

# Evidential scalar implicatures\*

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# 1 Introduction

This paper is concerned with a type of implicature that is induced by the use of reportative evidentials. Reportatives, in addition to specifying the speaker's source of information for a statement as a report by someone else, also usually convey that the speaker does not have direct evidence for the proposition expressed. This implicature, which I will refer to as  $\neg$ DE, is exemplified in (1a)<sup>1</sup> for the Cuzco Quechua (CQ) Reportative enclitic =*si* and in (2) for the German reportative modal verb *sollen*.<sup>2</sup>

- (1) a. Para-mu-sha-n=**si**.  
rain-CISL-PROG-3=REP  
*p*='It is raining.'  
EV=*s* was told that it is raining  
+> *s* does not have direct evidence for *p*
- b. Para-mu-sha-n=**mi**.  
rain-CISL-PROG-3=DIR  
*p*='It is raining.'  
EV=*s* has direct evidence for *p*

- (2) Es soll regnen.  
It should rain.  
*p*='It is raining.'  
EV=*s* was told that it is raining  
+> *s* does not have direct evidence for *p*

This paper develops an analysis of  $\neg$ DE as a conversational implicature (symbolized by '+>') (Levinson 2000) within a broadly Gricean framework. More

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<sup>1</sup>The example sentences in (1) have been constructed to illustrate their basic meaning and the implicature that is the focus of the discussion. Naturally occurring examples will be presented later. The evidential value EV associated with an example sentence is sometimes presented on a separate line from the proposition expressed *p*. Abbreviations: 1: 1st person, 1O: 1st person object, 2: 2nd person, 3: 3rd person, ABL: ablative, ACC: accusative, ADD: additive, AG: agentive, AUG: augmentative, CAUS: causative, CISL: cislocative, COM: comitative, COND: conditional, DIR: direct, DIM: diminutive, DISC: discontinuous, ILLA: illative, IMP: imperative, IMPR: impressive, INCL: inclusive, IRR: irrealis, LOC: locative, NEG: negative, NMLZ: nominalizer, NX.PST: non-experienced past, PL: plural, PP: past participle, PROG: progressive, PST: past, REP: reportative, TOP: topic.

<sup>2</sup>Other indirect evidentials, e.g., Inferenceals, also give rise to this implicature (cf. de Haan (1997)). I assume that the analysis will *ceteris paribus* also be applicable to them.

specifically, I will argue that it is a type of scalar implicature, with the underlying scale being a scale of evidential strength such that direct evidence is stronger than reportative evidence. As illustrated in (1b), CQ possesses an overt direct evidential, though in German there is no corresponding direct modal verb. This difference calls for a slightly different account of  $\neg$ DE in the two languages.

While evidential scalar implicatures can be derived using the same kind of reasoning underlying other scalar implicatures, they require two departures from standard assumptions. First, evidential scalar implicatures differ from the more familiar scalar implicatures in that they do not turn on the notion of informativeness, but instead on the notion of evidential strength. Second, because the CQ evidential enclitics are illocutionary modifiers, the evidential implicatures are also located at this level. I therefore propose to generalize the Q-principle in terms of illocutionary strength, which translates into informativeness when applied to at-issue content, and into strength of the conditions on speech acts such as evidential sincerity conditions when applied to illocutionary meaning.

The paper is structured as follows. The relevant evidentials will be introduced in more detail in Section 2. Section 3 supports the claim that  $\neg$ DE is a conversational implicature. As the analysis to be proposed relies on assumptions about what speech acts evidential utterances give rise to, section 4 summarizes the argument of Faller (2002b) and Faller (2007) for analyzing the CQ evidentials as illocutionary modifiers and introduces a revised (partial) taxonomy of speech act types. Section 5 then argues that the  $\neg$ DE-implicature cannot be accounted for by standard formulations of the Q-principle in terms of informativeness. In section 6, a speech act theoretic account of the evidential scalar implicatures will be developed. The paper concludes in section 7 with a brief summary of the main points and a couple of further questions raised by the account.

## 2 Reportative and Direct in CQ and German

The definition of evidentiality adopted in this paper is the encoding of the speaker's grounds for making a speech act, which in the case of assertion corresponds to the speaker's source of information (Faller 2002b).

Evidential contrasts in CQ are marked primarily by a set of enclitics, including two Inferenceals, a Direct and a Reportative (Cusihuaman 2001; Faller 2002b, 2011).<sup>3</sup> The latter two are illustrated with naturally occurring examples in (3).

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<sup>3</sup>It should be noted that while other varieties possess a similar set of evidential enclitics (Floyd 1997; Weber 1986), there is also variation. E.g., Imbabura Quechua does not appear to have a reportative enclitic (Cole 1981:164). Note also that CQ possesses two past tense markers, one of which, *-sqa*, glossed NX.PST, gives rise to indirect evidential readings (see Faller (2004) for an analysis).

- (3) a. Subrina-y-wan=**mi** tiya-sha-n.  
 niece-1-COM=DIR live-PROG-3  
*p*='He is living with my niece.'  
 EV: *s* saw that he is living with her niece. (Conversation)
- b. Mana=**s** phalay-ta ati-n=chu [...] ]  
 not=REP fly-ACC can-3=NEG  
*p*='It cannot fly.'  
 EV: *s* was told that *p* (Conversation)

The precise meaning of the Direct =*mi* (allomorph =*n*) is somewhat variable depending on the type of information conveyed and Faller (2002b) proposes the label “best possible grounds” to capture all its uses. However, in descriptions of observable events such as (3a), =*mi* requires that the speaker acquired *p* by direct perception. Since having direct perceptual evidence may be considered the prototypical type of evidence licensing the use of =*mi* (Floyd 1997), I will continue to refer to and gloss this enclitic as the Direct evidential in this paper. The Reportative =*si* (allomorph =*s*) is used to report what someone else has said.

In German, reportative evidentiality can be expressed by a subset of the modal verbs (see, e.g., Diewald (1999) for an overview) as well as the subjunctive mood (see Fabricius-Hansen and Sæbø (2004) for an analysis). In this paper, only the implicatures associated with the reportative use of the modal verb *sollen* ‘should’, illustrated in (4), will be discussed.<sup>4</sup>

- (4) Er **soll** weite Teile seiner Dissertation aus anderen Quellen abgeschrieben haben.  
 He is said to have copied large parts of his dissertation from other sources.  
 (taz.die tageszeitung, <http://www.taz.de/!68847/>, last accessed 25/7/2012)<sup>5</sup>

German does not possess a modal or other grammatical means for conveying that the speaker has direct evidence. This difference between CQ and German will lead to a slightly different formulation of what is implicated (not having adequate evidence in German, which subsumes not having direct evidence) and how this is accounted for in section 6. For the time being, I will treat them both as ¬DE.

<sup>4</sup>Note that the reportative use of *sollen* is restricted to the present tense. No such restrictions apply to its deontic and epistemic uses (Wiemer 2010:81).

<sup>5</sup>Examples from the internet used in this paper were found with the help of google.de.

### 3 $\neg$ DE as a conversational implicature

The  $\neg$ DE inference arises when the speaker uses an indirect evidential such as a Reportative. For example, the speaker of (3b) conveys that she was told that the condor cannot fly and at the same time that she does not have direct evidence for this. When asked if the speaker of (3b) could have seen that the condor cannot fly in addition to having been told, consultants will say that this is not possible. Moreover, the use of the Reportative suggests that the speaker does not have direct evidence that  $p$  is false either. That is, if the speaker of (3b) had seen the condor fly in addition to being told that it cannot, (3b) would also not normally be appropriate. The same holds for (4a). The proper formulation of the  $\neg$ DE-implicature is therefore that the speaker does not have direct evidence for  $p$  or for  $\neg p$ . Schematically:

(5)  $\text{REP}(p) \text{ +> } \neg\text{DE}(p) \text{ and } \neg\text{DE}(\neg p)$

I will use DE to cover both  $\text{DE}(p)$  and  $\text{DE}(\neg p)$  in the following and only be more specific where relevant. This section argues that  $\neg$ DE is a conversational implicature as opposed to a conventional, that is, linguistically encoded, type of meaning by relying mainly on the cancelation test and by eliminating alternatives.

