Evidentiality and Epistemic Modality at the Semantics/Pragmatics Interface*

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It is fairly standard to assume that a speech act consists of an illocutionary level of meaning, F, and a separate level of propositional content, p, such that F takes p as its argument, $F(p)$. This paper is concerned (i) with establishing for one language, Cusco Quechua (CQ), to which of these two levels of meaning its evidential and its epistemic modal markers belong, and (ii) with developing a formal analysis of evidential and epistemic modal illocutionary modifiers. Illocutionary modifiers generally have not received much attention in the formal literature, and formal treatments of evidentials in other languages usually take them to be epistemic modals with evidential presuppositions. Along the way, it will also be argued that evidentiality and epistemic modality as semantic notions are not tied to either level of meaning, that is, both evidentials and epistemic modals occur on both levels.

After introducing the relevant linguistic markers in CQ in section 1, I will discuss some tests for distinguishing between illocutionary and propositional-level modifiers and apply them to the CQ markers. Some of the tests can only positively identify propositional operators (embedding, scoping under propositional operators), and it is therefore quite difficult to positively establish an element as an illocutionary modifier. Section 3 begins to develop a formal analysis of these markers in SDRT, which is one of the few existing frameworks that integrates both levels of meaning. The account to be developed analyzes the evidentials as giving rise to evidential sincerity conditions which in turn affect the speaker's beliefs.

*This paper draws extensively on Faller (2006a) and Faller (2006b) (both available on the semanticsarchive.net), and contains some identical passages, especially in the discussion of the Reportative. For the CQ data, I am very grateful to my ever patient native speaker consultants in and around Cusco, Peru, Gloria Canal, Inés Callalli and Edith Zevallos, and closer to home to Wilbert Vera Robles, a fluent second-language speaker.

1 Cusco Quechua evidentials and epistemic modals

As in previous work, I take here a narrow view of evidentiality, limiting it to the linguistic marking of the speaker's source of information in assertions (or, in some languages, including CQ, the grounds for asking a question (Faller 2002)). The main evidential subcategories are direct evidence and indirect evidence. Indirect evidence has the subcategories second-hand, that is, information that was acquired through reports by others, and inference (Willett 1988). Epistemic modality is the marking of the speaker's degree of certainty and/or the necessity/possibility of the truth of the propositional content.[1] Conceptually, the two categories are clearly distinct, though related: the kind of evidence a speaker has will often determine the degree of certainty with which she believes a proposition. The view of evidentiality as a conceptual category distinct from epistemic modality does however not preclude the possibility (which is well attested in the world's languages, see for example Willett (1988), Chafe and Nichols (1986), Aikhenvald and Dixon (2003), and Aikhenvald (2004)) that specific linguistic markers may combine both.

CQ has at least three evidential enclitics[2] the use and meaning of which has been described in detail in Faller (2002). These are illustrated in (1)[3] using the constructed paradigmatic sentence *It is raining* for ease of comparison.[4]

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[1]Other researchers (e.g. (Chafe 1986)) take a broad view of evidentiality, assuming that it subsumes or is subsumed by epistemic modality.

[2]These and other enclitics (sometimes called independent suffixes) distinguish themselves from suffixes by their ability to attach to any part of speech. Whether or not they comply with other definitional criteria of clitichood requires further research. The evidential enclitics usually occupy the very last slot within the enclitic sequence, but may be followed by the emotive *-yá*. In addition to marking evidentiality, they also mark focus (Muysken 1995). Another enclitic belonging to the focus set which appears in examples in this paper is *-chu* (glossed as POL for polarity), which forms yes/no-questions and participates in sentence negation.

[3]Abbreviations: 1S2O: first person subj-second person obj, 1.INCL: first person inclusive, 1O: first person object, 2: second person, 3: third person, ABL: ablative, ADD: additive, ACC: accusative, BPG: best possible grounds, CAUS: causative, CERT: certainty, CISL: cislocative, COND: conditional, CONJ: conjectural, CONT: continuous, DEF: definite, DISC: discontinuous, DIM: diminutive, DUB: dubitative, EMO: emotive, EV: evidential value, FUT: future, HORT: hortative, ILLA: illative, IMPR: impressive, INCL: inclusive, LIM: limitative, LOC: locative, NMLZ: nominalizer, POL: polarity, PROG: progressive, PST: past, REFL: reflexive, TERM: terminative, TOP: topic, VBLZ: verbalizer

[4]CQ also has a enclitic *-chus hina* (allomorphs *-chu sina* or *(-chu) suna* (Cusihuaman 2001)) which was hypothesized by Faller (2002) to also be an evidential, though it is generally not discussed as such in the literature on evidentiality in Quechua.

(1) a. Para-sha-n-**mi/-si/-chá**.
rain-PROG-3-BPG/REP/CONJ

'It is raining.'
-mi EV: *s* sees that it is raining.
-si EV: *s* was told that it is raining.
-chá EV: *s* conjectures that it is raining.

Faller (2002) analyzes *-mi* (allomorph *-n*) as a marker of "best possible grounds", which amounts to having direct evidence in cases in which an event can be directly observed (and I will call it the Direct in what follows). The enclitic *-si* (allomorphs *-s/-sis*) is a Reportative marker which is used for conveying information that was obtained second- or third hand, and Conjectural *-chá* is used when the speaker is making a conjecture. This conjecture can be the result of reasoning from a set of premisses, or simply a guess. It can often be translated into English as *might, perhaps, I guess*. It is hard to pin down exactly what the evidential meaning of *-chá* is, but I will here take up a suggestion by Mackenzie (1987) for *I guess* who represents this expression in his formal language with *h*, which stands for 'My hunch is'. This nicely captures that *-chá* is used when the speaker has some reason to believe *p* but no solid external evidence.[5] The evidentials are not obligatory, but when no evidential is used, direct evidence is implicated (Faller 2002).

The evidentials themselves do not directly encode anything about the degree of certainty with which the speaker believes the embedded proposition, but someone using the Direct evidential normally believes that *p* is true with a high degree of certainty, and a speaker using the Conjectural usually at least believes *p* to be a possibility. No such correlation exists for the Reportative, however. Its use is entirely compatible with a situation in which a speaker is convinced that *p* is true,

(i) Para-sha-n-**chus hina**.
rain-PROG-3-DUB

'I think/guess it is raining.'

This enclitic means roughly *I guess, I think, apparently*, occupies the same position as the evidential enclitics, and like them marks focus. It is mutually exclusive with the three main evidential enclitics, that is, they cannot occur together in a single clause. However, the hypothesis that *-chus hina* should be included in the set of evidential enclitics requires further research, and I will exclude it from further discussion in this paper.

[5]Cf. Palmer's (2001), 35 analysis of *might* and *must*. According to Palmer, *must* has a clear evidential meaning component which distinguishes it from epistemic adverbs such as *probably*, namely the marking of deduction or inference, not simply a high degree of certainty. *Might*, too, he claims, can be distinguished from corresponding epistemic adverbs such as *perhaps* on the evidential basis that it marks the absence of good grounds.

as well as with a situation in which the speaker is convinced that p is false. Thus, all of (1) are compatible with the speaker believing that it is raining, but only *-si* is compatible with the speaker not believing it, as shown in (2) (a naturally occurring example for *-si* is (53)).

(2) Para-sha-n-**si**/(#**-mi/-chá**). Ichaqa mana-n crei-ni-chu.
rain-PROG-3-REP/BPG/CONJ but not-BPG believe-1-POL
'It's raining. But I don't believe it.
EV: *s* was told that it is raining. *s* has BPG for not believing it.

