011).

2.4 Summary

In this section, I briefly reviewed major approaches to evidentiality. These approaches were motivated by different data and, as it is often the case, they don't work well for languages they were not designed for, e.g. Faller (2002) argues that Izvorski's analysis of Bulgarian does not work for Cuzco Quechua evidentials and Murray (2010) does not find Faller's analysis fully adequate for Cheyenne. After a substantial body of formal semantic literature on evidentials appeared, it has been proposed (Faller 2002; Matthewson et al. 2008) that evidentials constitute two classes. Under this hypothesis, the variation in behaviour of evidentials in declarative and interrogative root clauses falls into place.

In the next sections, I examine the behaviour of evidentials under attitude predicates. As I will show, the hypothesis about two classes of evidentials does not predict and explain all the patterns observed. I will also argue against the radical view advocated by Matthewson (2012) that the classes of epistemic modals and evidentials are identical. Even though evidentials and modals have a lot in common, their distribution in embedded contexts is far from identical. I will propose tentative solutions to some of the problems. However, we are at the stage where more fine-grained data are needed to justify new hypotheses.

3 Embeddability

3.1 Data

Languages vary in whether they allow evidential markers in embedded contexts. Some languages allow evidentials under attitude predicates, e.g. 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).[9] Consider an example from Georgian below:[10]

Georgian

(13) a. viɣaca-s pangara **gaaɣia**
someone-ERG window.NOM open.3SG.S.3SG.O.EV.PST
'Someone opened the window, *I was told / I infer based on what I see.*'

b. masc'avlebel-ma daaskvna [rom viɣaca-s pangara
teacher-ERG conclude.3SG.S.3SG.O.AOR that someone-DAT window.NOM
gaaɣia]
open.3SG.S.3SG.O.EV.PST
'The teacher concluded that someone opened the window, *I was told / I infer based on what I see.*'

[8] In my view, they are not illocutionary due to their inability to report other speech acts.
[9] Aikhenvald (2004, section 8.1.3: 253-256) also mentions Estonian, Kombai, Quiang, and Shipibo-Konibo.
[10] The data come from my fieldwork, conducted in 2012 in Los Angeles and funded by the UCLA Linguistics department.

In (13-a), the evidential past is used in the main clause: *gaayia* 'opened' conveys the fact that the speaker does not have firsthand information for the scope proposition.[11] In (13-b), the same evidential clause appears in the complement of 'conclude'.[12] It is embedding and not quotation due to the possibility of cross-clausal dependecies, e.g. bound anaphora (Korotkova 2012).

Some languages do not allow evidential markers under attitude predicates, e.g. Abkaz (Chirikba 2003), Cheyenne (Murray 2010), Korean (Lim 2010) (though see Lee (2013)), or Cuzco Quechua (Faller 2002), exemplified below:[13]

Cuzco Quechua (Faller 2002, p. 222, ex.183a)

(14) Marya ni-wa-rqa-n Pilar-(***mi**) chayamu-sqa-n-ta-**n**
Marya say-1O-PST1-3 Pilar arrive-PST1-3-ACC-DIR
'Marya told me that Pilar arrived, *as I see*'.

Evidential enclitics *-mi, -si* and *-chá* can attach to any phrase in the clause, not necessarily to the verb, without changes in the evidential meaning. However, these enclitics cannot occur inside the nominalised embedded clause[14] and are only allowed on its edge, thus being syntactic part of the main clause.

3.2 Non-embeddability as a trait of illocutionary evidentials

As discussed in Section 2, the distinction between embeddable vs. non-embeddable evidentials is regarded as a reflex of a general cross-linguistic distinction between modal vs. illocutionary evidentials. According to Faller (2002), non-embeddability stems from the illocutionary nature of respective evidentials: if speech acts only correspond to root clauses and illocutionary evidentials modify speech acts, then we expect such evidentials to be non-embeddable.

Such view suggests a one-to-one mapping between illocutionary evidentials and non-embeddable evidentials. For the reasons discussed in section 2, I take the ability to report speech as the most significant indicator of the illocutionary status of an evidential. If so, this view explains Cuzco Quechua.[15] However, it makes an incorrect prediction for Mbyá reportative *je*. Imperatives can be embedded under it, so it is illocutionary and is predicted to be non-embeddable. This prediction is not borne out:

Mbyá (Thomas forth., 6, ex.26)

(15) Juan he'i **je** Maria o-menda.
Juan A3.say REP Maria A3-marry
'Juan said that Maria got married.'

Furthermore, evidentials in e.g. Cheyenne (Murray 2010) and Korean (Lim 2010) fail the ability-to-report-speech-acts tests: when used in questions, they can only mean that the addressee is expected to have a particular type of evidence for their reply, and to my knowledge, they are not used in imperatives. If so, there must be reasons for non-embeddability other than being an illocutionary operator. In the next sections, I develop a theory for illocutionary evidentials wherein (1) syntactic embedding is allowed, thus explaining Mbyá, and (2) lack of embedding is attributed to other factors, namely, the embedding strategy and the embedder.

3.3 Proposal

Manfred Krifka, in a series of talks and an unpublished manuscript (Krifka forth.), argues that speech acts can, to some extent, serve as arguments to connectives or to clause-embedding predicates. Refining and

[11] Evidentiality does not have any separate morphological manifestation in Georgian and is included in the semantics of one of the tenses, traditionally called perfect and referred to as *evidential past* here.

[12] For now I am not concerned with the interpretation of embedded evidentials, but I will be concerned in Section 5.

[13] Aikhenvald (2004, section 8.1.3: 253-256) also mentions Baniwa, Chinese Pidgin Russian, Eastern Pomo, Fasu, Jarawara, Panare, Tariana, Tucano.

[14] Evidentials in Cuzco Quechua seem to be banned from other embedded contexts as well, for instance, they cannot appear in the antecedents of conditionals either (Faller 2002, 221).

[15] Or, to be more precise, it explains why reportative *-si* is non-embeddable but does not expplain why other markers behave this way.

expanding ideas of Szabolcsi (1982), he introduces a framework that provides a model-theoretic treatment of such configurations. Further empirical support for Krifka's claims can be found in (Thomas forth.), who applies this formalism to embedded imperatives in Mbyá.

My research plan is reformulate Faller (2002)'s semantics for illocutionary evidentials within Krifka (forth.)'s system. This move will parallel speech acts with evidentials to other speech acts in that they are, *in principle*, embeddable. I will further argue that an explanation of syntactic non-embeddability lies in the syntax rather than in the semantics and will propose a hypothesis in the end of this section.