In the (neo)-Gricean tradition, Conversational Implicatures (CIs) are, from the hearer's perspective, inferences that can be calculated from general principles of rational communication as encapsulated in Grice's Cooperative Principle and Maxims, or reformulations thereof. The cluster of properties that is assumed to distinguish CIs from other types of meanings such as entailments, presuppositions and conventional implicatures includes cancelability, non-detachability and reinforcingability (Horn 2004). None of these properties on its own can however be taken to be necessary and sufficient for distinguishing CIs from other types of meanings. Thus, presuppositions are also defeasible and some CIs are not, some entailments can also be reinforced, and non-detachability is difficult to apply in cases where the triggering element does not have a near synonym (Horn 2004). Indeed, as an anonymous reviewer pointed out, tests based on these properties can only serve as indicators of implicature-status. Ultimately, whether or not an inference is an implicature depends on the necessity of deriving it from Gricean rational principles of communication. Still, especially cancelability has proven a good indicator of implicature-status and it is therefore worthwhile exploring how the  $\neg$ DE implicature behaves in this respect. De Haan (1997:156ff) addresses this question for Dutch *moeten* in its reportative use, arguing that  $\neg$ DE can be canceled by meta-linguistic negation (Horn 1985). Example (6) with German *sollen* is modeled on de Haan's Dutch example (p. 153–154).<sup>6</sup>

<sup>6</sup>De Haan (1997:154) does not use the term meta-linguistic negation but talks instead of "verbal crossing-out", adopting a term coined by (Halliday 1970:333). He considers this to be a discourse

- (6) A: Es soll ein guter Film sein.  
 ‘It is said to be a good movie.’
- B: Es *sóll* nicht (nur) ein guter Film sein, es *íst* ein guter Film.  
 ‘It is not (just) *sáid* to be a good movie, it *ís* a good movie.’

Speaker B in (6) does not deny that Speaker A has reportative evidence for it being a good movie, that is, the negation is not truth-conditional. Instead, it cancels the  $\neg$ DE-implicature associated with *sollen*. As is usually the case with meta-linguistic negation, this requires contrastive intonation, which in this case manifests itself as stress on *sóll* and *íst*.

It is also possible to cancel the  $\neg$ DE-implicature without using meta-linguistic negation, as illustrated in (7) for  $\neg$ DE(*p*).

- (7) Die Standzeit **soll** sehr hoch sein laut Onkels Aussage und die Äste werden überhaupt nicht gequetscht, habe ich auch selbst gesehen.  
 The service life is, according to Uncle’s report, very high and the branches are not crushed at all, I have also seen it myself.  
 (Werkzeug-News.de forum post, <http://www.werkzeug-news.de/Forum/viewtopic.php?p=147095>, last accessed 25/7/2012)

The speaker of (7) indicates in the second clause that he has direct evidence for *p* and thus cancels the  $\neg$ DE(*p*) implicature of *sollen* in the first clause.

A speaker might also indicate both reportative and direct evidence in situations in which these support conflicting propositions, as, for example, in (8).

- (8) bei mir in der Firma **soll** angeblich ein Paket bei mir abgegeben worden sein  
 .... Stimmt nicht. Ich habe das Paket nie gesehen.  
 ‘Reportedly, a parcel was delivered to me at my company .... Not true. I have never seen the parcel.’  
 (Urbia.de forum post, <http://www.urbia.de/archiv/forum/th-3614401/Unterschrift-gefaelscht-Paket-verschwunden-Und-nun.html>, last accessed 25/7/2012)

Here, the speaker reports a claim *p* made by someone else and then asserts that *p* is not true, supporting  $\neg p$  with visual evidence, thereby canceling  $\neg$ DE( $\neg p$ ).

Turning now to the CQ Reportative, it is not possible to negate its  $\neg$ DE implicature with meta-linguistic negation. For example, (9) fails as a meta-linguistic negation of  $\neg$ DE and can only mean that the speaker has reportative evidence for *Pilar didn’t win* and direct evidence for that she won.

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strategy that can be used “for negating elements that normally cannot be negated”. Within the context of implicatures the term meta-linguistic negation is more standard.

- (9) Mana=**s** Pilar llalli-sqa=chu, pay=**mi** llalli-rqa-n.  
 not=REP Pilar win-NX.PST=NEG she=DIR win-PST-3  
*p*<sub>1</sub>=Pilar didn't win. *p*<sub>2</sub>=She won.  
 EV<sub>1</sub>: *s* has a reportative source of information for *p*<sub>1</sub>.  
 EV<sub>2</sub>: *s* has direct evidence for *p*<sub>2</sub> (elicited)

However, the ¬DE-implicature can be canceled more directly also in CQ. The sequence in (10) was spontaneously produced by a woman complaining to my CQ speaking assistant, who has known both the speaker and the people referred to for some time, about the way she was treated.

- (10) a. Pay-kuna=**s** ñoqa-man=qa qulqi-ta muntu-ntin-pi saqiy-wa-n,  
 she-PL=REP I-ILLA=TOP money-ACC lot-INCL-LOC leave-1O-3  
*p*<sub>1</sub>='They leave me a lot of money'  
 EV<sub>1</sub>: *s* has reportative evidence for *p*<sub>1</sub>
- b. mana=**má** riki riku-sqa-yki ni un sol-ta centavo-ta=pis  
 not=IMPR right see-PP-2 not one Sol-ACC cent-ACC=ADD  
 saqi-sha-wa-n=chu  
 leave-PROG-1O-3=NEG  
*p*<sub>2</sub>='(but) that's not true, as you have seen, they don't leave me one sol, not one cent.'  
 EV<sub>2</sub>=*s* has direct evidence for *p*<sub>2</sub> (Conversation)

She first reports that they claim to have given her money, but then goes on to say that this is not true. It is clear that the latter claim is based on direct evidence, though she does not use the direct enclitic =*mi*. Instead the “impressive” enclitic =*má* is used, which can, among other things, express that what follows is a correction of something previously said (Cusihuaman 2001:232).<sup>7</sup> Like (8), (10) cancels the implicature that the speaker does not have direct evidence for ¬*p*. I have no naturally occurring examples of the ¬DE(*p*) implicature being canceled, and attempts to elicit reliable judgments of such cancelations give variable results. For some speakers, cancelations of ¬DE(*p*) are acceptable if the context makes it clear that an answer based on a reportative source is expected, such as in (11). Others are less happy with such examples, commenting that if you have seen it yourself, then there would no reason to use the Reportative.

<sup>7</sup>It is perhaps not implausible that this enclitic might be an emphatic direct evidential, especially in this corrective use, though this has to my knowledge not been claimed or argued for previously.

- (11) a. Ima nin=mi pi=n vaca-ta suwa-ra-n?  
 what say=DIR who=DIR cow-ACC steal-PST-3  
 ‘Who, do they say, stole the cow?’ (elicited)
- b. Juan=si. Ñuqa kiki-y=pis riku-ra-ni suwa-sqa-n-ta.  
 Juan=REP I self-1=ADD see-PST-1 steal-PP-3-ACC  
 ‘Juan (it is said). I even saw him steal it myself.’ (elicited)

Further work with native speakers is needed to establish on firmer grounds whether the  $\neg\text{DE}(p)$  implicature of the CQ Reportative is cancelable.