While evidentiality in CQ is expressed by a morpho-syntactically relatively coherent set of morphemes, this is not the case for epistemic modality. There is no class of modal verbs as in English, nor is there a homogenous set of modal enclitics or modal verbal suffixes. The Conjectural evidential indirectly conveys epistemic modality in as much as someone making a conjecture thereby also conveys a lower degree of certainty than one who makes an assertion based on direct evidence. It may therefore be classed as both an evidential and an epistemic modal (Faller 2002), which has also been argued to be the case for other elements marking types of inference, including English *must* (van der Auwera and Plungian 1998).[6]

There are two other morphemes that can convey epistemic modality:[7] the so-called conditional mood marker *-man*, which is a verbal irrealis suffix expressing possibility, and the "definite" enclitic *-puni* which, when used epistemically, expresses certainty.[8]

[6]Similarly for *-chus hina* mentioned in footnote 4.

[7]There is also the so-called additive enclitic *-pas* (allomorph *-pis*), which appears to express possibility, especially in combination with Conjectural *-chá* as in (i). In its other uses it can mean 'too, also', function as a coordinator, and, when combined with pronouns marks indefiniteness.

(i) Para-sha-n-**pas-chá**.
rain-PROG-3-ADD-CONJ
'Perhaps it is raining.'

Given that the certainty marker *-puni* is marking some kind of 'definiteness', it is perhaps unsurprising to find that an enclitic with indefinite meanings also marks epistemic possibility. I will leave this marker aside in this paper as I have not yet conducted any field research on it.

[8]The labels for these markers are based on Cusihuaman's (2001) Spanish labels. They adequately capture some of their uses, which Cusihuaman appears to take as basic, but not necessarily the epistemic ones. I will nevertheless use these labels here until further research has established whether there is grounds for analyzing the markers as ambiguous which would warrant giving each sense its own label.

(3) a. Para-sha-n-**puni**.
rain-PROG-3-DEF

'It is certainly raining.'

b. Para-sha-n-**man**.
rain-PROG-3-COND

'It might be raining.'

The enclitic *-puni* occupies a slot closer to the stem than the evidential enclitics, with several slots for other types of enclitics intervening (see e.g. (20))), and *-man* is a verbal suffix. They are therefore both morpho-syntactically distinct from the set of evidentials and from each other. All three evidentials can co-occur with the two epistemic modal markers, and the latter with each other. The following example contains *-puni*, *-mi* and *-man*.

(4) Chaqay-**puni-m** chay hacienda rima-sqa-n-ku-qa ka-chka-n-**man**.
that-DEF-BPG that hacienda speak-PRT-3-PL-TOP be-PROG-3-COND

'That must be that hacienda about which they talked.'

(Vengoa Zúñiga 1998:15)

In section 2, I will argue that the three evidentials are illocutionary modifiers and that *-puni* and *-man* are propositional-level operators.

1.1 Aside: The other uses of *-man* and *-puni*

For the reader interested in the other uses of *-man* and *-puni*, I present a few examples here. This subsection can easily be skipped.

-man primarily marks irrealis mood and often occurs in conditionals, including, counterfactual ones:

(5) chay-ta hasp'i-ru-n-ku-**man** chayqa tari-ru-n-ku-**man-mi** unu-ta
this-ACC dig-HORT-3-PL-COND then find-HORT-3-PL-COND-BPG water-ACC

'If they were to dig there, they would find water.'

(Vengoa Zúñiga 1998:15)

(6) Mana yunka hatari-mu-qti-n-qa kunan-kama-qa hacienda
not jungle rise-CIS-NMLZ-3-TOP NOW-TERM-TOP hacienda
segi-sa-lla-n-**man-pas-cha**
continue-PROG-LIM-3-COND-ADD-CONJ (Espinoza 1997:118)

'If the jungle hadn't risen (= started a revolution) the hacienda (system) would probably have continued until now.'

-man can also convey deontic modality, as in the following example:

(7) mana-n ri-y-**man**-chu. (Cusihuaman 2001:169)
not-BPG go-1-COND-POL

'I can't go.' (also epistemic: 'I might not go')

In addition to marking certainty, *-puni* also has a temporal use, meaning 'always' and when attached to certain types of nouns, including those referring to persons or places, it is used for emphasis (Cusihuaman's 'definiteness'):

(8) Mayu killa-pi-qa qasa-mu-n-**puni**-n. (Cusihuaman 2001:244)
May month-LOC-TOP freeze-CIS-3-DEF-BPG

'In May, it always gets freezing cold.'

(9) Qan-**puni**-yá riki chura-chi-ku-ra-nki (Cusihuaman 2001:244)
you-DEF-EMO right put-CAUS-REFL-PST-2

'Surely, you yourself have designated yourself.'

(10) puri-chi-sha-ra-n riki kay Plaza de Armas ankay-pi-**puni-n**
walk-CAUS-PROG-PST-2 right this Plaza de Armas, there-LOC-DEF-BPG

'He was walking, right, on the Plaza de Armas, right there. (Radio)

2 Distinguishing illocutionary and propositional operators

Within the speech act theory of Searle (1969) and subsequent work in this tradition a speech act is taken to consist of "an illocutionary force F and a propositional content

P" (Searle and Vanderveken 1985), where F has several components, including sincerity conditions. Elements that modify F will be called illocutionary modifiers. For example, the adverb *alas* in *Alas, he was killed* turns a simple assertion of *He was killed into* a lamentation by additionally "expressing both dissatisfaction and sadness" as part of the sincerity conditions (Vanderveken 1990:150). An element modifying p, e.g. *must*, will be called a propositional operator. Making a theoretical distinction between these two levels may suggest that there is a strict division of what kinds of meaning are expressed on what level. However, this is not the case. In the example above, *alas* expresses more or less the same meaning on the illocutionary level as *I am sad that* does on the level of propositional content. In fact, the two levels often share the same linguistic resources. Thus, the same verbs that are used to describe speech acts, and which are therefore part of the asserted proposition, can be used to perform those acts. For example, in *I baptize you John*, *baptize* is used performatively, whereas in *He baptized him John*, *baptize* is used descriptively Bierwisch (1980).

What is needed, then, are linguistic tests for deciding which level of meaning a particular (use of an) element contributes to. This question has been addressed in some depth already in the literature on epistemic modals and several tests have been proposed for determining in particular whether or not subjective epistemic modals contribute to the propositional content. Some of these tests do however not show what they purport to show, but only serve to distinguish between *descriptive* (uses) and *m-performative* (uses of) elements, to be discussed in the following section.

2.1 M-performativity

Performativity is a familiar concept from speech act theory referring to the fact that a speech act "only exists by virtue of the utterance: it is through the utterance that the speech act is performed" (Nuyts 2000:40). Performativity crucially relies on parameters of the context of utterance such as the speaker, the here and the now. I use the term m-performativity to refer to a related notion (first discussed by Nuyts simply under the label 'performativity'), which is the *mental* act of performing an evaluation of a situation or proposition. M-performativity also crucially depends on the speaker, the here and the now, though it does not require verbal expression. Just like there are performative linguistic expressions, e.g. performative verbs, there are linguistic expressions of m-performativity, namely elements which express the speakers attitude towards a proposition such as epistemic modals. Thus, in uttering *It is probable that it is raining* the speaker performs an assessment of probability at the time and place of speaking. Some linguistic expressions which have m-

performative uses may also be used descriptively. For example, in *It was probable that it rained*, *probable* is used descriptively.

M-performativity cuts across the distinction that between illocutionary and propositional levels of meaning. Thus, there are m-performative illocutionary modifiers such as *alas* as well as m-performative propositional operators such as *probable*. M-performativity is relevant to this paper because tests that purportedly distinguish between illocutionary and propositional operators do not always distinguish between these levels of meaning but between descriptively and m-performatively used elements. One such test is the embedability in conditional antecedents.[9] For this test, the element in question is embedded in the antecedent of a conditional. If it falls under the scope of *if*, it is a truth-conditional element, otherwise it is not (Wilson 1975). This test has been used to argue that, for example, the English epistemic modal *may* does not contribute to propositional content. Embedding it in the antecedent of (11), for example, results in oddness, if not ungrammaticality.

(11) ?If Max may be lonely, his wife will be worried. (Papafragou to appear)

However, epistemic modals are not always excluded from conditional antecedents, as shown in (12).