3.3.1 The formalism[16]

Speech acts involve a change of states: from one where certain commitments between interlocutors do not hold to one where they hold. This change is recorded as the change in indices, where index is a time-world point. Domain of indices I is ordered by a relation of precedence $\leq$ that is transitive, reflexive and left-linear. This generates a tree of indices where each index is the root of an option space that represents the future. Speech acts update the context so that the utterance index c_t moves forward in its option space:

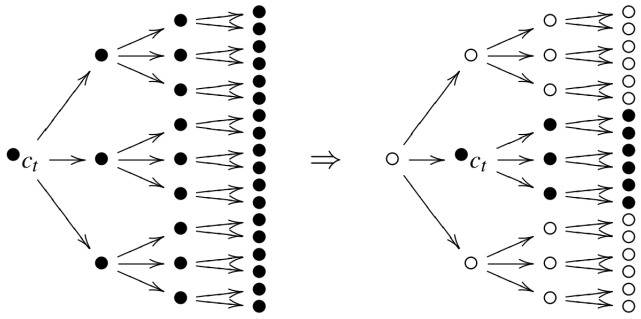


Figure 1: A speech act (diagram from Thomas, forth., 7)

Index change is defined via *index incrementation* with a certain illocutionary condition F. Essentially, it is an instruction to find the closest index i' such that $i \leq i'$ and that F is true of i' (after Thomas (forth.), I assume that time is discrete). The notation is as follows:

(16) an index i' increments i with the condition F: $i \leq i'[F(i')]$

Conditions on commitments are recorded with the help of illocutionary operators, which are defined in terms of illocutionary predicates such as *Assert* for assertions, *Quest* for questions and *Direct* for commands. So F in (16) above is in fact a variable over illocutionary predicates.

Krifka introduces the notion of *Speech Act Potential* (SAP). SAPs can be used to perform a speech act in a particular context. They are functions that map speaker x, addressee y and an index i to an index i' that increments i with a specific condition on commitments between x and y:

(17) $\lambda x.\lambda y.\lambda i.\iota i'[i \leq i'[F(x)(y)(i')]]$

Then, a speech act is an update of the common ground with a speech act potential.

Here's an example of how this system works. The illocutionary operator ASSERT responsible for assertions is defined in (18):

(18) a. $[\![\text{ ASSERT }]\!]^{M,g} = \lambda p.\lambda x.\lambda y.\lambda i.\iota i' [\ Believe(p)(x)(i)\ .\ i \leq i' [\ Assert(p)(x)(y)(i')\ ]\ ]$

b. $Assert$(p)(x)(y)(i) is true iff in i, x is taking up assertive commitments towards y with respect to p

[16] Unless indicated otherwise, I am faithful to Krifka (forth.).

Here I depart from Krifka's treatment of illocutionary operators by adding definedness conditions. For assertions it is for the speaker to believe p. It functions as a standard sincerity condition associated with plain assertions in speech act theory, discussed in section 2.3. Otherwise sincerity conditions are conflated with the illocutionary force, cf. Thomas's version of ASSERT below:

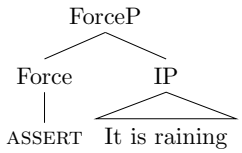
(19) a. $[\![\text{ASSERT}]\!]^{M,g} = \lambda p.\lambda x.\lambda y.\lambda i.\iota i' [i \leq i' [Assert(p)(x)(y)(i')]]$
b. $Assert$(p)(x)(y)(i) is true iff in i, x is committed to act as though s/he believes that p, and y is a witness to this commitment

The two views on ASSERT make different predictions for a situation when the addressee knows that the speaker is lying:

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

Below is an example of how a plain assertion is interpreted.

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



(21) $[\![[_{\text{ForceP}} [_{\text{Force}} \text{ ASSERT }]] [_{\text{IP}} \text{ It is raining }]]]\!]^{M,c,g} =$
$\lambda x.\lambda i.\iota i' [Believe(x, [\![\text{It is raining}]\!]^{M,c,g} i) \text{ . } Assert([\![\text{It is raining}]\!]^{M,c,g})(x)(y)(i')]$

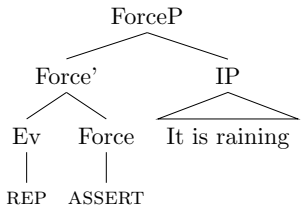
3.3.2 Semantics for evidentials

The apparatus presented above allows me to interpret evidential markers as SAP modifiers that take SAP as an argument, which maintains the spirit of Faller (2002)'s proposal. Type of information source signalled by the evidential is recorded as a definedness condition. I am on purpose agnostic of whether it is a presupposition or other not-at-issue meaning, see (Murray 2010) for discussion.

A preliminary semantics for the Cuzco Quechua reportative evidential *-si* is given below:

(22) $[\![\text{REP}]\!] = \lambda A.\lambda p.\lambda x.\lambda i.\iota i' [\exists z [z \notin \{x, y\} \wedge \exists i'' \leq i \wedge i'' = P(p)(z)(x)(i) \text{ . } \text{PRESENT}(p)(x)(y)(i')]]$

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



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

3.3.3 Embedded speech acts

After Rizzi (1997), Krifka assumes that speech acts correspond to root clauses that are of syntactic category ForceP. However, certain root phenomena can be, to some extent, embedded as is exemplified below with the German V2:

German (Krifka forth., 21, ex.52)

(25) 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.'

(25-a) has the verb-final word, standard for German embedded clauses. (25-b) has a V2 order, which is typical of root clauses. Provided a strict correspondence between syntax and semantics, such embedded root clauses should be interpreted as embedded speech acts. This idea follows Hooper and Thompson (1973), who argue that embedded root clauses are licensed in assertive environments (Heycock 2005 disagrees).

Krifka argues that certain predicates that are able to license embedded root clauses, 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. The crucial point is that (in)ability of speech acts to appear in the complements of attitude predicates stems from selectional properties of respective predicates rather than from some property of speech acts. As long as there is no type mismatch, embedding should be possible or it should be ruled out for independent reasons.

3.3.4 Predictions

This makes the following prediction for evidentials. If evidentials are analysed as SAP modifiers, they should be able, to a limited extent, to appear in the complements of attitude verbs. This prediction is fulfilled in Mbyá.. However, we need a separate explanation as to why e.g. Cuzco Quechua evidentials are not embeddable. My goal was to provide them with a semantics that allows for embedding. Below I suggest a syntactic explanation of non-embeddability.

3.4 Non-embeddability

My hypothesis is that evidentials of all kinds, illocutionary and not, are confined to finite clauses and are banned from non-finite clauses.[17] In (14), the embedded clause is a nominalisation. Nominalisations across languages are known to have a reduced functional structure, as opposed to full-fledged clauses (Alexiadou 2001). If Rooryck (2001a,b) and Speas (2010) (after Cinque (1999)) are right in that there is an evidential projection high in the syntactic tree, then nominalisations are likely to lack structural space for it. However, I do not have Cuzco Quechua data to argue for a particular syntactic struture for nominalisations in this language.