It is also worth mentioning that the reinforcement test (Sadock 1998) does not give clear results. While the  $\neg\text{DE}$  implicature of *sollen* can be non-redundantly reinforced, as in (12a), this is also possible for its encoded reportative meaning, that the speaker was told *p*, (12b).

- (12) a. **Soll** ein guter Film sein, hab ihn aber selbst noch nicht gesehen.  
 ‘(It) is reportedly a good movie, but I haven’t seen it yet myself.’  
 (New Super Mario forum post, <http://supermario.forumieren.eu/t137p75-lieblings-film>, last accessed 25/7/2012)
- b. Naja, der Versand **soll** ja recht schnell sein (1–2 Tage). Zumindest habe ich das gehört.  
 ‘Well, the shipping is reportedly quite fast (1–2 days). At least that’s what I’ve heard.’  
 (Studis online forum post, <http://www.studis-online.de/Fragen-Brett/read.php?108,963899,page=3>, last accessed 25/7/2012)

Examples like (12b) are completely natural and do not sound redundant, thus confirming Horn’s 1991 claim that the reinforcement test does not distinguish CIs from entailments and presuppositions. The same is true for CQ.<sup>8</sup>

In sum, the cancelation test provides clear support for the implicature status of  $\neg\text{DE}(\neg p)$  for both the German and CQ Reportatives, as well as for  $\neg\text{DE}(p)$  with *sollen*. While it is harder to establish cancelability for  $\neg\text{DE}(p)$  with the CQ Reportative, I assume that it should be treated the same. As mentioned above,

<sup>8</sup>Horn (1991) provides as evidence for this claim examples in which entailments and presuppositions can be non-redundantly reinforced when the reinforcing affirmation rhetorically contrasts with the entailment/presupposition. Such reinforcements therefore usually require the conjunction *but* instead of *and* as in (i).

(i) It’s odd that dogs eat cheese, but they do (eat cheese). Horn (1991:322)

The non-redundant reinforcement in (12b) does not involve a rhetorical contrast, which suggests that a rhetorical contrast is not the only context licensing reinforcement of encoded meanings.



the tests can only serve as indicators of implicature-status, and the real issue is whether deriving an inference from Gricean rational principles of communication is necessary and possible. I will show that this is possible for the  $\neg$ DE-implicature in section 6. Here, I briefly argue that alternative analyses are not viable.

Since the  $\neg$ DE meaning is cancelable, it can not be an entailment or a conventional implicature. The only other plausible analysis is therefore as a presupposition. The usual tests in which a presupposition trigger is embedded under a hole such as negation are difficult to apply, as it is in general not possible to embed reportatives.<sup>9</sup> They can, however, occur in the consequents of conditionals and we can therefore apply the following test: if the consequent of a conditional contains a presupposition trigger, and its presupposition is entailed by the antecedent, then the presupposition does not project (Karttunen 1973: 177). For example, in (13), the NP *Jack's children/Jack's Kinder* in the consequent triggers the presupposition that Jack has children. But because this presupposition is made hypothetical in the antecedent, the presupposition does not project.

- (13) a. If Jack has children, then all of Jack's children are bald.  
 b. Wenn Jack Kinder hat, dann sind alle von Jack's Kindern glatzköpfig.

Applying this test to the  $\neg$ DE inference of German *sollen* as in (14) does not give the same result.

- (14) Wenn ich nicht gesehen habe, dass es geregnet hat, dann **soll** es geregnet haben.  
 'If I didn't see it rain, then it rained reportedly.'

In as much as (14) makes sense at all, the sentence as a whole still conveys that the speaker did not see it rain. Similarly, the  $\neg$ DE inference cannot be bound in the conditional antecedent for the CQ Reportative.

- (15) Mana riku-ra-ni=chu para-ta chayqa para-mu-sha-sqa=s.  
 not see-1-PST-1=NEG rain-ACC then rain-CISL-PROG-NX.PST=REP  
 'If I didn't see it rain, then it rained reportedly.' (elicited)

Moreover, the  $\neg$ DE inference cannot normally be assumed to be taken for granted when using a reportative. For example, in the example about the condor not being able to fly, (3b), section 1, the hearer cannot be presumed to have known already that the speaker does not have direct evidence.

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<sup>9</sup>The German *sollen* can be embedded in the antecedent of an *if*-conditional, see example (37), section 6.3. However, in this example, *sollen* does no longer refer to the speaker's source of information at the time of speaking, but to the hearer's source.

In sum, we can conclude that the best analysis of  $\neg$ DE is as a conversational implicature. In section 5, I will show that this is a scalar implicature, which, however, cannot be accommodated by standard accounts of scalar implicatures. The reason is, at least partly, that evidential meaning in CQ, and arguably also in German (see section 6.3), belongs to the illocutionary level of meaning. Since much of the argument rests on this idea, I will lay out my assumptions regarding speech act theory and the analysis of the evidentials within that framework in the next section. The focus here will be on the CQ evidentials. German *sollen* will be discussed in lesser detail in section 6.3.

## 4 Evidential sincerity conditions and types of speech act

I assume a theoretical framework that recognizes a speech act level of meaning as distinct from the propositional level. This distinction might be captured differently in different frameworks, but since the point of this paper is not to argue for one particular theory of speech acts over another, I will simply adopt basic concepts from Searle's work (Searle (1969); Searle and Vanderveken (1985) and others), which I assume most readers will be familiar with and which seem to be fairly uncontroversial. At the illocutionary level, the components of illocutionary force  $F$ , including felicity conditions, are specified. The two levels of meaning are in a hierarchical relationship such that  $F$  takes the propositional content  $p$  as its argument,  $F(p)$ . Illocutionary force consists, according to Searle and Vanderveken (1985), of six components, but for current purposes, only sincerity conditions are relevant. (16) illustrates how these aspects will be represented with the example of an assertion of *It is raining* by  $s$ .<sup>10</sup> As indicated, assertions have the sincerity condition that the speaker believes the proposition asserted.

- (16) a.  $s$ : "It is raining."  
 b.  $\text{ASSERT}_s(\textit{it is raining})$   
 c.  $\text{SINC: } \{\textit{Bel}_s(\textit{it is raining})\}$

Illocutionary modifiers add conditions to a speech act. For example, the adverb *alas* adds the sincerity condition that the speaker laments that  $p$  (Vanderveken 1990:150), as shown in (17).

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<sup>10</sup>The conventions I adopt are as follows: the proposition expressed is for simplicity given as an English sentence not in logical form. Illocutionary forces and felicity conditions are given in small caps. Speakers and holders of mental states will be indicated as a subscript on the illocutionary force or mental state predicate. Mental states predicates are given in italics.

- (17) a. s: “Alas, he was killed.”  
 b. ASSERT<sub>s</sub>(he was killed)  
 c. SINC: {*Bel*<sub>s</sub>(he was killed), *Lament*<sub>s</sub>(he was killed)}

Faller (2002b) argues at length that the CQ evidential enclitics are illocutionary modifiers that add an evidential sincerity condition. The main arguments for not analyzing them as at-issue operators are that they cannot have scope under an at-issue level operator such as negation or appear in conditional antecedents.<sup>11</sup> This is shown for the Reportative in (18) and (19) respectively.