(12) If the gardener might be the thief, then we should watch her carefully.

The crucial difference between (11) and (12) is that the former is an attempt to embed an m-performatively used modal, whereas in (12) the modal is used descriptively: it is not necessarily the speaker's assessment that there is a possibility of the gardener being the thief, but this possibility follows from objective facts available to anybody. The speaker may in fact be completely certain that the gardener is not the thief. Thus, the effect of embedding an element that has m-performative as well as descriptive uses is to force the latter.[10] However, this does not in and

[9]Other embedding tests involve factive verbs and verbs of saying. The results of these are parallel to the test with conditional antecedents, and they will therefore not be discussed here. The reader is referred to Papafragou (to appear) and Faller (2002) for more discussion.

[10]Papafragou (to appear) argues that this and other such tests distinguish between subjective and objective epistemic modals. In her account, subjective epistemic modals are indexical "in the sense that the possible worlds in the conversational background are restricted to what the *current* speaker knows *as of the time of utterance* [orig. emphasis]." One might therefore think that m-performativity is just indexicality. However, in explicating indexicality further she states: If subjective epistemic modal expressions are indexical [...] this restriction is explained. The environment inside the conditional cannot be an environment in which the speaker can be performing a mental evaluation of a proposition with respect to her belief-set." Thus, this type of indexicality is defined in terms of m-performativity. It is not enough to simply index the relevant linguistic expressions to the speaker, time and place of the utterance, reference must be made to a mental act.

of itself answer the question whether or not an m-performative element contributes to the illocutionary level. The only conclusion we can draw is that if an element is happy in the scope of *if* then it contributes to propositional content.[11] In fact, this is true for any test that involves scoping under a known propositional operator, including scope with respect to negation discussed below. Elements that resist taking narrow scope will often be ones that are used m-performatively, without necessarily being illocutionary elements. In summary, the relevant distinctions give rise to the following cross-classification of the mentioned English elements.

(13)

	m-performative	**descriptive**
propositional	*must*, *might*, *probable*	*must* (?), *might probable*
illocutionary	*alas*	—

The question is where the CQ evidentials and epistemic modals fit in this picture and how this can be determined. In the examples presented in the previous section all these elements are used m-performatively, that is, they involve the speaker's source of information or evaluation of the embedded proposition's truth at the time and place of speaking. In the following I will apply three kinds of tests, including scope with respect to propositional and illocutionary operators, to argue that the evidential enclitics can only be used m-performatively, and that moreover they are illocutionary operators. Epistemic *-puni* and *-man*, in contrast, are propositional operators which can also have descriptive uses. Since I have discussed these tests extensively for the evidentials in Faller (2002) and more recently in Faller (2006b), I will keep this discussion fairly brief.

2.2 Test 1: Scope under propositional operators

Embedding in conditional antecedents. There are two conditional constructions in CQ. The first involves a fully finite clause as antecedent framed by *(sichus) ... chayqa*, the second involves a non-finite clause using one of the nominalizers *-qti* or *-spa*.[12] As shown in (14), embedding any of the evidential enclitics in the antecedent of either conditional construction is ungrammatical.

[11] Asher (2000) has also argued that elements that do not embed are not necessarily outside the proposition.

[12] They have distinct switch reference requirements: *-qti* requires distinct, *-spa* coreferential subjects.

(14) a. chayta-(*__n/-s/-chá__) hasp'i-ru-n-ku-man chayqa
this-(BPG/REP/CONJ) dig-HORT-3-PL-COND then
tari-ru-n-ku-man-mi unu-ta
find-HORT-3-PL-COND-BPG water-ACC

'If they were to dig (there), they would find water.'
(Vengoa Zúñiga (1998:15), without evidential enclitics)

b. Allin-ta-(*__n/-s/-chá__) yacha-qti-yki-qa astawan
good-ACC-(BPG/REP/CONJ) learn-NMLZ-2-TOP more
yacha-chi-sqayki
learn-CAUS-1S2O.FUT

'If you learn well, I will teach you more'
(Cusihuaman (2001:211)), without evidential enclitics)

Not all markers of evidentiality behave this way. Thus, Matthewson et al. (2006) show for St'átimcets evidentials and Faller (2006b) for the German reportative modal *sollen* that they can be embedded, and the same holds for English evidential adverbs:

(15) a. m-performative:
The cook has allegedly/reportedly poisoned the soup.

b. descriptive:
If the cook has allegedly/reportedly poisoned the soup, the police should make an inquiry. (Ifantidou-Trouki 1993:104f)

In (15a) it is necessarily the speaker who has obtained this information second-hand, whereas in (15b) this might be someone else.

In contrast to the CQ evidentials, epistemic *-man* and *-puni* can be embedded, though I should note that the consultant I have checked this with is much happier with *-man* being embedded than epistemic *-puni*.[13]

(16) Para-sha-n-__man__-(__puni__) chayqa mana-n ri-sunchis-chu.
rain-3-COND then not-BPG go-1INC.FUT-POL

'If (it is certain that) it might rain, we won't go.'

[13]In fact, when *-puni* is embedded as in (16) it is not entirely clear that it is still used as an epistemic modal expressing certainty. As mentioned above, it also means 'always', and this would also be a plausible interpretation of (16). The matter is complicated by the fact that *-puni* is translated into Peruvian Spanish with *siempre-*'always' in all its uses, including the epistemic one, which makes it impossible to use translation to distinguish between the temporal and modal meaning. Before the workshop I'm hoping to check examples like this with further consultants.

Again, it is not true of all epistemic modals that they can be embedded. Krifka (2004) shows that the German adverbs *wohl* and *wahrscheinlich*, which both roughly mean 'probably' differ in this regard:

(17) Wenn es wahrscheinlich /??wohl regnen wird, sollten wir Schirme mitnehmen
'If it probably going to rain, we should take umbrellas with us.'

Thus, we have evidentials that do and evidentials that do not embed, and the same is true for epistemic modals. We can conclude that those elements that do not embed cannot be used descriptively, and that those that can, can be used descriptively and are therefore unequivocally propositional operators.

Scope under negation. De Haan (1997, 1999) has claimed that, cross-linguistically, evidentials always take wide scope over negation.[14] This is true for CQ evidentials, as shown in (18).

(18) Mana-**n/-s/-chá** para-sha-n-chu.
not-BPG/REP/CONJ rain-PROG-3-POL

p=It isn't raining.
EV: *s* has direct/reportative/conjectural evidence that it isn't raining
NOT: *s* does not have direct/reportative/conjectural evidence that *p*

The conditional mood *-man* can easily occur in the scope of *mana*.

(19) Context: The wife of a sick man is told that if she takes immediate action to cure him, he will get better. Otherwise:

Mana-ña-yá qhali-ya-n-**man**-ña-chu (Itier 1999:172)
not-DISC-EMO healthy-VBLZ-3-COND-DISC-POL

'He can not get healthy anymore.' (=$\neg\Diamond$)

The situation for *-puni* is less clear. In all naturally occurring examples of *-puni* with negation I have found so far, *-puni* has wide scope, as in (20).

(20) Context: a farmer is asked to give meat to visiting authorities, but he refuses because he's too poor:

Mana-**puni-raq-mi** ati-y-man-chu (Itier 1995:386)
not-CERT-CONT-BPG can-1-COND-POL

'I certainly couldn't (do that) yet.'

[14]This claim has been disputed by Aikhenvald (2004:256) who presents data from Akha showing that its visual evidential can be negated.

However, in elicitation it also appears to be possible to have negation scope over *-puni*, as in the following example (based on an example in Matthewson et al. (2006)).[15]

(21) Context: Someone has eaten all the guinea pigs prepared for a *fiesta* tonight. In Juan's room we find a pile of guinea pig bones.

a. Me: Juan-cha-**puni-n** mikhun-man ka-rqa-n
Juan-DIM-CERT-3 eat-COND be-PST-3
'Juan must have eaten them.'