My hypothesis predicts that evidentials may appear in finite complements if a language has them. This is exactly what holds in Turkish: evidential morphology is only possible in finite complements but not in nominalisations (Şener 2011, 82). On the contrary, Daghestanian languages lack finite complementation and evidential distinctions are only possible in root clauses (Timur Maisak, p.c.). I do not have relevant data from Cuzco Quechua but its relative Imbabura Quechua lacks finite complementation (Korotkova 2013).

The data from Cheyenne and Abkhaz point in the same direction. In Cheyenne, evidentials are part of the illocutionary mood paradigm (Murray 2010, Chapter 2: 8-42). Illocutionary mood is complementarily distributed with dependent mood, which is obligatory in all subordinate clauses, be it an antecedent of conditional or complement of an attitude predicate. So, there is no space for the evidential markers in subordinate clauses.

In the dissertation, I am going to further explore the tentative connection between evidentiality and the clausal architecture.

[17] Johan Rooryck (p.c.) mentions that sometimes evidential distinctions are possible with infinitives and suggests that a more accurate way to formulate my hypothesis is that evidentials are banned from small clauses, hence from nominalisations, and are licensed in full clauses.

3.5 Summary and discussion

In this section, I was looking at embeddability of evidentials. In some languages, evidentials cannot be syntactically embedded. Current theories tend to attribute it to their semantics, namely, to their illocutionary nature, and overlook the syntactic generalisaton that holds for both illocutionary and non-illocutionary evidentials. The current view also predicts that all illocutionary evidentials are not embeddable, which is not the case in Mbyá. I propose to implement semantics for evidentials within Krifka (forth.)'s framework for embedded speech acts. Such a theory correctly predicts Mbyá but then an explanation is needed as to why some other illocutionary evidentials are not embeddable.

I propose that such an explanation lies in the syntax of evidentials. My hypothesis is that evidentials are banned from non-finite complements. It predicts that a language with both finite and non-finite complements will allow evidentials only in finite complements (Turkish). However, if a language lacks finite complementation, evidentials would not be embeddable, which seems to be the case in Daghestanian languages.

Fitting Krifka (forth.)'s formalism for evidentials seems to be appealing. However, there are several issues:

(1) the actual difference between embedded assertions and embedded propositions is not clear. Krifka's analysis rests upon the assumption that (embedded) speech acts correspond to (embedded) root clauses. Maybe, a better understanding of semantic and/or pragmatic differences between sentences with regular complements and sentences with embedded-root complements would shed some light on this issue.

(2) one of the main motivations for the modal vs. illocutionary dictinction in the evidential domain is inability of certain evidentials to scopally interact with semantic operators. Does this distinction make sense if speech acts can be denegated, conjoned, or quantified into, as Krifka argues is the case? If all evidentials are analysed as SAP modifiers, we would expect them to have a particular distribution in the embedded contexts. As I will show in the next section, not all evidentials exhibit such distribution. So, evidentials do not constitute a homogenous class vis-a-vis their distribution in embedded contexts and there is more than one class of evidentials. However, the question is whether the modal vs. illocutionary dictinction yields the distribution.

4 Attitude predicates

This section is about attitude predicates that allow evidentials in their complements and it is largely descriptive. I present several case studies on the topic. Perhaps, this is all the data that are readily available. But even this incomplete information is sufficient to show that current theories of evidentiality fail to predict these patterns.

4.1 Data

There is a significant degree of cross-linguistic variation in which attitude predicates allow evidentials in their complements. In the chart below, I compare evidential-embedding properties of three predicates, 'say', 'think', and 'know', in Bulgarian (Sauerland and Schenner 2007), Georgian (Korotkova 2012), Japanese (*sooda*, Sauerland and Schenner 2007), Mbyá (Thomas forth., Guillame Thomas, p.c.), German (*sollen*, Schenner 2009), Tibetan (Garrett 2001) and Turkish (Şener 2011) (cf. Sauerland and Schenner 2007, 14, chart 42):

	'say'	'think'	'know'
Bulgarian	✓	*	✓
Georgian	✓	✓	*
German	✓	*	✓
Japanese	✓	*	✓
Mbyá	✓	*	*
Tibetan	✓	✓	*
Turkish	✓	✓	✓

Table 2: Predicates that embed evidentials

This simple chart suggests that there are several classes of evidentials but clearly more than two, contra the current view on diversity in the evidential realm. In addition, further differences between say Georgian and Tibetan are left out. Below I discuss data from Tibetan, Bulgarian and German in greater detail.

4.1.1 Standard Tibetan

According to Garrett (2001, Chapter 5: 207-224), in Standard Tibetan evidentials can be embedded only under verbs of speech and thought, such as 'say', 'think', 'believe' (26-a), but not verbs of knowledge ('know'), perception ('see') or emotion/desire ('hope') (26-b):

TIBETAN (Garrett 2001, 211-212, ex.7-a and 9)

(26) a. bkra.shis kho dge.rgan **yin** bsam.gi-'dug
Tashi he teacher EGO.COP think-DIR.IPF]
'Tashi$_i$ thinks he$_i$ is a teacher, *and Tashi has internal evidence for that.*'

b. *bkra.shis kho dge.rgan **yin** ha.go-gi-yod.red
Tashi he teacher EGO.COP know-DIR.IPF]
Intended: 'Tashi$_i$ knows he$_i$ is a teacher, *and Tashi has internal evidence for that.*'

Garrett makes an empirical generalisation that embedded evidentials in Tibetan are only licensed under attitudes 'whose complements can be headed by the complementizer *se*, which is derived from the verb 'say" (Garrett 2001, 215). He further argues that only these verbs supply assertive contexts essential for these assertion-dependent evidentials.[18]

4.1.2 Bulgarian

In Bulgarian, the reportative evidential can be embedded under predicates of utterance and knowledge (Sauerland and Schenner 2007, 13), see below:

(27) predicates that allow the reportative in their complement

— **utterance**: e.g. *kaza* 'say', *spomena* 'mention'

— **knowledge and acquisition of knowledge**: e.g. *znae* 'know', *ŝanuva* 'discover' or *rezbra* 'dream'

(28) predicates that do not allow the reportative in their complement

— **propositional attitude verbs**: *vjerva* 'believe', *sâmnjava* 'doubt', *predpolaga* 'suspect'

— **perception predicates**: *čuva* 'hear', *čuvstva* 'feel', *vidja* 'see'

— **desiderative predicates**: *iska* 'want'

[18]Evidentials can also occur in embedded questions under 'ask'. To keep his assertional theory of evidentials, Garrett modifes the standard Hamblin approach and analyses questions as answer-sets of assertions rather than answer-sets of propositions (Garrett 2001, Chapter 6).