- (18) Ines=qa **mana-s** qaynunchaw ñaña-n-ta=**chu** watuku-rqa-n.  
 Inés=TOP not=REP yesterday sister-3-ACC=NEG visit-PST-3  
 ‘Inés didn’t visit her sister yesterday.’  
 EV= (i) speaker has reportative evidence that Inés did not visit her sister yesterday  
 (ii) # speaker does not have reportative evidence that Inés visited her sister yesterday  
 (Faller (2002b:221), elicited)

As indicated in (18)(ii), the reading in which the Reportative scopes under negation is unavailable. (19) shows that the Reportative can not scope under *if* either. In fact, it is ungrammatical to put an evidential enclitic inside a conditional antecedents.<sup>12</sup>

- (19) (Sichus) Pidru-cha ña iskay t’anta-ta-ña>(\*-s) mikhu-rqa-n  
 (if) Pedro-DIM already two roll-ACC-DISC-REP eat-PST-3  
 chayqa ama huq-ta qu-y=chu  
 then not other-ACC give-IMP=NEG  
 ‘If Pedro already ate two rolls, don’t give him another one.’  
 (Faller (2002b:221), elicited)

Moreover, at least the Reportative can have scope over an entire question speech act. For example, in (20) the speaker is repeating a question I myself had asked of the addressee just beforehand, because she had failed to understand

<sup>11</sup>The evidential meaning of the CQ enclitics can also not be agreed with or challenged by another speaker. I refer the reader to Faller (2002b) for examples for this test.

<sup>12</sup>An anonymous reviewer suggests that (19) might be felicitous on a factual use of the conditional (Iatridou 1991). While I have not had the opportunity to check this explicitly with consultants, it is my understanding that it is always ungrammatical to insert an evidential enclitic in a conditional antecedent in Cuzco Quechua, regardless of conditional type. Note that the evidential enclitics can occur in the consequent of a conditional.

me. The resulting speech act is still a question, and an answer is expected.<sup>13</sup> That is, it is a question speech act that is being reported, not just a proposition.

(20) Imayna=s ka-sha-nki.

how=REP be-PROG-2

‘(She says) How are you?’ (conversation, reconstructed from memory)

The fact that the Reportative cannot take narrow scope with respect to at-issue level operators but can take wide scope with respect to the question force operator argues for an illocutionary analysis of this evidential, and I will assume the same for the Direct. Faller (2002b) analyzes their evidential meaning as a sincerity condition, and I will here do the same. In particular, I assume that the Direct adds the condition  $Dir_s(p)$  ( $s$  has direct evidence for  $p$ ) and the Reportative adds  $Rep_s(p)$  ( $s$  was told that  $p$ ) (Faller 2002b). See Faller (2011) for a possible worlds semantics of these conditions.

The evidential sincerity condition of the Direct can simply be added to the set of sincerity conditions in the schema for assertions as shown in (21).

(21) a. s: “Para-mu-sha-n=mi.”

b. ASSERT<sub>s</sub>(it is raining)

c. SINC: { $Dir_s$ (it is raining),  $Bel_s$ (it is raining)}

This is however not possible for the Reportative because speakers using the Reportative are not (necessarily) committed to believing  $p$ . They might believe  $p$ , they might believe  $\neg p$ , or they may have no opinion at all on whether  $p$  is true. In (22), the speaker is recounting an early childhood event of which he has no personal memory. Nevertheless, he (presumably) believes that this happened.

(22) Wawa-cha ka-qti-y=qa Qosqo-ta=s bawtisa-chi-q  
 child-DIM be-NMLZ-1=TOP Cusco-ACC=REP baptize-CAUS-AG  
 apa-yu-wa-sqa-ku.

take-AUG-1O-NX.PST-3

$p$  = ‘When I was a baby, they took me to Cusco to be baptized.’

EV:  $s$  was told that  $p$  (Cusihuaman 2001:230)

<sup>13</sup>The Reportative in content questions can also be interpreted as being anchored to the addressee. For example, the speaker of (i) expects the answer to his question to be based on a reportative source.

(i) 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)

This also supports the illocutionary analysis of this evidential, as at-issue elements do not show interrogative flip (Tenny and Speas 2003) behaviour.

In other cases, it is clear from the context that the speaker does not believe  $p$ . For example, in (10a) it is clear from the subsequent discourse that the speaker does not believe that they are leaving her money.

It is also possible that the context does not give any indication as to whether or not the speaker believes  $p$ , and in such cases, nothing is conveyed about the speaker's beliefs. Speech acts with =*si* are therefore unspecified for the speaker's beliefs regarding  $p$ . All of these empirical observations also hold for German *sollen*, that is, declarative sentences containing it do not commit the speaker in any way to  $p$  (Schenner 2009; Mortelmans 2000).<sup>14</sup>

If assertion is defined as having the sincerity condition that the speaker believes  $p$ , as is generally assumed, declarative sentences with such reportatives cannot be considered assertions.<sup>15</sup> Moreover, if we assume that illocutionary modification is monotonic, that is, that a modifier cannot remove or alter a sincerity condition of its argument, the speech act being modified can also not be an assertion.

Faller (2007) therefore suggests that the declarative mood does not indicate assertion, but the weaker speech act of putting forward a proposition into the discourse, PUT for short,<sup>16</sup> which has an empty set of sincerity conditions. From PUT more specific speech acts can be derived by adding further conditions. Thus, standard assertion is derived by adding the sincerity condition that the speaker believes  $p$ , and I will follow Zeevat (2003) in assuming that this condition is added by default, unless there is an illocutionary modifier overriding the default. The CQ Reportative is such a modifier. It applies to PUT and adds the evidential sincerity condition  $Rep_s(p)$ .

- (23) a. s: "Para-mu-sha-n=**si**."  
 b. REP-PUT<sub>s</sub>(it is raining)  
 c. SINC: { $Rep_s$ (it is raining)}

<sup>14</sup>This is not necessarily the case for all reportatives. For example, according to Matthewson et al. (2007), the St'átimcets Reportative requires the speaker to believe  $p$  to be possible.

<sup>15</sup>Similar observations have been made about other types of "assertive" speech acts. Cf. Siebel's (2003:363) comments on *suggesting* and *hypothesizing*: "For both types of acts, it is doubtful that the utterer always expresses the corresponding belief because, on one reading of these expressions, they include cases where he merely presents a proposition to consider its consequences." Siebel suggests that these acts can therefore not be considered assertives.

<sup>16</sup>In Faller (2002b), I used PRESENT(ation) for this type of speech act, but I find putting forward a proposition is a more accurate description than presenting a proposition. As the source for the term PUT I acknowledge Kai von Stechow, who proposed in a talk given at a UMass Linguistics Colloquium in 2003 that one possible way of analyzing epistemic modals involves decomposing ASSERTION into the primary illocutionary force indicator PUT and a modifier. Epistemic modals can then be analyzed as modifiers which apply to PUT and derive stronger or weaker 'assertions'.

As indicated, the resulting speech act is not an assertion but still only a putting forward of a proposition. I will use the label REP(ortative)-PUT to distinguish the resulting speech act from the more general type PUT.

The Direct, too, applies to PUT, adding the evidential sincerity condition  $Dir_s(p)$ . The semantics developed for  $Dir_s(p)$  in Faller (2011) entails that that speaker believes  $p$ , that is, the resulting speech act in this case is an assertion. The diagram in Figure 1 is a partial hierarchy of speech acts of type PUT.

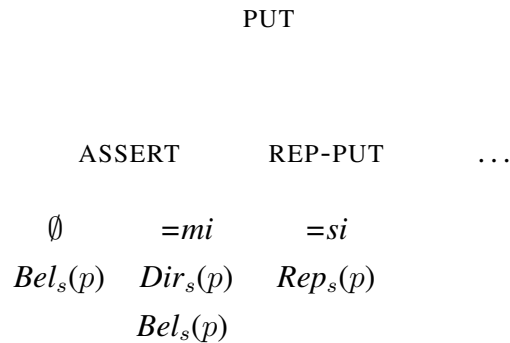


Figure 1: PUT and its subtypes

## 5 $\neg$ DE and the standard recipe

Scalar implicatures are based on scales of linguistic expressions ordered in terms of strength, or Horn-scales.<sup>17</sup> The use of a weaker expression on such a scale implicates the non-applicability of a stronger one. A classical and robust example from English is the implicature from the use of the weak, existential quantifier *some* to the non-applicability of the strong, universal quantifier *all* exemplified in (24a,b). The relevant scale here is (24c).<sup>18</sup>

- (24) a. Cookie Monster ate some of the cookies.  
 b.  $+>$  Cookie Monster didn't eat all of the cookies.  
 c.  $\langle$ all, most, many, some $\rangle$  (Levinson 2000:79)

<sup>17</sup>It is a notational convention to order the items on the scale from strong to weak:  $\langle$ strong, less strong, ..., less weak, weak $\rangle$  as in (24c).