Context: You know that his sister is a bit sneaky and that she might have put the bones there after eating the guinea pigs herself:

b. You: Mana Juan-**puni**-chu ka-n-man ka-rqa-n.
not Juan-CERT-POL be-3-COND be-PST-3
'It is not certain that it was Juan.'

In the response in (21b), negation scopes over *-puni*.

In summary, the embedding and scope test with negation show that the three evidentials have to have highest scope and cannot be used descriptively, and that *-man* is clearly a propositional operator (I will therefore not discuss it further in this section). *-puni* is quite similar to English *must* which also generally resits embedding, but which nevertheless is considered a propositional operator.[16] What remains to be shown is that the evidentials are indeed illocutionary operators and to provide further evidence that *-puni* is not. Their behavior in questions and in the assent/dissent test will provide evidence for this claim.

[15]This example must be taken with a bit of caution, and it and other examples of this kind require more testing in the field, which I am hoping to be able to do before the workshop. The speaker who accepted this, did so only rather reluctantly, and would prefer a sentence without *-puni*. When presented with this sentence outside this particular context it would normally be interpreted as 'It certainly wasn't Juan.' Further evidence that *-puni* resists being in the scope of other propositional operators is the fact that it has semantic scope over *-raq* in (20) despite it occupying a morphological slot to the left of *-raq*. In CQ, suffixes and enclitics usually have semantic scope over others to their left (Baker's mirror principle), though see van de Kerke (1996) who discusses a number of other mismatches between morphological order and semantic scope.

[16]Tellingly, researchers who use embedding facts to argue that epistemic modals are truth-conditional often only present examples of embedded possibility modals.

2.3 Test 2: assent/dissent

This test relies on the assumption that only propositional content can be the target of assent/dissent. Papafragou (to appear) has argued that epistemic modals can be assented or dissented with just in case their modal base is scrutable, that is, accessible to the challenger, which is particularly easy to see when a speaker challenges herself.

(22) Clark Kent must be Superman. Wait a minute, no, that's not true: Clark Kent is afraid of heights. So Clark Kent can't be Superman. (Papafragou to appear)

The test applied to the CQ evidentials shows that they cannot be challenged even when the speaker's source of information is accessible. I will give only one example.[17] Suppose I am the only witness to Marya eating all the guinea pigs. If José were then to claim that Marya ate them all using the Direct evidential, as in (23a), I could be sure that his evidential base is not what he indicates it is. If *-mi* contributed to propositional content, one would therefore expect that I could challenge José's evidential claim directly, as in (23b).

(23) a. José: Marya-qa llipin-ta-**n** mikhu-rqa-n.
Marya-TOP all-ACC-BPG eat-PST-3
p='Marya ate all (of them).'
EV: *s* saw that *p*

b. Me: Mana-**n** chiqaq-chu.# Mana-n riku-nki-chu.
not-BPG true-POL not-BPG see-2-NEG
'That's not true. You didn't see it.'

However, despite the evidential base being open to scrutiny in this context, my challenge in (23b) can not access the evidential itself. (23b) can only mean that I deny the truth of Marya eating all the guinea pigs, a reading which is excluded in the given context. I conclude from this that the CQ evidentials are not propositional operators, and, consequently, that they are illocutionary operators.[18]

In contrast, example (21) demonstrates that *-puni* can be challenged.

[17] See Faller (2006b) for a more detailed discussion of this test.

[18] This follows only because these two are the only alternatives considered in this paper. See Faller (2002) for a brief argument against analysing the evidential meaning of these enclitics as presuppositions or implicatures.

2.4 Test 3: Scope with respect to question operator

We expect that illocutionary operators may exhibit scope interactions with other illocutionary operators. Here, I will discuss the illocutionary force indicator for questions. We also expect illocutionary operators themselves not to be part of what is questioned. To start with the latter, consider (24).

(24) Honestly, who has eaten the guinea pigs?

What is being questioned here does not include the honesty of the addressee (not: are you being honest?). Rather, the speaker is requested to give an honest answer. This illustrates what is known as the interrogative flip (Tenny and Speas to appear). In assertions, illocutionary adverbs are anchored to the speaker but in questions they are anchored to the hearer. This is different for epistemic modals:

(25) Who might have eaten the guinea pigs?

In (25), *might* is in the scope of the question operator, the question asks what the possibilities are.

The three CQ evidential enclitics behave like *honestly* in questions: they are not part of the content being questioned, but they can be anchored to the hearer. For example, in (26), the speaker does not ask whether the addressee has reportative evidence, but expects to receive an answer based on reportative evidence.

(26) May-manta-**s** chay runa ka-n-man.
where-ABL-REP this man be-3-COND
'Where could this man be from?' (Itier 1995:290)

The Direct and Conjectural evidentials also participate in this flip. With the direct evidence marker, the addressee is expected to base her answer on direct evidence, with the Conjectural, she is expected to only be able to guess the answer.

In addition, at least the Reportative has a use in which it is still anchored to the speaker, namely when she is asking the question on someone else's behalf. For example, it has often happened in my fieldwork that I asked a question of someone without being understood, and sometimes a third person would repeat the question using *-si*. (27b) is such an example (constructed from memory).

(27) a. MF to consultant's mother-in-law (who is hard of hearing):

Imayna-n ka-sha-nki.
how-BPG be-PROG-2

'How are you?'

b. Consultant to mother-in-law:

Imayna-**s** ka-sha-nki.
how-REP be-PROG-2

'(She says) How are you?'

For this use, *-si* must take the entire question speech act in its scope,[19] clear evidence that this enclitic is an illocutionary modifier. This does, however, not mean that elements which do not have such a use are not illocutionary modifiers (just as the lack of narrow scope with respect to negation does not necessarily mean that an element is not a propositional operator). Thus, despite *honestly* being generally accepted as illocutionary modifier, it does not seem to allow this reading. Similarly, it is not clear what it would mean for the other two CQ evidential enclitics to be anchored to the speaker in questions.[20]

Turning to *-puni*, the following question shows that it can be part of the questioned content.[21]

[19] An English illocutionary adverb which also allows such a use is possibly *sincerely*. For example, *Sincerely, what is it that you dislike about me?* has the flip reading, in which the addressee is asked to give a sincere answer, but it also has a reading, I believe, in which the speaker is indicating that they are sincere in asking the question, that is, they sincerely want to get an answer.

[20] Faller (2002) speculated that *-mi* may express that the speaker has the best possible grounds/authority for asking the question, but I have so far not been able to find examples that would clearly show this. For Conjectural *-chá* I assumed that it is always anchored to the hearer. Most questions with *-chá* appear to be asked without the speaker expecting any answer at all, and are best translated with *I wonder*. An example is given in (i).

(i) Tren, tren, imayna-**chá**? (Valderrama Fernandez and Escalante Gutierrez 1982:31)
train train how-conj

'Train, train, I wonder how (it works).'

[21] The combination of *-puni* with *cheqaq*—'true' confuses things somewhat, and the Spanish translation in the source does not translate *-puni* (*Es verdad que*—'Is it true that'). The point is more clearly made if we modify the example slightly to:

(i) presidente-man-**puni-chu** hayku-nki?
'Are you certainly going to enter as president?'

(28) Cheqaq-pi-**puni-chu** presidente-man hayku-nki?
true-LOC-CERT-POL president-ILLA enter-2
'Is it certainly true that you will enter as president?'
(Valderrama Fernandez and Escalante Gutierrez 1982:34)

This again supports the hypothesis that *-puni* is a propositional operator.

In summary, we have very strong evidence that conditional mood *-man* is a propositional-level operator, and, especially given its behavior in questions, that Reportative *-si* is an illocutionary operator. For the Direct and Conjectural enclitics, the evidence is somewhat less strong due to the lack of a reading in which they take a question act into their scope, but their behavior in the other tests strongly supports an illocutionary analysis for them as well.

The data for *-puni* is perhaps least convincing. It is quite difficult to elicit instances in which the *-puni* is in the scope of negation, and in the examples in which it is embedded, it is not unequivocally used epistemically. Nevertheless, the overall picture emerging for this marker is that it contributes to propositional content.