— **pretence predicates**: *laže* 'lie'

It is not entirely clear how this distribution follows from Sauerland and Schenner (2007)'s theory, wherein the reportative is a presuppositional operator.

On a separate note, putting 'dream' into the same class as 'know' is hardly justified. First, the latter is factive while the former obviously is not. Second, dream reports are known to have special properties, e.g. with respect to the distribution of *de se* and *de re* construals (Percus and Sauerland 2003; Anand 2006; Pearson 2013). And indeed they are special in Bulgarian. 'Dream' selects for the reportative and does not allow the direct evidential in its complement:

Bulgarian (Sauerland and Schenner 2007, ex.39, 13)

(29) a. *Marija sânuva če **ima** burja v Ispanija
Maria dreams that is-DIR storm in Spain
b. Marija sânuva če **imalo** burja v Ispanija
Maria dreams that is-REP storm in Spain
'Maria dreamed that there is a storm in Spain'

Sauerland and Schenner attribute it to the fact that a person simply cannot have direct evidence for other people's dreams. If so, the direct evidential is predicted to be possible with the first person subject. This issue is not addressed in the paper and I do not have relevant data now. It would be really interesting to find other cases where evidentials are obligatory under attitudes.

4.1.3 German

Schenner (2009) investigates the embedding profile of German reportative modal *sollen*, based on a corpus study and grammaticality judgements. His findings are summarised below.

(30) predicates that allow *sollen* in their complement, roughly the list below boils down to three natural classes: communication predicates, (semi-)factives, and negative (doubt/denial) predicates (Schenner 2009, 186)

— **speech/text production (utterance)**: e.g. *behaupten* 'to claim', *erzählen* 'to tell', *berichten* 'to report', *kolportieren* 'to hawk'

— **speech/text perception**: e.g. *hören* 'to hear', *lesen* 'to read'

— **epistemic (semi-)factives**: e.g. *wissen* 'to know', *bekannt sein/werden* 'to be/become known', *erfahren* 'to find out', *erinnern* 'to remember'

— **emotive (semi-)factives**: *interessant sein* 'to be interesting', *seltsam sein* 'to be odd', *bedauern* 'to regret'

— **negative utterance (denial)**: e.g. *abstreiten* 'to deny', *leugnen* 'to deny'

— **negative epistemic**: e.g. *kaum/schwer zu glauben* 'hard to believe', *nicht glauben konnen* 'to not be able to believe', *bezweifeln* 'to doubt'

(31) predicates that ban *sollen* in their complement (Schenner 2009, 186-187)

— **direct perception**: e.g. *beobachten* 'to observe', *fühlen* 'to feel'

— **desire**: e.g. *wünschen* 'to wish', *hoffen* 'to hope'

— **(non-factive, positive) epistemic predicates**: e.g. *glauben* 'to believe', *vermuten* 'to suppose', *überzeugt sein* 'to be convinced'

— **(non-factive) emotive predicates**: e.g. *befürchten* 'to fear'

— **predicates of (low positive) likelihood**: e.g. *möglich sein* 'to be possible'

Schenner does not discuss the theoretical payoff of these data. As I will show below, they have interesting consequences for a modal analysis of *sollen*.

4.2 Predictions

Below I will show (i) that the distribution of evidentials in particular languages is sometimes a mystery, and (ii) that the modal vs. illocutionary dichotomy does not explain the entirety of the data presented above. I start with outlining predictions made by each of the theories.

Where we expect illocutionary evidentials to appear

In Krifka (forth.)'s framework, which I adopt for evidentials in Section 3, embedding a speech act is a matter of selectional properties of attitude predicates. The set of predicates that are able to have a speech-act embedding reading is roughly a set of predicates that license Embedded Root (ER) phenomena in their complements, see Hooper and Thompson (1973) and Heycock (2005) for English.[19] So, if evidentials are analysed as SAP modifiers, then such evidentials are expected to appear in contexts that license ER. This is compatible with the Mbyá data, where 'je' is only licensed under 'say' and 'tell' (Guillame Thomas, p.c.). The data from German show that not all evidentials are equal and can be analysed as SAP modifiers. As Schenner (2009) points out, the set of predicates that allow *sollen* in their complement is not identical to the set of predicates that license ER.

Root Phenomena, or *Main Clause Phenomena*, is a cover term for unrelated things that are allergic to embedding: certain types of parentheticals, tag questions, auxiliary inversion, *wh*-slifting, Germanic verb second, left periphery ellipsis, quantifier preposing (for discussion, see Aelbrecht et al. 2012). It might be possible that evidentiality in some languages belongs to this class. However, to prove it, we need to find other root phenomena in e.g. Tibetan and show that embedded evidentials and ER co-occur, or at least that they occur under the same predicates. If they do not co-occur, one would have to depart from Krifka's proposal that embedded speech acts only correspond to embedded root clauses.

Where we expect modal evidentials to appear

Modal theories of evidentiality do not specifically address embedding under attitude predicates. I assume that, if some evidentials are analysed as epistemic modals and form a natural class with them (Matthewson et al. 2008; Matthewson 2012), the default expectation is that their distribution in embedded contexts matches that of epistemic modals in the same language.

Based on the data from French, Spanish and Italian, Anand and Hacquard (2013) suggest that the following distinction among attitude predicates according to their ability to licence embedded epistemics:

(32) representational attitudes: license epistemic modals in their complements

— **doxastics**: e.g. *think*

— **argumentation**: e.g. *say*

— **semifatives**: e.g. *realise*

(33) non-representational attitudes: do not license epistemic modals their complements:

— **desideratives**: e.g. *want, wish*

— **directives**: e.g. *demand*

(34) hybrid attitudes: license possibility but not necessity epistemic modals

— **emotive doxatics**: e.g. *fear, hope*

— **dubitatives**: e.g. *doubt*

Let's apply this theory to evidentials that have been argued to be epistemic modals. It does not straightforwardly account for their behaviour.

In Smirnova (2011)'s analysis of the Bulgarian indirect evidential, it is a necessity modal with a peculiar temporal component. Then it should be licensed under 'think' and 'believe' but it is not, see 4.1.2 above.

[19] One quirk, noted by Krifka, is that 'think' and 'believe' in English and German license ER but it is not clear whether it is possible to report speech acts with these verbs. This brings me back to the discussion of what an embedded speech act is.

According to Faller (2006, 2012), German *sollen* is a necessity modal with a non-realistic modal base. Then it should be banned from under hybrid attitudes. However, as I discuss above in 4.1.3, it is perfectly licensed under negative predicates of doubt and denial.