<sup>18</sup>The standard recipe and typical scalar implicatures will be illustrated with English examples to keep things simple. The observations made with respect to them also apply to their German equivalents, and, I assume, also to their CQ equivalents, though I should say that I have not explicitly investigated this for CQ. I would be surprised if scalar terms and implicatures would behave in fundamentally different ways from their English and German counterparts.

The  $\neg$ DE-implicature also relies on a scale: indirect evidence for  $p$  is intuitively weaker than direct evidence (this will be discussed in detail in section 5.3). That types of source of information form a scale is also evidenced by the possibility of scalar modification. E.g., in (6), the German reportative *sollen* can be modified with *nur* ‘only’, emphasizing that reportative is weaker than direct evidence. The scale for the CQ Reportative and Direct is given in (25) (Faller 2002a,b).

(25) <Direct =*mi*, Reportative =*si*>

Thus the use of the Reportative indicates that the speaker is not in a position to use the Direct. This is the general approach taken to implicatures of the  $\neg$ DE-type by previous researchers, e.g., de Haan (1997), Fogelin (1967), Mackenzie (1987) and Peterson (2009). For example, Fogelin claims that *There is some evidence that there is life on Mars* would be misleading in a context in which the speaker is in fact in the possession of incontrovertible evidence (Fogelin 1967:27). In other words, it would implicate that the speaker does not have incontrovertible evidence. A closer look at the way that scalar implicatures are usually assumed to be calculated reveals, however, that evidential implicatures do not neatly fit the standard schema.

## 5.1 The standard recipe

The “standard recipe” (Geurts 2010) for calculating scalar implicatures involves Grice’s (1989:26–27) first maxim of Quantity in (26a), the Quality maxim in (26b), as well as, to a lesser extent, the Relation maxim in (26c) (or some reformulation of these).<sup>19</sup>

- (26) a. Quantity 1: Make your contribution as informative as required (for the current purposes of the exchange).  
 b. Quality: Try to make your contribution one that is true.  
     (i) Do not say what you believe to be false.  
     (ii) Do not say that for which you lack adequate evidence.  
 c. Relation: Be relevant.

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<sup>19</sup>In addition, we have to assume that the Cooperative Principle and the maxims are mutual knowledge. Some researchers, for example, Gazdar (1979), Levinson (2000), and Grice himself, formulate the implicatures in terms of knowledge instead of belief, that is, they would derive  $\neg K_s(q)$  in (27f) and  $K_s(\neg q)$  in (27h).

The schema in (27) represents the hearer's reasoning after an assertion of A(W) by *s* (and is applied to example (24) in parentheses).<sup>20</sup>

- (27) Hearer's calculation of scalar implicatures
- a. *s* asserted A(W) (*CM ate some of the cookies*).
  - b. There is a Horn scale  $\langle S, W \rangle$  ( $\langle all, some \rangle$ ).
  - c. A(S) (*CM ate all of the cookies*) would be relevant to the current purpose of the talk exchange.
  - d. Assumption: *s* is cooperative and adhering to Quality.
  - e. Therefore, it must be the case that asserting A(S) (*CM ate all of the cookies*) would infringe the maxim of Quality.
  - f. Therefore,  $\neg Bel_s(A(S))$  ( $\neg Bel_s(\textit{CM ate all of the cookies})$ ).
  - g. Assumption of Competence:  $Bel_s(A(S)) \vee Bel_s(\neg A(S))$  ( $Bel_s(\textit{CM ate all of the cookies}) \vee Bel_s(\neg \textit{CM ate all of the cookies})$ ).
  - h. Therefore,  $Bel_s(\neg A(S))$  ( $Bel_s(\neg \textit{CM ate all of the cookies})$ ).
  - i. *s* knows that I will reason like this, and must therefore mean to implicate that A(S) (*CM ate all of the cookies*) is false.

The step from (the weaker)  $\neg Bel_s(A(S))$  in (27f) to (the stronger)  $Bel_s(\neg A(S))$  in (27h), which is called the epistemic step by Sauerland (2004), involves the assumption, which is not part of the original Gricean calculation,<sup>21</sup> that the speaker holds a belief with respect to A(S).

There are two issues that arise from applying the standard account to  $\neg$ DE. First, degrees of strength on the relevant scale are usually identified with degrees of informativeness. I will argue in section 5.3 that this cannot be made to fit the scale of evidential strength. Second, it would not make much sense to calculate the  $\neg$ DE-implicature via the beliefs the speaker has about their source of information. This will be the topic of section 6.2, where I will suggest that the competence assumption only plays a role for implicatures that are triggered by at-issue elements.

<sup>20</sup>A(W) stands for a sentence frame A containing a weak scalar term and A(S) for the same sentence frame with a strong scalar term. I also use A(W)/A(S) to stand for the propositions expressed by these sentences.

<sup>21</sup>Grice himself derives as the weak implicature  $\neg K_s(q)$ , which he explains via the second Quality maxim. The apparent infringement of the Q-principle (step (27c)), "can be explained only by the supposition that [*s*] is aware that to be more informative would be to say something that infringed the second maxim of Quality." (Grice 1989:32f). From this, according to Grice, it follows that *s* does not know that *q*. See also Matsumoto (1995:23–25) for a detailed discussion of how Quality 2 derives the weak implicature, and Quality 1 the strong implicature.



## 5.2 Informativeness

The central notion on which Q-implicatures turn is informativeness. This is evident in Grice’s original formulation of Quantity 1 in (26a), as well as most reformulations thereof, e.g., Levinson’s (2000:76) Q-principle.<sup>22</sup>

In the simplest case, the difference in informativeness between two linguistic expressions amounts to an entailment relation between the sentences resulting from plugging in the expressions in the same sentence frame. For example, the proposition *Cookie Monster ate all of the cookies* entails *Cookie Monster ate some of the cookies*, and is therefore more informative. But sets of linguistic expressions that give rise to Q-implicatures are not always entailment scales. For example, *John succeeded in reaching the peak* does not entail *John tried to reach the peak*, as there is no contradiction in *John succeeded without even trying*. Nevertheless, there is an “informational asymmetry” between *succeed* and *try* which results in the latter giving rise to the Q-implicature *John didn’t succeed* (Levinson 2000:98). Q-implicatures may also be induced by sets of linguistic expressions that do not exhibit any type of informational asymmetry, for example, the set of colour terms, {*white, red, blue, ...*}, where none of the alternatives is more informative than any of the others. Nevertheless, as shown in (28), they do give rise to Q-implicatures.

- (28) The flag is white.  
+> The flag is not white and red/blue/green. (Levinson 2000:100)  
+> The flag is white all over. (Harnish 1976)

Informativeness is however still at play in deriving this implicature since the conjunction of two or more colour terms is more informative than just one (Levinson 2000:101). Scales can also be constructed on the fly in a particular context. For example, the set of place names {*New York, Cleveland, Chicago, Denver*} does not form an entailment scale. Nevertheless, in a context in which Robin is traveling from New York westwards, *Robin has made it to Chicago* will Q-implicate *Robin has not made it to Denver*, but will not Q-implicate *Robin has not made it to Cleveland* (Hirschberg 1991). Again, informativeness is still the relevant notion: *Robin has made it to Denver* is more informative than *Robin has made it to Chicago* in the given context. In sum, the scales discussed in the literature that underly Q-implicatures are all ordered in terms of informativeness.