(29)

	m-performative	**descriptive**
propositional	*-puni*, *-man*	*-puni* (?), *-man*
illocutionary	*-mi, -si, -chá*	—

3 Background on SDRT

In the preceding sections I have adduced empirical evidence to show that the CQ evidential enclitics are illocutionary modifiers, whereas the conditional mood *-man* and the certainty enclitic *-puni* are propositional-level operators. In the following I propose a formalization of the CQ evidentials as illocutionary modifiers within SDRT. I will largely disregard *-man* and *-puni*, given that there already exists a variety of theories of epistemic propositional operators which should be able to accomodate them straightforwardly.

SDRT (Asher and Lascarides 2003) was chosen because it integrates a theory of discourse content and a theory of speech act within a single framework which nevertheless allows for a clear separation of the two levels of meaning. This separation of discourse content and cognitive modeling helps to account for the fact

that sentences containing the Reportative *-si* can connect to the previous discourse with the same rhetorical relations as sentences based on direct evidence, despite the speaker not expressing that she believes p to be true (Faller 2006b).

I assume some familiarity with SDRT, and only briefly summarize its innovations with respect to DRT in as much as they are relevant for current purposes.

3.1 Rhetorical Relations

SDRT adds to discourse representation structures (DRS) representing the propositional content of a discourse rhetorical relations R holding between utterances, resulting in S(egmented) DRSs. For example, the SDRS representing the discourse in (30a) will contain a DRS representing the propositional content that Max fell and that Moritz pushed him, and the rhetorical relation *Explanation*, indicating that the second sentence explains the first one. The two sentences in (30b) are related by *Narration*.

(30) a. Max fell. Moritz pushed him.

b. Max fell. He got up and continued running.

These rhetorical relations have truth-conditional effects. Thus, the semantics of *Explanation* specifies that the event denoted by the second sentence temporally precedes that denoted by the first sentence, while *Narration* contributes the opposite temporal relation to the semantic representation.

Formally, rhetorical relations are represented as relational symbols which take as their arguments *labels*, where "a label will 'tag' the content of a clause and also bigger linguistic units" (Asher and Lascarides 2003:136). Thus, *Narration*(π_1, π_2) says that the rhetorical relation *Narration* holds between two sentences the DRSs of which are labeled π_1 and π_2 respectively. In the standard DRT box notation, an SDRS takes the form in Fig. 1 (where K_{π_n} is the DRS labeled by π_n). The SDRS labeled π_0 can itself become the argument of a rhetorical relation.

Rhetorical relations R may be veridical or non-veridical, where R is veridical iff the following is valid (α, β are variables ranging over labels) (Asher and Lascarides 2003:157):

(31) $$R(\alpha, \beta) \Rightarrow (K_\alpha \wedge K_\beta)$$

That is, if a relation $R(\alpha, \beta)$ is veridical, then the propositions it relates are true (Asher and Lascarides 2003:361). *Narration*, *Explanation*, *Elaboration* etc. are all veridical. Non-veridical relations will not be discussed in this paper. In later

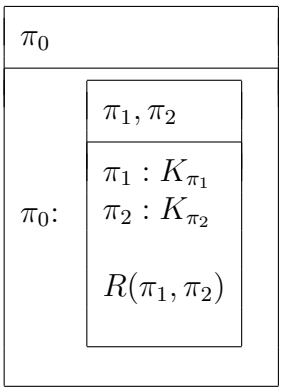

Figure 1: SDRS schema

versions of SDRT, rhetorical relations are conceived of as relational speech acts types, which are subtypes of the traditional speech act types. Thus, *Moritz pushed him* in (30a) is an assertion in the standard sense, but it also explains why Max fell.

3.2 Cognitive modeling in SDRT

The intentions and beliefs of the discourse participants are also modeled within SDRT, but within a separate cognitive module. The cognitive modeling language of SDRT is *shallow* and just powerful enough to allow reasoning about other participants' cognitive states to the extent that they are necessary for interpreting discourse including implicatures (Asher and Lascarides 2003:375ff). It is at this level that intentions associated with speech acts are captured such as the speaker's intention in asserting p that the hearer adopt the belief that p. The cognitive modeling language contains in its vocabulary the belief operators $\mathcal{B}_A$, $\mathcal{B}_B$, etc. and the intention operators $\mathcal{I}_A$, $\mathcal{I}_B$, where the subscripts refer to the discourse participants. (Asher and Lascarides 2003) model a number of claims and observations made in pragmatics, including Grice's Cooperative Principle (Grice 1989:26), and (some of) Searle's components of illocutionary acts. Cooperativity is interpreted by (Asher and Lascarides 2003:391) as the principle of goal or intention transfer, which in the case of assertions amounts to belief transfer, that is, the intention of the speaker that the hearer adopt the belief that p. This is captured by the two default axioms

Sincerity and Competence.[22]

(32) Sincerity:
$R(\alpha, \beta, \lambda) > \mathcal{B}_{S(\beta)} R(\alpha, \beta, \lambda)$

Note that Sincerity is not formulated for isolated speech acts, but for rhetorical relations. (32) says that "if the SDRS that's labeled λ contains the condition $R(\alpha, \beta)$, then $S(\beta)$ [i.e., the speaker of β] believes this" (Asher and Lascarides 2003:397). For veridical relations R, the following monotonic inference is valid:

(33) $\mathcal{B}_{S(\beta)}(R(\alpha, \beta, \lambda)) \rightarrow \mathcal{B}_{S(\beta)}(p_\beta) \wedge \mathcal{B}_{S(\beta)}(p_\alpha)$

This follows from the semantics of the belief operator, which is closed under logical consequence. That is, if one believes ϕ, then one also believes the logical consequences of ϕ. Because veridical relations by definition entail the truth of the propositions they link, one who believes that the relation holds, is thereby also committed to the truth of the related propositions. (33) derives the standard sincerity requirement that the speaker believes an assertion from the 'lifted' Sincerity condition in (32). So, the speaker of (30a) believes that Max fell, that Moritz pushed him (before that), and that Max fell *because* Moritz pushed him.

The speaker's intention of belief transfer mentioned above is modeled by the Competence axiom together with Sincerity (Asher and Lascarides 2003:389):

(34) Competence:
$\mathcal{B}_A \phi > \mathcal{B}_B \phi$
If A believes ϕ (as indicated by what A says), then, normally, B believes ϕ.

This axiom is called *Competence* because belief transfer as a result of verbal communication relies on the assumption that the speaker is competent on the information she conveys. If I tell you that it will be sunny two months from today, you will probably not believe me, knowing that I have no grounds on which to base such a prediction, that is, I am incompetent with respect to this information. But assuming Competence and Sincerity, and assuming that B has no conflicting information, then, normally B will believe what A tells her (cf. Davidson's (1968) notion of charity, cited in (Asher and Lascarides 2003:398)). This, at least, seems to be part of what participants pretend to be happening. Thus, if B does not express disbelief or doubt, then A will normally think that B has adopted the belief that ϕ as a result of her utterance.

[22] Read $A > B$ as "if A then normally B" (Asher and Lascarides 2003:189). Note that rhetorical relations have three arguments, the two SDRS labels that are connected by it, and the label of the bigger SDRS of which the relation is part.