However, one should be careful. It is not exactly clear if Anand and Hacquard's conclusions are typologically universal, namely, that the distribution of embedded epistemics will be the same in other languages. One should use epistemics in a given language as a baseline. Above I am cheating: I compare German and Bulgarian evidentials to Romance epistemics, due to the lack of relevant data from Bulgarian and German.

4.3 Summary and discussion

To recapitute, there is a huge degree of variation in which attitude verbs are able to embed evidentials. It is not clear how to explain these constraints intra- and cross-linguistically.

The Krifka-style theory of evidentiality that I propose correctly predicts where illocutionary evidentials occur in Mbyá. The rest is still a problem. It seems that modal evidentials in Bulgarian and German do not pattern with epistemics in embedded contexts, which demands a special explanation.

It is often helpful to look at the properties of the embedder to explain the distribution of embedded elements, see e.g. Sudo (2012) for shifted indexicals and Anand and Hacquard (2013) for epistemic modals. However, to do that for evidentials, we need to obtain more fine-grained data first. Detailed case studies like Schenner (2009)'s for German would be a good starting point.

Right now the overall picture looks somewhat messy. As I will show in the next section, we can put it in order by comparing evidentials with other context-sensitive phenomena.

5 Shifting

In root declarative clauses, evidentials are always speaker-oriented. Under attitude predicates, their interpretation differs from language to language: evidentials may sometimes switch their perspective and become oriented towards the attitude holder, most typically subject of the matrix clause. After Garrett (2001) and Sauerland and Schenner (2007), I will call this phenomenon *shifting*, which parallels the evidential shift with perspective shift in other domains: indexicals, experiencer predicates, or predicates of personal taste.

5.1 Data

No shifting

In some languages, evidentials never change their perspective when embedded, e.g. Bulgarian (Sauerland and Schenner 2007) or Georgian (Korotkova 2012), exemplified below:[20]

GEORGIAN

(35) a. mama mi-s c'odnia xuti ena
father her-DAT know.3SG.S.3SG.O.EV.PST five language.NOM
'Her father knew five languages, *as I was told / believe based on what I see.*'

b. maria pikrobs rom mama mi-s **c'odnia** xuti ena
maria.NOM think.3SG.PRES that father her-DAT know.3SG.S.3SG.O.EV.PST five language.NOM
'Maria thinks that her father knew five languages, *and { I, *Maria } was told that / believe(s) that based on visual evidence*'.

In (35-a), the evidential past occurs in the matrix clause and is speaker-oriented. In (35-b), it is also speaker-oriented, even though it occurs in the embedded clause. In (Korotkova 2012), I demonstrate that such clauses are indeed syntactically embedded and do not instantiate cases of quotation/mixed quotation.

[20] In Georgian, the evidential shift under attitudes, or lack thereof, might be subject to speaker/dialect variation. I base the claim above on my fieldwork data. However, Boeder (2000) provides examples where the evidential past shifts.

Obligatory shifting

In other languages, the shift is obligatory, e.g. Tibetan, exemplified below:

TIBETAN (Garrett 2001, 208, ex.2 and 4)

(36) a. kho dge.rgan **red**
he teacher IND.COP
'You are / he is a teacher, *as I was told or infer.*'
b. tashi kho dge.rgan **red** lab.gi-'dug
Tashi he teacher IND.COP say-DIR.IPF
'Tashi$_i$ says he$_j$ is a teacher, *as* { *Tashi, *I* } *was told or infer(s).*'

In the matrix clause in (36-a), the indirect evidential is speaker-oriented. In the embedded clause in (36-b), the same evidential is oriented towards the attitude subject, Tashi. According to Garrett, this is the only interpretation this sentence has and the only interpretation other Tibetan evidentials can get when embedded.

Optional shifting

In yet other languages, the shift is optional, e.g. German *sollen* (Schenner 2009, 2010a,b), St'át'imcets (Matthewson et al. 2008), or Turkish (Şener 2011). Consider an example from Turkish:

TURKISH (Şener 2011, 90/92, ex.98(a)/99(a))

Context 1: Seda saw Ayşe's hair, and tells me 'Ayşe has red hair'.
Context 2: Berna told Seda that Ayşe has red hair and Seda believes her. Seda says: Ayşe has red hair. I (speaker) saw Ayşe's red hair with my own eyes.

(37) Seda Ayşe'nin saç-ı kızıl-dı de-di.
Seda Ayşe-GEN hair-POSS red-DIR say-PST-DIR

This example illustrates the behaviour of Turkish direct evidential *-di*. In the sentence above, *kızıl-dı* indicates that someone has direct evidence for Ayşe's having red hair. This sentence is good both in context 1 and context 2. In context 1, the speaker has indirect evidence and the attitude subject had direct evidence, in context 2, the opposite holds. Given that *-di* cannot be used if none of the speaker and the subject have direct evidence, it shows that *-di* can be either speaker-oriented (context 2) or subject-oriented (context 1), namely, that *-di* can shift and that the shift is optional. The same is true for other Turkish evidentials.

5.2 Against some of the previous theories

There is a trend in the current literature (Matthewson et al. 2008; Koev 2011) to derive different shifting patterns from the narrow vs. wide scope of the evidential with respect to the attitude verb: wide scope yields lack of shifting, while evidential shift is taken to be a consequence of narrow scope, i.e. semantic embedding under the attitude verb. (Im)possibility of semantic embedding under various operators is, in turn, regarded as another reflex of the propositional vs. illocutionary distinction in the evidential domain: only evidentials that operate at the propositional level are expected to scopally interact with semantic operators.

For what I know, this view seems to be empirically adequate: non-shifted evidentials scope above the attitude predicate, shifted evidentials scope under it. However, I argue that linking shifting and scope is undesirable.

First, in multi-dimensional theories of evidentiality, e.g. Koev (2011) and Murray (2010), evidentials are analysed as contributing not-at-issue content, in parallel with Pottsian supplements. Wide scope with respect to semantic operators is then attributed to the fact that the evidential contribution projects from under the attitude predicate. This rests upon the assumption that supplements *always* take the wide scope but see Schlenker (2013) for examples of other scope construals.

Second, supplements are subject to a pragmatic shift, (Harris and Potts 2009), but Bulgarian and Georgian evidentials, which are always speaker-oriented, are not subject to such shift. It is not predicted if they are just supplements.

Finally, equating shifting with scope overlooks the fact that shifting is an independent phenomenon, whose properties are strikingly reminscent of the indexical shift.

5.3 Towards a new theory

I argue that all evidentials, those that can shift and those that cannot, have an indexical component by virtue of being inherently context-dependent: evidence is always relative to someone. Just like with indexicals such as *I* and *here*, the same sentence containing an evidential in the root declarative clause has a different *content* (in the sense of Kaplan 1989) uttered by different speakers (cf. similar observations in Murray 2012):

(38) *Texas* reportedly *legalised marijuana*.
   a. Natasha's reported evidence if uttered by Natasha.
   b. Dominique's reported evidence if uttered by Dominique.