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<sup>22</sup>While Horn’s Q-principle (“Say as much as you can, modulo Quality and R” does not explicitly refer to informativeness, Horn’s explication of it as “a lower-bounding hearer-based guarantee of the sufficiency of informative content” (Horn 2004:13) makes clear that this is the central notion also for him.

### 5.3 Evidentials and informativeness

Informativeness is however not the right ordering criterion for the evidential scale in (29) (repeated from (25)).

(29) <Direct =*mi*, Reportative =*si*>

First note that the kind of informativeness we would be looking at for the CQ evidentials is not to be found at the level of propositional contents; these are exactly the same for *parashan-mi* ‘It is raining (I saw)’ and *parashan-si* ‘It is raining (it is said)’, for example. More generally, evidentials are expressions which do not primarily provide information about the world external to the speaker but about the speaker’s beliefs or attitudes (Traugott 1989). Thus, if informativeness is relevant we would expect to find it in regards to information about the speaker’s beliefs, attitudes, or sources of information. In terms of the latter, there is no informativity contrast between sources *per se*. It is not more informative to know that the speaker has direct evidence than it is to know that the speaker has reportative evidence.<sup>23</sup> We can also not construct a scale along the lines that has been proposed for the colour terms. We might want to say that the use of the Reportative implicates that the speaker does not have reportative *and* direct evidence. However, we would then also expect an implicature from the use of the Direct to the effect that the speaker does not have reportative and direct evidence, and such implicatures do not arise. In cases where the speaker happens to have two types of source of information, they will usually mark the stronger one, namely direct, and nothing is implicated about the non-applicability of the weaker type. Moreover, the relevant scale would have to be <=*mi and si*, =*si*> (cf. the scale <*white and red, white*>). But Q-implicatures are meta-linguistic, that is, they arise from considerations of what other linguistic expressions may have been used. Consequently, the members of the scale must be possible linguistic expressions, not just possible concepts. But =*mi and si* is not a possible linguistic expression: it is never possible for a sentence in CQ to contain two different evidentials, despite the fact that it is possible to have multiple types of sources for a single piece of information.<sup>24</sup> In this respect, the evidential set of alternates is crucially different from the set of colour terms, which can happily occur together in a single sentence, e.g., *The flag is white and red*.

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<sup>23</sup>The two Gitksan evidentials discussed by Peterson (2009) do stand in an informativeness relation: one encodes that the speaker has sensory evidence, the second that the speaker has some kind of evidence, which includes sensory evidence. The first one is therefore more informative.

<sup>24</sup>This seems to be a language-specific fact, not a universal restriction, as it is possible in some languages to combine two evidentials to indicate two different sources for the same proposition (though this seems to be rather rare). E.g., in Qiang, a visual can combine with an inferential to indicate that the speaker first guessed that *p* and later was able to confirm that *p* visually (LaPolla 2003:203f). For such a language, one might be able to derive  $\neg$ DE in terms of informativeness.

Speech acts with the Direct do, however, provide more information about the speaker's beliefs than the corresponding speech acts with the Reportative: the former are assertions and therefore convey that the speaker believes  $p$  to be true, while a speaker using the Reportative does not convey anything about their beliefs regarding  $p$  (see section 4). One might think that this can be used to derive the  $\neg$ DE implicature, because, if we could derive  $\neg Bel_s(p)$ , then  $\neg Dir_s(p)$  would follow: speakers who do not believe a proposition do not have direct evidence for it. However, the scale in (29) cannot be used to derive  $\neg Bel_s(p)$  because it is not a scale of degrees of belief. Scale mates have to be about the same meaning relation (Levinson 2000:80), and, as mentioned before, the stronger element has to be one that could have been used if the speaker wanted to express the negation of the scalar implicature. (29), if taken to be about degrees of belief, fails on both these accounts. First, the Reportative is not about belief. (Neither is the Direct, though the speaker's belief that  $p$  directly follows from its evidential meaning). Second, a speaker who only has reportative evidence but firmly believes that  $p$  could not have used the Direct, unless they also have direct evidence. E.g., if I was told by a trustworthy source that it is raining in Lima and I am completely convinced that this is true, I can still not use the Direct.<sup>25</sup>

That  $\neg Bel_s(p)$  cannot be derived with the scale in (29) fits with the empirical facts. As discussed in section 4, the Reportative does not convey anything about the speaker's belief towards  $p$  and there is no default inference of non-belief associated with it, as shown by examples like (22).

Thus, while it is the case that utterances with the Direct provide more information about the speaker's beliefs than utterances with the Reportative, this asymmetry is not able to derive the  $\neg$ DE-implicature. I therefore conclude that we must abandon the notion of informativeness in the derivation of the  $\neg$ DE. This does not mean that we have to abandon the idea of analysing this implicature as a Q-implicature, but it will require a wider definition of the Q-principle which also encompasses the notion of strength of evidence. It is this notion that intuitively is at the heart of the  $\neg$ DE implicature, not its consequences in terms of beliefs. The next section introduces Vanderveken's (1997) illocutionary version of the Q-principle and shows how the  $\neg$ DE implicature can be derived from it.

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<sup>25</sup>This raises the question how CQ speakers can assert  $p$  if they have only reportative evidence. The answer seems to be that this is not possible in a simple way. The best one can perhaps do is to add a certainty enclitic or follow up a sentence with the Reportative by a statement that explicitly expresses one's belief. Presumably, it is often clear from the context (or perhaps intonation) whether or not the speaker believes  $p$ .

## 6 Illocutionary Q-principle

In section 5, it was argued that the notion of informativeness is not involved in the generation of the  $\neg$ DE-implicature, and that the relevant notion is strength of evidence. Since in all other respects the  $\neg$ DE-implicature is very similar to standard scalar implicatures, it is desirable that they be derived from the same principles. In this section, I show that a reformulation of the Q-principle in illocutionary terms (30) as proposed by Vanderveken (1997) will allow us to achieve this.

- (30) Illocutionary Q-principle: Let your speech act be as strong as required (that is, neither too strong nor too weak) to achieve your current linguistic purposes in the context of each utterance!

At the heart of the revised principle is the reference to *illocutionary strength* instead of informativeness. Illocutionary strength encompasses informative strength, and “Grice’s formulation of the maxim of quantity is just the special case for assertive utterances which aim to be informative” (Vanderveken 1997). For the  $\neg$ DE implicature, the idea is this: the stronger the evidence in support of a proposition, the stronger the speech act. Direct evidence is stronger than reportative evidence, therefore, a statement marked with the Direct is stronger than one marked with the Reportative. A particular instantiation of the general Q-principle is therefore the evidential Q-principle in (31).<sup>26</sup>

- (31) Evidential Q-principle:

Base a speech act of type PUT on as strong a source of information as is required for the current purposes of the exchange.

The  $\neg$ DE implicature of CQ *paramushansi* ‘It is raining (it is said)’, (1a), can then be calculated as in (32).

- (32) Hearer’s calculation of the  $\neg$ DE implicature
- a. *s* put forward that it is raining using the Reportative =*si*.
  - b. There is a scale of evidential strength  $\langle =mi, =si \rangle$
  - c. Knowing that *s* has DE for *p* or for  $\neg p$  would be relevant to the current purpose of the talk exchange.
  - d. Assumption: *s* is cooperative and adhering to the Quality maxim.
  - e. Therefore, it must be the case that putting *p* forward based on direct evidence would infringe the Quality maxim.

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<sup>26</sup>I first proposed a formulation of such a principle in Faller (2002b:76), where I had thought of it as a scalar version of Grice’s second Quality maxim.

f. Therefore,  $\neg\text{DE}(p)$  and  $\neg\text{DE}(\neg p)$ .