4 CQ evidentials as a cognitive modeling operators

Asher and Lascarides (2003) do not explicitly discuss illocutionary modifiers, but it is not too difficult to see how they could be incorporated into the SDRT framework. Recall from section 3.1 that rhetorical relations take as their arguments labels of DRSs, for example, *Narration*(π_1, π_2). Given that rhetorical relations are speech act types, these labels can in fact be thought of as *speech act discourse referents* (Asher and Lascarides 2003:137). An illocutionary modifier is then simply a linguistic element that puts conditions on such a discourse referent. Fig. 2 shows the condition contributed by the CQ Reportative.[23]

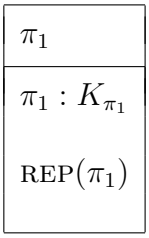

Figure 2: SDRS schema containing the CQ Reportative

The Direct and Conjectural contribute BPG(π_1) and CONJ(π_1) respectively. The contribution of the evidentials is here represented using small caps instead of the italics used for rhetorical relations. This is a typographical device to highlight one fundamental difference between the conditions evidentials put on speech act referents and those introduced by rhetorical relations: evidentials in CQ do not

[23]This approach to evidentials in CQ differs from (Asher 2000) analysis of parentheticals such as *John, Mary assures us/I hear, can be trusted*. In his account, the parenthetical is represented as its own SDRS which is then linked to the SDRS representing the main clause *John can be trusted* with the rhetorical relation *Evidence*. Since *Evidence* as a rhetorical relation is a speech act type this means that a speaker performs two speech acts when using a parenthetical: that of asserting the main clause and its relation to the preceding discourse and that of asserting the *Evidence* relation between the parenthetical and the main clause. Asher appears to intend his analysis of parentheticals to extend also to grammatical evidentials such as the Sissala hearsay particle, and by extension presumably also to the CQ evidentials. However, for CQ evidentials, I see no reason to distinguish such a separate evidential speech act in addition to the main rhetorical relation. If there were such a separate speech act, it should be possible to challenge it but evidential meaning is not challengeable. This is not the place to delve into the issue of what the relationship between grammatical evidentials and parentheticals is, however.

contribute to the truth conditions of the discourse content, but the latter do. Informally, the truth conditions for veridical rhetorical relations R say that "$R(\pi_1, \pi_2)$ is true if and only if K_{π_1}, K_{π_2} and some 'extra stuff' ... are true too" (Asher and Lascarides 2003:157), where the 'extra stuff' is the truth conditional contribution by the rhetorical relation itself such as the requirement that the event described by π_2 occurs after the event described by π_1 for *Narration*. Since the CQ evidentials do not contribute to the informational content, their truth conditions, again informally, simply say that BPG/REP/CONJ(π) is true iff K_π is true. That is, they simply 'pipe through' the truth conditions of their arguments, without adding to them.[24] That is, the semantics of the CQ evidentials is entirely located on the level of cognitive modeling. There are three aspects of cognitive modeling that are affected by the evidentials: (i) the speaker's evidential commitment, (ii) the speaker's sincerity, and (iii) belief transfer, each of which will be discussed in the following subsections.

4.1 The evidential commitment of the CQ evidentials

A speaker using an evidential commits herself to possessing the kind of evidence appropriate for the evidential at the time of speaking. This is, in my view, a type of sincerity: a speaker who does not possess the indicated type of evidence is insincere. In this, I depart from Searle's proposal that having evidence/reasons for p is a *preparatory* condition on assertion. I do so because preparatory conditions are assumed to be presupposed, but evidential meaning is not presupposed (Faller 2002:117f). Moreover, we find an evidential variant of Moore's paradox; a sequence of the form "p-**mi/-si/-chá**, but I didn't see/wasn't told p/am not conjecturing p" is infelicitous in the same way as a sequence of the form "p, but I don't believe p" is infelicitous (Faller 2002:200). I will therefore model the evidential commitments as sincerity axioms using the belief operator $\mathcal{B}$.

The evidential commitment for *-mi* is relatively straightforward: the speaker commits herself to possessing the best possible grounds for α. To capture this I introduce the predicate $Bpg(s, p)$ which is true iff individual s has the best possible grounds for proposition p. For a speaker using *-mi* to be sincere, it is enough that she *believes* that she has the best possible grounds:[25]

(35) Evidential Sincerity Axiom for *-mi*:
$\text{BPG}(\alpha) > \mathcal{B}_{S(\alpha)}(Bpg(S(\alpha), p_\alpha))$

[24] This vacuity appears to be necessary under the assumption that the meaning of any linguistic item must be represented in the SDRS constructed for the sentence it occurs in, even if it doesn't contribute to truth-conditional meaning. Otherwise it could not feed cognitive modeling.

[25] This allows for example for hallucinations to be reported with *-mi*.

What counts as *Bpg* depends in part on the type of event e_α described by α (Faller 2002). In the simplest case, e_α is observable, and then the condition reduces to $\mathcal{B}_{S(\alpha)}(See(S(\alpha), e_\alpha))$

The axiom for the Reportative *-si* is slightly more involved, as the speaker's evidential commitment is that she believes that some speaker S_3 at some point said β, from which α follows, that is, it makes reference to a previous speech act. The cognitive modeling language provides the necessary tools to capture this. It contains the function symbol $Say(\alpha)$, which maps labels into action terms and which "should be interpreted as the action of the utterer of α uttering α" (Asher and Lascarides 2003:387), and the modal operator *Done*, which takes action terms to WFFs," (p. 386), that is, propositions, and which requires that the action denoted by the action term was done. Put together, these two operators express that a speech act of α was performed: $Done(Say(\alpha))$. This expression can be used for capturing the meaning of CQ *-si* as follows:

(36) Evidential Sincerity Axiom for *-si*:
$\text{REP}(\alpha) > \mathcal{B}_{S(\alpha)}(\exists S_3[Done(Say_{S_3}(\beta)) \wedge \beta \rightarrow \alpha])$

Here, S_3 is to be understood to be subject to the condition "$S_3 \neq S(\alpha) \wedge S_3 \neq H(\alpha)$," to capture the fact that it is not normally felicitous to use *-si* to report something the speaker herself had previously said or to repeat something the hearer has said back to her. In the simplest case, $\beta = \alpha$, but it is also felicitous to use the Reportative when α is entailed by what S_3 said. For example, if Marya told me that she was going to Lima next Saturday, and a friend suggested on Saturday that we should go visit her at her home in Cusco, I could answer by saying (37).

(37) Marya-qa mana-**s** wasi-n-pi-chu
Marya-TOP not-REP house-3-LOC-POL
p='Marya's not at home.'
EV: s was told that p

Turning now to Conjectural *-chá*, recall from section 1 that its evidential condition is that the speaker has some reason for considering p possible but no solid evidence, which, following Mackenzie (1987), we can capture with the predicate $Hunch(s, p)$.[26]

[26]Sincerity conditions are generally formulated in terms of belief, and it makes sense to formulate the evidential sincerity conditions of the Direct and Reportative evidentials embedded under the belief operator. This is however less clear for the conjectural, what does it mean to believe that one has a hunch?

(38) Evidential Sincerity Axiom for *-chá*:
$\textsc{conj}(\alpha) > \mathcal{B}_{S(\alpha)}(Hunch(S(\alpha), p_\alpha))$

4.2 The CQ evidentials and Speaker's belief

Having modeled the evidential sincerity commitment of the CQ evidentials, we can now turn to the question how these evidential commitments interact with the Sincerity conditions concerning the speaker's belief regarding the truth of p.

As discussed in section 3.2, Sincerity in its current formulation, repeated here as (39a), directly licenses the inference that the speaker believes the content of the DRS linked by a veridical R, repeated here as (39b).

(39) Sincerity Axioms:
a. $R(\alpha, \beta, \lambda) > \mathcal{B}_{S(\beta)} R(\alpha, \beta, \lambda)$
b. $\mathcal{B}_{S(\beta)}(R(\alpha, \beta, \lambda)) \rightarrow \mathcal{B}_{S(\beta)}(p_\beta) \wedge \mathcal{B}_{S(\beta)}(p_\alpha)$

This Sincerity axiom with its veridicality inferences is adequate for statements with Direct *-mi* or without an evidential, but it is too strong for the two indirect evidentials. A speaker using the Conjectural only expresses her belief that p is possible, whereas a speaker using the Reportative does not express anything about what she believes regarding the truth of p. However, while a speaker using an indirect evidential does not necessarily believe p, she does nevertheless seem to be committed to the rhetorical relation holding. Consider the discourse in (40).[27]

(40) a. Mana-**s** phalay-ta ati-n-chu, ichaqa qucha-man-**si** apa-n-ku
not-REP fly-ACC can-3-POL but lake-ILLA-REP take-3-PL
urqu pata-cha-man.
mountain top-DIM-ILLA
'It cannot fly, but they take it to a lake, to the top of a small mountain.'

b. tanqa-n-ku-**s**, hina-**s** kuntur macha-sqa huk chhikachan-ta phala-n
push-3-PL-REP SO-REP condor drunk-PRT one a.little-ACC fly-3
'They push (it), so the drunk condor flies a little bit.' (Conv)

[27] This is an extract of a larger discourse describing the traditional custom of bull fighting, which uses condors tied to the bull's back. Afterwards, the condor is forced to drink wine in order to make it drunk. The narrator has never herself witnessed these events, and thus uses Reportative *-si* throughout.