Evidence holder, or *origo*, in Garrett (2001)'s terminology, is an indexical. At this point, it is not clear whether or not this context parameter is different from the speaker.

I further argue that evidential shift is a garden variety of indexical shift and should be analysed as such. As I will show below, shifted indexicals and shifted evidentials have a lot in common. Moreover, their behaviour in declarative clauses significantly differs from that of other phenomena that can change their perspective, such as modals or predicates of personal taste.

5.3.1 Evidentials vs. indexicals vs. other animals: a bird's eye view

In root clauses

Modals and PPT can shift in the root declarative clause in the presence of certain attitude constructions such as *according to*:

(39) a. We must become independent of fossil fuels by 2050.
   b. According to the Government, we must become independent of fossil fuels by 2050.

(40) a. This soup is tasty. # But I find it disgusting.
   b. This soup is tasty to Lisa. But I find it disgusting.

In (39-a) and (40-a) *must* and *tasty* are speaker-oriented. In (39-b) and (40-b), respectively, they obligatorily shift, i.e. reflect the perspective of an attitude holder introduced by the PP. Shifty indexicals and evidentials, able to shift under attitude predicates, remain speaker-oriented in such cases.

JAPANESE (Yasutada Sudo, p.c.)

(41) Mary-niyoruto, John-ga watashi-o suki.
Mary-according.to, John-NOM I-ACC like
'According to Mary, John likes me {the speaker / *Mary}.

Even though Japanese indexicals can shift (Sudo 2012), this shift is not licensed by the construction with *according to*. The same is true for Turkish evidentials:

TURKISH (Deniz Özyildiz, p.c.)

(42) Arkadas-im-a gore, sinav-dan kal-mis-im
friend-1S.POSS-DAT according, exam-ABL stay-REP/PST-1S
(i) 'According to my friend, I failed the exam ∧ I have reported evidence for that.' (the speaker doesn't know if s/he failed the exam)
*(ii) 'According to my friend, I failed the exam ∧ my friend has reported evidence for that.'

The fact that just an attitude construction introducing an opinion holder is not enough for evidentials and indexicals to shift shows this is not a shift in the judge/experiencer, the individual responsible for the perspective of PPT (contra McCready (2007), who argues that indexicals are judge-dependent).

Under attitude predicates

Different things have different shifting profiles. The typology of the evidential shift pretty much resembles the typology of indexical shift, see Sudo (2012) for an overview and further references. In some languages first and second person pronouns *I* and *you* do not shift:

(43) The doctor said that I {the speaker, *the doctor} got sick.

In English, as well as in many other well-studied languages, *I* in the embedded clause can only refer to the matrix speaker.

In some languages indexical shift is optional, e.g. in Amharic (Schlenker 1999, 2003), Mishar Tatar (Podobryaev forthcoming), Turkish (Özyildiz 2013), or Nez Perce (Deal 2013):

Turkish (Özyildiz 2013)

(44) Doktor [hasta-lan-di-m] de-di
doctor sick-PASS-PST-1SG say-PST.3SG
'The doctor said that I {the speaker, the doctor} got sick.'

The *pro* in the sentence above can refer both to the matrix and to the embedded speaker.

In some other languages indexical shift is obligatory, e.g. in Uyghur (Sudo 2012, Shklovsky and Sudo forthcoming) and Tamil (Sundaresan 2012):

Uyghur (Shklovsky and Sudo 2014)

(45) Ahmet [män k"at-tim] di-di.
Ahmet I leave-PST.1SG say-1SG
'Ahmet said that {*I, Ahmet} left.'

In the example above, *män* 'I' can only have the shifted interpretation.

As I discussed in section 5.1, this is exactly the way evidentials behave across languages: sometimes they don't shift, sometimes the shift is optional and sometimes obligatory.

Modals and PPT, on the other hand, behave differently and, for what we know, obligatorily shift when embedded (Hacquard (2006, 2010); Stephenson (2005) on modals, Pearson (2013) on PPT):

(46) Ptolemy belives that Sun must be turning around Earth. But in fact it's the opposite.

(47) Lisa thinks that pho is tasty. But I don't like it.

In the examples above, the speaker is not endorsing the modal claim or the taste judgment, as shown by the continuations.

Variation across attitude predicates

In section 4 I showed that the distribution of evidentials in embedded contexts is (i) restricted and (ii) does not match that of epistemic modals. The distribution of predicates of personal taste, to my knowledge, is not limited to a particular set of attitude predicates. The opposite holds for shifted indexicals: they are extremely picky. The distribution of shifted indexicals across languages is summarised in the chart below (adapted from Sundaresan (2012, 244); with added data from Japanese (Sudo 2012), Korean (Park forth.), Mishar Tatar (Podobryaev forth.), Nez Perce (Deal 2013) and Turkish (Gültekin Şener and Şener 2011; Özyildiz 2013)):

Aghem	*say*
Amharic	*say*
Japanese	*say, think, consider* a.m.o.
Korean	*say* for person indexicals, *say, think* for adverbial indexicals
Mishar Tatar	*say, think* a.m.o.
Navajo	*say*
Nez Perce	*say/tell, think*
Slave	*say, tell, want*
Tamil	*say*
Telugu	*say*
Turkish	*say, believe, want*, some other speech-derived predicates
Uyghur	all attitude predicates
Zazaki	*say*

Table 3: The distribution of shifted indexicals

Except for Turkic languages, shifted indexicals are almost exclusively licensed under speech verbs.

Summary

There are robust parallels in the behaviour of shifted evidentials and shifted indexicals.

— Evidentials and indexicals, but not epistemic modals or PPT, are sensitive to the presence of an atitude verb rather than just a perspectival centre. In declarative clauses in spoken languages, both evidential and indexical shift are restricted to the complements of attitude predicates, overt with attitude reports or covert in free indirect discourse. The only exception I am aware of comes from sign languages. Role shift, a special body movement that indicates the quoted signer, licenses indexical shift. The nature of role shift is debated: it is has been argued to be a bona fide quotation, or to be a mixed case, or to contain an attitude operator (Herrmann and Steinbach 2012; Lillo-Martin 2012).

— Evidentials and shifted indexicals, but not PPT, tend to have a highly restricted distribution in embedded contexts. Epistemic modals are not licensed everywhere either but not to the extent that their distribution is limited to the complements of speech verbs.

— Distribution of evidentials and shifted indexicals is similar though not necessarily identical across languages, in particular, both are often limited to the complements of speech verbs.