This calculation differs from that of typical scalar implicatures (27) in that there is no epistemic step. We get  $\neg\text{DE}_s$  directly without having to make an assumption of competence. This will be further discussed in section 6.2. Note further that the schema in (32) is vague regarding to which of the Quality maxims would be violated. It seems to me that both submaxims could be used to derive the same effect. Indicating that one has direct evidence when one has not would infringe Quality 1. But it would also infringe Quality 2 in that having “adequate evidence” for an assertion based on direct evidence presumably requires having direct evidence. Lastly, (32) assumes that not only an assertion of  $p$  based on DE but also an assertion of  $\neg p$  based on DE would have been relevant. Only if we make this assumption can we derive both  $\neg\text{DE}_s(p)$  and  $\neg\text{DE}_s(\neg p)$ . The assumption is justified, because, if the question under discussion (Roberts 2012) is whether  $p$  holds, either  $p$  or  $\neg p$  will settle this question.

## 6.1 Evidential and illocutionary strength

The main assumption in the evidential Q-principle is that differences in evidential strength lead to differences in illocutionary strength. These two notions will be discussed in more detail in this section. I take relative evidential strength to be a basic notion that cannot be reduced to other types of strength, in particular, informativeness, as argued above. Intuitively, direct evidence is stronger than reportative evidence. If I witness the gardener steal my bike, I have stronger evidence to support the claim that the gardener stole my bike than if I have been told by a colleague that the gardener stole my bike. The reason that direct evidence is a stronger type of evidence than reportative or inferential evidence is that “perceptually grounded beliefs, although not necessarily more likely to be true, are normally assumed to be causally related to the structure of reality; they are thus considered to be our securest form of contact with the world around us (Dancy, 1985, p. 178). By contrast, an inference, although valid, may prove to have been based on incomplete or unreliable premises and may need to be revisited; similarly, the reliability of hearsay depends on the trustworthiness of the reporting source” (Papafragou et al. 2007:257).<sup>27</sup>

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<sup>27</sup>Note that it does not seem to be possible to order subtypes of indirect evidence with respect to each other. That is, it is not possible to order reportative with respect to inferential evidence in general (Faller 2002a). Indirect evidentials of one type also do not normally give rise to implicatures that another indirect type is not applicable. However, in certain contexts, particularized implicatures of this type may well arise. E.g., if the question is what somebody’s own conclusion in light of a set of facts is and they answer using the Reportative, they can be taken to convey that they are not in a position to indicate their own inference. But the converse can also be the case. Thus, such implicatures would not be scalar.

Illocutionary strength is a central notion in the Searle-Vanderveken approach to speech acts (Searle and Vanderveken 1985; Vanderveken 1990). In this approach, illocutionary forces can be derived from others by modifying one of the felicity conditions, with the derived force being either stronger or weaker than the force it is derived from (Vanderveken 1990:148). The *comparative strength* of two illocutionary forces is captured as illocutionary implication: “A force  $F_1$  is *stronger than* a force  $F_2$  when  $F_1$  implies  $F_2$  without being identical with  $F_2$ ” (Vanderveken 1990:148), where “ $F_1$  implies another force  $F_2$  when all speech acts of the form  $F_1(P)$  strongly commit the speaker to the corresponding acts of the form  $F_2(P)$ .” For example, the force of *Alas, he was killed* is stronger than that of *He was killed*, because a speaker who laments that  $P$  (as expressed by *alas*) is committed to the assertion that  $P$  (Vanderveken 1990:150). This definition will not work for the CQ evidentials, however, because an assertion of  $p$  with the Direct is stronger than an act of putting forward  $p$  with the Reportative, but a speaker asserting  $p$  with the Direct is not thereby committed to putting forth  $p$  with the Reportative; direct evidence may be all they have.<sup>28</sup>

We therefore have to allow for differences in relative strength between forces that do not stand in a relation of illocutionary implication. Instead, I propose to define relative illocutionary strength of two speech acts directly in terms of relative strength of individual felicity conditions. For simplicity, I only consider here strength differences for speech acts of type PUT arising from differences in sincerity conditions. The definition in (33) should easily generalize to other types.

- (33) An illocutionary act  $\text{PUT}_1(p)$  with sincerity conditions  $\text{SINC}_1 = \langle s_1^m, \dots, s_1^n \rangle$  is stronger than ( $>$ ) an illocutionary act  $\text{PUT}_2(p)$  with sincerity conditions  $\text{SINC}_2 = \langle s_2^m, \dots, s_2^n \rangle$ , if  $s_1^n > s_2^n$  for some  $n$ , and for all  $n$ ,  $s_1^n \geq s_2^n$ .

An illocutionary act  $\text{PUT}_1(p)$  is stronger than  $\text{PUT}_2(p)$  if it is stronger than  $\text{PUT}_2(p)$  in at least one sincerity condition. Applying this to evidential strength, let  $s^e$  be the evidential sincerity component. Then, asserting  $p$  with the Direct will be stronger than putting forth  $p$  with the Reportative because  $s_1^e = \text{Dir}_s(p) > s_2^e = \text{Rep}_s(p)$ .

We also need to be able to say that asserting  $\neg p$  with the Direct will be stronger than putting forth  $p$  with the Reportative in order to derive the implicature  $\neg \text{DE}(\neg p)$ . If the question under discussion is whether  $p$  is true or not, asserting  $\neg p$  with the Direct is stronger than putting  $p$  forward with the Reportative because

<sup>28</sup>An anonymous reviewer suggests that  $\text{Rep}(p)$  might mean ‘someone believes  $p$ ’. If that were the case, then a speaker using the Direct evidential would be committed to  $\text{Rep}(p)$  as they themselves would believe  $p$ . However, while it might be part of the meaning of the Reportative to attribute a belief to the source of the report, this is not a sufficient condition. Someone needs to actually have said  $p$ .

both  $p$  and  $\neg p$  answer the QUD, but a direct source of information is stronger than a reportative one. This is also the case for differences in illocutionary strength based on other types of sincerity conditions. E.g., *I assert that the moon is made of cheese* is a stronger assertion than *I guess that the moon is not made of cheese*. This is captured in (34).

- (34) An illocutionary act  $\text{PUT}_1(p)$  with sincerity conditions  $\text{SINC}_1 = \langle s_1^m, \dots, s_1^n \rangle$  is stronger than an illocutionary act  $\text{PUT}_2(\neg p)$  with sincerity conditions  $\text{SINC}_2 = \langle s_2^m, \dots, s_2^n \rangle$  if, for some  $n$ ,  $s_1^n > s_2^n$ , and for all  $n$ ,  $s_1^n \geq s_2^n$ .

Together, (33) and (34) capture the observation that the CQ evidentials derive speech acts of differing illocutionary strength due to their differences in evidential strength.

Lastly, a speech act  $\text{PUT}(p_1)$  can also commit the speaker to another speech act  $\text{PUT}(p_2)$  when  $p_1$  “strongly implies”  $p_2$  (Vanderveken 1990:164). That is, if  $p_1$  entails  $p_2$ , then asserting  $p_1$  is a stronger speech act than asserting  $p_2$ . This ensures that the Q-principle in (30) accounts for propositional-level implicatures in the usual way: an assertion of  $p_1 = \textit{Cookie Monster ate all of the cookies}$  is stronger than  $p_2 = \textit{Cookie Monster ate some of the cookies}$  because  $p_1$  entails  $p_2$ .

## 6.2 Implicatures on speaker intentions

As mentioned above, the standard (neo-Gricean) recipe for calculating scalar implicatures includes the so-called epistemic step. A scalar element triggers a primary or weak implicature  $\neg \text{Bel}_s(p)$ . For example, *Cookie Monster ate some of the cookies* implicates that the speaker does not believe that *Cookie Monster ate all of the cookies*. The secondary or strong implicature  $\text{Bel}_s(\neg p)$  (speaker believes that *Cookie Monster did not eat all of the cookies*) requires the additional assumption of expertness or competence, that is, the assumption that the speaker believes  $p$  or  $\neg p$  (Sauerland 2004; van Rooij and Schulz 2004).