It is the speaker's decision to connect the two sentences in (40a) with the rhetorical relation *Contrast* and the ones in (40b) with *Result*.

Thus, it is possible to perform a speech act of narrating, answering, elaborating etc. without believing that the content of the so related sentences is true. Because of the validity of (39), however, commitment to the rhetorical relation cannot be separated from commitment to the related propositional content for veridical relations. Giving up veridicality when the relation is modified by an indirect evidential is not an option, since veridicality is needed to build up the discourse content, which is the same for discourses embedded under any evidential. The separation of discourse content from the speaker's beliefs is precisely the advantage SDRT offers in the analysis of evidentials.

Instead I propose two evidentiality-specific sincerity axioms as follows. For the Reportative, I propose making the speaker's commitment to R conditional on the truth of the proposition (Faller 2006a). The intuitive idea is that we can paraphrase what the speaker of (40b), e.g., is committed to as: "If it is true that the condor flies a little bit (and I am not saying that I believe it to be true), then this is a result of them pushing it." That is, speakers using *-si* are *conditionally* committed to the rhetorical relation and its logical consequences holding. The reportative variant of the Sincerity axiom in (41) captures this.[28]

(41) Belief Sincerity Axiom for *-si*
$R(\alpha, \beta, \lambda) \wedge \textsc{rep}(\beta) > \mathcal{B}_{S(\beta)}(\beta \rightarrow R(\alpha, \beta, \lambda))$

Note that (41) does not substitute the axiom in (39a)—this is still needed for sentences with the Direct or no evidential—but, because it is more specific than (39a), (41) will apply instead of (39a) in cases in which an SDRS contains the

[28]This analysis is to some extent comparable to (Jayez and Rossari 2004) analysis of the French parenthetical *paraît-il*—'I hear' as in (i).

(i) Jean a eu un accident, **paraît-il**
'John had an accident, I hear.'

They argue that it, like other parentheticals, does not contribute to the main proposition expressed p, *John had an accident* in (i), but gives rise to the conventional implicature that the speaker heard that p from some source x. p itself is entered into the common ground under the modal operator AGR, which they gloss as 'If one agrees with x, then p. The account proposed here differs from theirs in (a) that the speaker's commitment to the rhetorical relation holding is made dependent on the truth of α and β, whereas in their account the condition is agreement with a source, and (b) that the conditionality is to be found only at the cognitive modeling level, not the level of discourse content as in theirs.

condition REP(β).[29]

For the Conjectural, Sincerity must be weakened to weak belief, symbolized with $\mathcal{WB}_{S(\beta)}$ in (42).

(42) Belief Sincerity Axiom for *-chá*
$R(\alpha, \beta, \lambda) \wedge$ CONJ(β)$> \mathcal{WB}_{S(\beta)}(R(\alpha, \beta, \lambda))$

A&L (2003:389) give the standard truth conditions for the belief operator $\mathcal{B}$ in terms of possible worlds in (43a). Weak belief can come in various degrees, but for *-chá* to be felicitous it is enough that the speaker believes p to be possible. That is, we can define $\mathcal{WB}$ for our purposes as the existential counterpart of $\mathcal{B}$, as in (43b).

(43) a. $[\![\mathcal{B}_A\phi]\!](w) = 1$ iff for all w' such that $wR_{\mathcal{B}_A}w'$, $[\![\phi]\!](w') = 1$
b. $[\![\mathcal{WB}_A\phi]\!](w) = 1$ iff for some w' such that $wR_{\mathcal{B}_A}w'$, $[\![\phi]\!](w') = 1$

Like its strong belief counterpart, I assume that $\mathcal{WB}$ is closed under logical consequence, that is, if one weakly believes ϕ, then one also weakly believes the logical entailments of ϕ:

(44) $\mathcal{WB}_{S(\beta)}(R(\alpha, \beta, \lambda)) \rightarrow \mathcal{WB}_{S(\beta)}(p_\beta) \wedge \mathcal{WB}_{S(\beta)}(p_\alpha)$

In section 1 I said that the Conjectural *-chá* can often be translated with the English modal *might*, which is usually considered a propositional possibility modal. In Faller (2002) I suggested that this evidential operates on both the illocutionary level (to add the evidential sincerity condition) as well as on the propositional level (to add a possibility operator $\Diamond p$). Such an analysis is problematic for theories which assume a fairly strict division between the two levels, and given the sincerity axiom in (42) is moreover unnecessarily complicated. Krifka (2004) states that weakly asserting p is equivalent to asserting $\Diamond p$, that is, the equivalence in (45) holds.[30]

(45) $\mathcal{WB}_A\phi \Leftrightarrow \mathcal{B}_A\Diamond\phi$

Given (45), an illocutionary modifier that derives a weak assertion such as *-chá* or German *wohl* (Krifka 2004) has the same effect as a propositional-level possibility modal such as *might*.[31]

[29] A&L's Specificity Principle: "one default clue about rhetorical structure is overridden by a conflicting more specific default clue."

[30] This seems intuitively right, though a logician would probably want to see a formal proof.

[31] The corresponding equivalence for $\Box$ and strong assertion does not seem to hold. According to Karttunen (1972:13), a statement with *must*, e.g. *John must have left*, makes a weaker claim than the corresponding nonmodalized statement, e.g. *John has left*.

In speech act theories in the Searlian tradition, an assertion is defined as having the sincerity condition that the speaker believes p. Sincerity conditions can come in different degrees of strength (Searle and Vanderveken 1985), though, and the sincerity axiom just proposed for the Conjectural *-chá* can therefore be taken as defining a weak assertion. However, statements with the Reportative *-si* cannot be taken as weak assertions, as the speaker might not even believe p to be possible. Instead, I propose to consider them subtypes of a more abstract type of speech act which we may label PUT,[32] which stands for putting a proposition forward for being added to the discourse content. Veridical relations such as *Narration, Elaboration, Result* etc. are then all subtypes of PUT, as shown in Fig. 3. Standard assertion

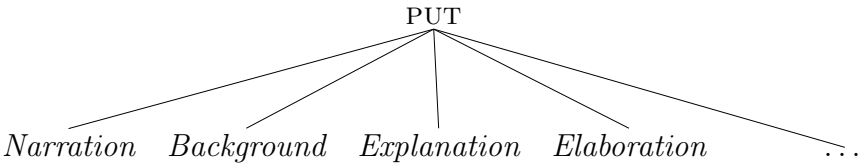

Figure 3: *Isa*-hierarchy of Speech Act Types

is derived from PUT by applying the Sincerity defaults in (39) in the absence of overt indication to the contrary. Illocutionary modifiers such as the CQ indirect evidentials can override this default and trigger the more specific sincerity axioms in (41) and (42) (cf. Zeevat 2003).