— Shifty evidentials are often (but not always) correlated with shifty evidentials within language: Korean (Park forth. on indexicals, Lee 2013 on evidentials), Japanese (Sudo 2012 on indexicals, Yasutada Sudo, p.c. on evidentials), Turkish (Gültekin Şener and Şener 2011; Özyildiz 2013 on indexicals, Şener 2011 on indexicals), Zazaki (Anand and Nevins 2004; Anand 2006 on indexicals, Gajewski 2005 on evidentials).

5.3.2 Evidential shift = indexical shift

Sauerland and Schenner (2007), based on Bulgarian, suggest that the evidential shift might be of the same nature as the indexical shift and pursue an analysis along the lines of Schlenker (1999, 2003)'s theory of shifted indexicals. The general set-up is as follows. They adopt extensional treatment of possible worlds and assume a universal semantics for attitude predicates, wherein all such predicates in all languages introduce a new context. By virtue of that not only the matrix but also the embedded clause would always contain context operators that bind an individual and a world variable in this case.

The following semantics for the Bulgarian reportative is provided (Sauerland and Schenner 2007, 8):

(48) $[\![\text{REP}]\!](y, v)(p)$
Presupposition: y has in v reportative evidence for p
Assertion: p

To guarantee lack of shifting, a binding condition is introduced:

(49) The arguments of REP y and y must be bound by the context operators of the matrix clause.

In a system like that, where semantics of attitudes is universal, the cross-linguistic variation is built into particular lexical items: (1) first and second pronouns within Schlenker's treatment of indexical shift, and (2) evidential markers within Sauerland and Schenner (2007)'s treatment of evidential shift. An extension of their theory, not spelled out, but natural, is as follows. In languages with the obligatory evidential shift, the binding condition would be to bind locally, while in languages with the optional shift binding can be both local and global, or the binding condition can be absent (Şener (2011)'s treatement of Turkish).

I argue that Sauerland and Schenner (2007)'s theory of evidential shift suffers from several flaws.

First, this approach overgenerates. It predicts that the optional shift is unconditioned, namely, that no factors force or favour shifted vs. non-shifted interpretation. This holds for Turkish but does not work for German, where availability of different interpretations of *sollen* largely depends on the type of the attitude predicate (Schenner 2010b).

Second (and here my criticism of S & Sh's theory is partially reminscent of Sudo's (Sudo 2012, 211-212) criticism of Schlenker's theory of indexical shift), this approach does not pay attention to the fact that not all attitude predicates license shifty evidentials, see sections 3 and 4.

Third, even though this approach is motivated by the indexical shift it overlooks actual parallels in distribution of shifted evidentials and shifted indexicals, yet there are many, as I discuss above.

My research plan is to develop a theory of evidential shift that is also based on a theory of indexical shift, but on the alternative one. According to Anand and Nevins (2004); Anand (2006) and also Sudo (2012); Shklovsky and Sudo (2014), semantics of indexicals is uniform across languages. However, some languages have context-overwriting operators, or monsters, in their lexicon. These operators have a dedicated position in the syntactic structure and are only licensed in some constructions and under some attitude predicates, which somewhat helps to handle restrictions on where shifted indexicals occur. A theory wherein evidential shift is done by monsters will make parallels between evidentials and indexicals more articulated. It also raises a range of empirical and theoretical questions on (dis)similarities between indexicals and evidentials. At least some of these questions I hope to be able to answer in the dissertation:

(1) Are non-shifted evidentials direct referential, i.e. non-sensitive to non-matrix contexts, like personal pronouns in English?

(2) Are shifted evidentials obligatorily *de se*? It seems to be the case for indexicals (Sudo 2012). Anand (2006) claimed it is also the case for logophors but Pearson (2013), based on Ewe, disagrees.

(3) The inventory of monster operators needs to be clarified. It has been claimed that in Nez Perce (Deal 2013) and Korean (Park forth.) two classes of indexicals, personal ones and adverbial ones, each need a separate monster. This makes two. What about evidentials?

   First, within a language there are mismatches in optionality of the evidential shift and indexical shift. With the same predicate 'say', indexical shift is optional and evidential shift is obligatory in Japanese, Korean and Zazaki. If it were the same monster, no such mismatches would be observed.

   Second, one of the main motivations for an operator-based theory of indexical shift is shift-together effects: within a constituent (Uyghur, Sudo 2012; Shklovsky and Sudo 2014), clause (Zazaki, Anand and Nevins 2004; Anand 2006) or subclass (Nez Perce, Deal 2013), either all indexicals shift or none of them shifts. If shift depends on the indexical element itself, no such effects are predicted. The interaction of clause-mate indexicals and evidentials is not clear at all. My preliminary fieldwork on Korean and Japanese did not reveal any shift-together effects, however.

JAPANESE (Yasutada Sudo, p.c.)

(50) Paul-wa [daremo watashi-o suki-sooda to] omow-anakat-ta
Paul-TOP [anyone me-ACC like-DIR.EV C] think-NEG-PST
'Paul didn't think that anyone liked me {the speaker, Paul}, *and Paul has direct evidence for that.*'

Presumably, accusative objects are in the scope of the evidentials and are expected to shift, if this shift is done by the same monster. However, more data are needed to make any solid claims. It would be also interesting to look at the data from multiple embedding, coordination and relative clauses to see what happens when there is more than one evidential marker.

(4) In any theory of indexical and evidential shift, we need to take care of selection. Besides the fact that they license shifty elements in their complements, speech predicates are special in other respects as well (Sundaresan 2012, 243-252). For instance, they take larger complements or are more likely to license e.g. embedded root phenomena (Hooper and Thompson 1973; Heycock 2005) and logophors (Culy 1994). It is an empirical fact that needs an explanation. What makes these predicates stand out?

5.4 Evidential shift in questions

So far I have only been talking about evidential shift in attitude reports. Questions is another environment where evidentials shift systematically across languages, the phenomenon being called *interrogative flip* (Speas and Tenny 2003). Consider an example from Korean:

KOREAN (Lim forthcoming)

(51) a. John-i na-lul po-te-la.
John-NOM I-ACC see-DIR-DECL
'John saw me.'
Evidential implication: The speaker has direct evidence that John saw the speaker himself/herself.

b. John-i na-lul po-te-nya?
John-NOM I-ACC see-DIR-Q
'Did John see me?'
Evidential implication: The addressee is expected to answer based on his/her direct evidence relative to whether John saw the speaker or not.