The account of evidential-specific belief sincerity conditions associated with the CQ evidentials developed in this section is perhaps somewhat incongruent with claims I made in previous work that the evidentials are *not* epistemic modals (Faller 2002). To reconcile these two positions, we should be able to derive the effect that evidentials have on the speaker's beliefs from their evidential meaning. First note that this problem does not arise for the Direct *-mi* unless we want to say that *-mi* is associated with a stronger belief than an evidentially unmodified assertion. Otherwise, the belief sincerity condition for assertions with *-mi* arises from the default in (39). For the Conjectural, there is a clear connection between type of evidence and belief: speakers who put p forth on a hunch do normally believe p to a lesser degree, thus:

(46) $\quad R(\alpha, \beta, \lambda) \wedge \mathcal{B}_{S(\beta)}(\mathit{Hunch}(S(\beta), p_\beta)) > \mathcal{WB}_{S(\beta)}(R(\alpha, \beta, \lambda))$

[32] As the source for the term PUT I acknowledge Kai von Fintel, who proposed in a talk given at a UMass Linguistics Colloquim in 2003.

However, for the Reportative, the connection is less obvious. We would want a corresponding default inference as follows:

(47) $R(\alpha, \beta, \lambda) \wedge \mathcal{B}_{S(\beta)}(\exists S_3[Done(Say_{S_3}(\gamma)) \wedge \gamma \rightarrow \beta]) > \mathcal{B}_{S(\beta)}(\beta \rightarrow R(\alpha, \beta, \lambda))$

At this point in time, I am not sure that this is a reasonable axiom to have and leave this as an open question.

4.3 The CQ evidentials and Belief Transfer

The third aspect of cognitive modeling affected by the CQ is belief transfer. Recall from section 3.2 that a speaker asserting a veridical relation such as *Narration* is in SDRT, as in other speech act theories, taken to intend her addressee to believe the asserted content p (or at least that the addressee adopt the belief that the speaker believes p). Belief transfer is achieved on the assumption that the speaker is competent on the information conveyed by her utterance. This is modeled in SDRT by the Competence axiom in (34), repeated here as (48), in conjunction with Sincerity.

(48) Competence:
$\mathcal{B}_A\phi > \mathcal{B}_B\phi$

This axiom directly applies to assertions made with *-mi*, which is as it should be. However, it does not apply to sentences with one of the indirect evidentials as its antecedent is not satisfied. One way to look at this is to say that these evidentials are an explicit indication by the speaker that she does not consider herself fully competent on the information in question. In the case of the Conjectural, the speaker expresses a diminished degree of belief that ϕ holds, and her intention can therefore only be that the addressee adopt a weak belief that p. That is, *-chá* triggers a weak belief transfer as in (49).

(49) Weak Competence:
$\mathcal{WB}_A\phi > \mathcal{WB}_B\phi$

In the case of the Reportative, Competence is attributed to someone else. Since a speaker using *-si* does not express what she believes regarding the truth of ϕ, it cannot be her intention that the addressee adopt the speaker's belief. What, then, is the point of making an utterance with *-sí*? First, we can observe that speakers using *-si* are still adhering to Grice's Cooperative Principle:

(50) Cooperative Principle:
Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged. (Grice 1989:26)

Consider for example (51), supposing that neither *A* or *B* have been in Puno before.

(51) A: Apay-man-chu punchu-y-ta.
take-1-COND-POL poncho-1-ACC
'Should I take my poncho?'

B: Nishu-ta-**s** chiri-mu-n Punu-pi.
a.lot-ACC-REP be.cold-CISL-3 Puno-LOC
p='It is very cold in Puno'
EV: *s* was told that *p*

The accepted purpose of this exchange, as established by *A*'s question, is to decide whether or not *A* should take her poncho to Puno. While *B* cannot make any direct claims about the weather there, she is nevertheless being cooperative and trying to contribute to the purpose of the exchange by providing relevant information she has acquired second-hand. One possible outcome of the exchange is therefore that *A* will take a poncho to Puno, that is, it is plausible that *A* will adopt the belief that it is very cold in Puno. In many circumstances, this would indeed be the speaker's intention, but it is not a necessary condition for *B*'s speech act to be successful. Thus, the following English example using *allegedly* for lack of an example in CQ is perfectly coherent.

(52) A: Should I take a poncho to Puno?

B: Well, it can allegedly get very cold there, but I personally can't quite believe that, after all, it's in South America! Mind you, I have never been there myself.

Here, *B* is not intending for *A* to adopt her belief, but is offering *A* a choice, her illocutionary point being to provide *A* with all the available information. A paraphrase of *B*'s intention is therefore: "I believe one thing, but I don't have good evidence for it, so you should also take into consideration what other people have said on the topic." But in other cases the speaker's intention is that the hearer does *not* adopt the belief that *p*, as is for example the case for the first sentence of (53).

(53) a. Pay-kuna-**s** ñoqa-man-qa qulqi-ta muntu-ntin-pi saqiy-wa-n,
(s)he-PL-REP I-ILLA-TOP money-ACC lot-INCL-LOC leave-1O-3

$p1$='They leave me a lot of money.'
EV1: s has a reportative source for $p1$

b. mana-má riki riku-sqa-yki ni un sol-ta centavo-ta-pis
not-IMPR right see-PRT-2 not one Sol-ACC cent-ACC-ADD
saqi-sha-wa-n-chu
leave-PROG-1O-3-POL

$p2$ ='(but) that's not true, as you have seen, they don't leave me one sol, not one cent.'
EV2: s has direct evidence for $p2$ (Conversation)

But even in such a case, Cooperativity is still adhered to: the speaker of (53b) makes clear by her utterance that (53a) containing *-si* was only uttered in order to introduce the claim that they leave her money into the discourse for the purpose of immediately refuting it.

In summary, the speaker intends belief transfer to the addressee to take place in the case of the Direct and Conjectural evidentials, weak belief in the case of the latter, whereas with the Reportative *-si*, it is only her intention to contribute to the purpose of the talk exchange to the best of her abilities.

5 Discussion

The discussion in 2 has shown that the CQ evidentials are illocutionary operators while the certainty enclitic *-puni* and the conditional mood *-man* are propositional operators. It is however by no means a valid generalization to say that evidentiality as a semantic concept belongs to the speech act level and epistemic modality to the propositional level. We have seen that evidentials in other languages (St'átimcets, German) contribute to propositional content and that some epistemic modals (German *wohl*) contribute to the illocutionary level. We can take propositional content to be what the discourse is about, with illocutionary information providing clues to the speaker's attitudes towards that content. Attitudes can of course be made part of what the discourse is about, thus, semantic notions such as evidentiality and epistemic modality are happy on both levels. This calls into question the validity of syntactic frameworks that assign these notions to fixed syntactic positions in a syntactic tree or in a layered structure (Cinque 1999, Hengeveld 1990, van Valin and LaPolla 1997).

I have provided a first formulation of the evidentials as illocutionary modifiers within SDRT which exploits the strict division between modeling discourse content and modeling the speech act participants' attitudes offered by this framework. Illocutionary modifiers bypass the level of discourse content and enter directly into the Cognitive Modeling language. The account developed here proposes a set of evidential-specific sincerity axioms which in turn have an effect on the speaker's sincerity commitments in terms of beliefs. This is just the beginning of a formalization and a lot still needs to be done, both empirically and theoretically. In particular it must be explored how the different sincerity commitments interact when sentences with differing evidentials are strung together via different rhetorical relations. Conceivably, there are restrictions on what combinations are possible. Similarly, the interactions of evidentials with the modal elements needs to be explored and formalized. I have not provided a formalization of *-man* and *-puni*, partly because I assume that they can be accommodated quite straightforwardly in existing theories of epistemic modality, but partly also because more field research is required to determine their precise meaning. Thus, I've said that *-man* marks epistemic modality, and this is certainly a possible interpretation, but how this interpretation arises exactly with what is primarily a mood marker, remains to be investigated. For *-puni* we need more judgments of its scope behavior to be able to analyze it with confidence as a propositional operator.

The notion of m-performativity also requires further study. Is it really necessary or can it perhaps be reduced to something else? How can it be accounted for in SDRT? Should m-performative elements be directly modeled in the Cognitive Modeling language?

It also has to be further explored whether the evidentials really do not have any truth conditional effects, as I have claimed here. One avenue to explore here is modal subordination, as McCready (2005) has shown that the evidential presuppositions of Japanese modals have some interesting effects in this area.

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