In (51-a), direct evidential *te* is speaker-oriented, as expected since it is in the root declarative clause. In (51-b), *te* is addressee-oriented and the entire sentence is a request to asnwer the question given the type of evidence that the addressee, as the speaker believes, has. The phenomenon has been widely discussed and analysed in the formal semantic literature: Garrett (2001) for Tibetan, Murray (2010) for Cheyenne, Lim 2010, Lim forthcoming for Korean. Despite differences in the formalisms, the essential goal these approaches share is to allow evidentials to shift without forcing clausemate indexicals to do so, which is motivated by examples like (51-b) above, where the indexical *nalul* 'me' does not shift.

Murray (2012) suggests that evidentials are anaphoric indexicals, able to pick up their referent not only from the speech event, as pure indexicals do, but also from some other salient event. This wronly predicts, however, that in a language with shifty indexicals – such that can pick up their referent from the reported context – e.g. Korean, personal indexicals can also shift in questions. This does not happen in (51-b) above. The more so, to my knowledge, indexicals, no matter personal or adverbial, never shift in questions.

TURKISH (Deniz Özyildiz, p.c.)

Context: A friend is talking about turnips, I say:

(52) Sev-er mi-yim?
like-AOR PQ-COP.1S
Do {I, *you} like them?

Context: Dominique is in Los Angeles, Natasha is a student in LA but is in Paris right now.Natasha starts talking about Jun but Dominique does not know him and asks: 'Does he study here?'

(53) Jun bura-da mi oku-yor?
Jun here-LOC PQ read-PRES.PROG-3S
'Does Jun study here?
(i) non-shifted: 'here' = in LA
*(ii) shifted: 'here' = in Paris

This difference between evidentials and indexicals is a puzzle. The current literature on evidentiality regards the ability to shift in questions as a special property of evidentials. I argue that inability to shift is a special property of indexicals. Other elements such as modals and PPT freely shift in questions and even some logophors can be used in matrix questions to refer to the addressee. However, I do not have an explanation of why indexical shift is blocked in questions.

5.5 Summary and discussion

To recapitulate, in this section I looked at the typology of the evidential shift under attitude verbs. In some languages the shift is not possible, in some languages it is optional, and in some it is obligatory. Such behaviour is reminiscent of the behaviour of indexicals, so it seems quite natural to analyse both types of shift in the same fashion. Sauerland and Schenner (2007) model evidential shift after Schlenker's account of shifted indexicals, so that the locus of cross-linguistic variation is entirely in the evidential markers. Such view has several drawbacks: (1) it predicts optional evidential shift to be unconditioned while it is not the case in German, (2) it does not account for the fact that not all attitude predicates license embedded evidentials, and (3) it does not capture parallels between the distribution of shifty indexicals and shifty evidentials. Given these observations, it is desirable to base an analysis of the evidential shift on a theory that has more space for cross-linguistic variation. I suggest that the Monster theory (Anand 2006)/(Sudo 2012) is a good candidate.

I also briefly discuss evidential shift in questions and whether it is possible to analyse it along the same lines. The overarching goal is to try to develop a unified of evidential shift under attitudes and in questions and to explain lack of indexical shift in questions.

6 Conclusions

Embedding under attitudes serves as a good test for linguistic theories of context-sensitive elements (tenses (Ogihara and Sharvit 2012), modals (Hacquard 2010), indexicals (Schlenker 2003)), and evidentiality seems to be no exception.

Unfortunately, the behaviour of evidentials in attitude reports is largely a terra incognita. The goal of my prospectus is to offer a bird's eye view on the cross-linguistic behaviour of evidentials under attitudes and show where the current theories of evidentiality prove insufficient. One of the goals of my dissertation is to fill in this gap, at least partially.

The current view on evidentiality is that the diversity in this category stems from the general distinction between modal vs. illocutionary evidentials. I argue that this view cannot explain the behaviour of evidentials under attitude predicates.

In some languages evidentials cannot be syntactically embedded under attitude predicates. This non-embeddability is typically regarded as a feature of illocutionary evidentials, since they modify speech acts and it is believed that speech acts correspond to root clauses. I have shown that this makes wrong predictions: there are languages with embeddable illocutionary evidentials (Mbyá) and languages with non-embeddable non-illocutionary evidentials (Korean). I formulate Faller (2002)'s semantics for illocutionary evidentials within Krifka (forth.)'s framework, wherein speech acts can be embeddable.

I further argue that embeddability depends on two factors: (1) the embedding strategy: evidentials across languages are banned from non-finite clauses (data from Cheyenne, Cuzco Quechua, Daghestanian languages, Turkish), and (2) the embedder: attitude predicates vary in which arguments they can take. In particular,

not every attitude predicate is able to take a speech act argument, which may explain the distribution of the Mbyá reportative.

I also show that the distribution of supposedly modal evidentials in German and Bulgarian does not match that of epistemic modals. Yet it is expected to be the same under the analysis wherein these evidentials are treated as epistemic modals.

Finally, I discuss evidential shift. It is often dismissed as an independent phenomenon, while orientation of the evidential towards the speaker vs. the attitude holder is derived, respectively, from wide vs. narrow scope of the evidential with respect to the attitude predicate. I provide multiple parallels between shifted indexicals and shifted evidentials and argue that all evidentials have an indexical component. After Sauerland and Schenner (2007), I proposed to model evidential shift within a theory of indexical shift. I find Sauerland and Schenner (2007)'s implementation insufficient since it does not account for the conditioned shift in German and for variation across predicates and constructions. To fix this, I suggest that evidential shift depends on a context-shifting operator, the Monster, proposed by Sudo (2012) for indexical shift. This analysis is also plausible since constraints on embedded evidentials are similar to those on shifted indexicals. Still, this leaves a lot of open questions. In particular, it is not clear how to unify evidential shift in questions and under attitude predicates, given that other indexicals do not shift in questions.

The bottom line is that the patterns we find cannot be derived from the modal vs. illocutionary distinction in the evidential domain. However, it is clear that there are different classes of evidentials, and I plan to get closer to understanding what they are.

First, embedding-related properties of some evidentials seem to be reducible to their ability to shift. To justify this claim, I plan to carefully investigate a language that has both shifty evidentials and shifty indexicals: Korean, Japanese, or Turkish.

Second, it has been argued (Schlenker 1999) that logophors are obligatorily shifted indexicals. If so, we expect to find "logophoric evidentials". Tibetan evidentials, which shift obligatorily when embedded, might be good candidates. Just like logophors, they can be oriented towards an attitude holder in the higher clause different from the matrix subject and their distribution (under verbs that take a 'say'-derived comlementiser) is also reminiscent of logophors in Ewe and Gokana, as Garrett notes.

Third, it is also clear that there are independent constraints on embedding, for otherwise non-shifted evidentials would be freely embeddable. To better understand these constraints, I plan to look at one of the languages that does not shift evidentials, such as Georgian or Bulgarian.

I believe that such in-depth investigations will shed light on the semantics and typology of evidentials in general.

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