That such a two-step process is at work in the derivation of scalar implicatures is supported by the observation that the strong implicature does not arise in contexts in which it is clear that the speaker is not competent. For example, the speaker might say *Cookie Monster ate some of the cookies, but I left the room when he was half-way through the box*. In this situation, there is no implicature to the effect that the speaker believes that he did not eat all, but only to the effect that the speaker believes neither that he did nor that he did not. Applying this two step process to the derivation of the  $\neg \text{DE}$ -implicature, however, seems too complicated and unnecessary. That is, it seems unreasonable to assume that in the first instance, an implicature is derived to the effect that the speaker does not believe that they have direct evidence, from which it is then derived in a second step that

the speaker believes that they do not have direct evidence. One could perhaps assume that the speaker is always competent on their sources of information, and that we therefore always go directly to the strong implicature, but I still would not want to claim that the  $\neg$ DE-implicature requires an appeal to an extra layer of speaker intentions, that is, that the implicature is about the speaker's beliefs about their source of information.

The solution, I believe, lies in being clear about there being two levels of meaning at which the speaker may be said to implicate something, namely the at-issue level and the level of the speaker's intentions, and in clearly distinguishing between the speaker's implicatures and the hearer's calculation of them. The issue then resolves in the following neat way: only implicatures that are triggered on the propositional level require an epistemic step; those that are triggered on the illocutionary level do not.

It is generally accepted that implicatures are part of *speaker* meaning.<sup>29</sup> While the epistemically unqualified implicature  $\neg A(S)$ , e.g., *Cookie Monster didn't eat all of the cookies*, can easily be understood as being meant by the speaker, this is not obvious for the epistemically qualified ones. E.g., according to the standard recipe, the weak implicature of the assertion *Cookie Monster ate some of the cookies* is that the speaker does not believe that Cookie Monster ate all of the cookies, but it seems unreasonable to say that the speaker means *Cookie Monster ate some of the cookies and I don't believe that he ate all* (cf. Atlas (2005:71ff), who discusses this issue at length). What the (competent) speaker means is *Cookie Monster ate some of the cookies and he didn't eat all*. To make this clearer, scalar terms are usually assumed to encode a lower bound and to (loosely speaking) implicate an upper bound. Thus, according to Horn (2004), *some* encodes a lower bound which is paraphrasable as *some if not all* and the implicature it triggers introduces the upper bound *some but not all*. The upper bound is clearly not paraphrasable as *some but I don't believe all* or *some but I believe not all*. These paraphrases mix up the at-issue level of meaning and the level of the speaker's intentions towards the at-issue content, that is, the illocutionary level. Thus, only the strong, epistemically unqualified implicature can be said to be part of what the speaker means.

The speaker's intentions come into play when the hearer reasons about what the speaker means. Thus, from the hearer's perspective, it makes sense to reason thus: "The speaker has asserted  $A(W)$ . Therefore, it is (probably) the case that the speaker does not believe  $A(S)$ ." The hypothesis that the speaker does not believe

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<sup>29</sup> Authors commonly adopt loose talk and say that a sentence  $X$  implicates proposition  $Y$  (Bach 2006; Geurts 2010) or that "*some* implicates *not all*". Such loose talk is to be understood as shorthand for "a speaker asserting sentence  $X$  implicates proposition  $Y$ " and "A speaker asserting a sentence containing *some* implicates the negation of the same sentence with *all* replacing *some*", respectively.



$A(S)$  explains why  $s$  did not make the stronger statement but this does not make it part of what  $s$  meant (Atlas 2005:72). This epistemic qualification of the speaker's implicature is not dissimilar to the epistemic qualification of the speaker's at-issue content. That is, when a speaker asserts  $p$ , the hearer is entitled to infer that the speaker believes  $p$ , but this is not part of what the speaker meant. This is of course just the sincerity condition on assertions.

I therefore introduce a distinction between two types of speaker implicatures: (i) p-implicatures are the standard ones that arise on the at-issue level of meaning; (ii) i-implicatures arise on the level of speaker intentions. The epistemically qualified implicatures are then i-implicatures.

The two types are related in that, usually, the calculation of p-implicatures will be via the calculation of i-implicatures: having calculated  $Bel(\neg A(S))$ , the hearer can in a next step infer that the speaker's p-implicature is  $\neg A(S)$ . Thus, a speaker asserting *Cookie Monster ate some of the cookies* conveys as a sincerity condition that they believe that Cookie Monster ate some of the cookies, and i-implicates that they do not believe that Cookie Monster ate all of the cookies. When the speaker is (known to be) competent on  $p$ , they also i-implicate that they believe that Cookie Monster did not eat all of the cookies and thereby also p-implicates that Cookie Monster did not eat all of the cookies.<sup>30</sup>

As, under this view, we have different levels at which implicatures arise, we also have different types of scales involved. The starting point in calculating a scalar implicature is the level of speech act. A speaker who performs a weaker speech act implicates that they are not in a position to make a stronger speech act,<sup>31</sup> that is, we are dealing with scales of speech acts, e.g.,  $\langle \text{ASSERT}_s(A(\text{all})), \text{ASSERT}_s(A(\text{some})) \rangle$  or  $\langle \text{ASSERT}_s(p), \text{REP-PUT}_s(p) \rangle$ . A speech act may be stronger than another speech act because its propositional content entails that of the second speech act or because one of its felicity conditions is stronger. This

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<sup>30</sup>This raises the question whether a speaker who is not competent on  $p$  is implicating anything at all. They would certainly not p-implicate anything. A non-competent speaker who asserts *Cookie Monster ate some of the cookies* cannot be taken to have introduced an upper bound on *some*. As discussed in Geurts (2010:39), Pouscoulous (2006) argues that the primary implicature is properly formulated as  $\neg Bel_s(p) \wedge \neg Bel_s(\neg p)$  (at least from the speaker's perspective), which amounts to "possibly  $p$ , possibly not  $p$ ". But this does not add anything to the original beliefs expressed by the assertion: the sincerity condition is that the speaker believes that Cookie Monster ate some of the cookies, which leaves open the possibility that he ate all and the possibility that he did not eat all. The weak implicature also says that he possibly ate all and possibly he did not. If we require implicatures to add further content to the content of the assertion, at whatever level, then it is not clear that without competence we have an implicature even at the level of intentions.

<sup>31</sup>I call this implicature an i-implicature as well, as at this point, I do not see the necessity to distinguish between implicatures that arise from different felicity conditions. For now, I consider them all illocutionary implicatures, and this label can then easily also be used for the level of the entire speech act.

then gives us scales of propositional contents, e.g.,  $\langle A(\text{all}), A(\text{some}) \rangle$ , and of felicity conditions, e.g.,  $\langle \text{Dir}_s(p), \text{Rep}_s(p) \rangle$ .<sup>32</sup> Both types of scale may map onto scales of linguistic items, at which point we have reached our well-known Horn-scales, e.g.,  $\langle \text{all}, \text{some} \rangle$  or  $\langle =\text{mi}, =\text{si} \rangle$ .

Returning now to the question of the epistemic step and whether or not it is relevant in the calculation of the  $\neg$ DE-implicature, I surmise that the assumption of competence is only relevant when the implicature is triggered by a scale at the propositional level. The  $\neg$ DE-implicature arises not from differences in the at-issue content but from differences in the sincerity conditions. Since the propositional level is not at play (the two members of the relevant scale  $\langle \text{Dir}_s(p), \text{Rep}_s(p) \rangle$  have the same propositional content), the speaker's competence with respect to the proposition expressed is also not relevant.

### 6.3 The second maxim of Quality and the German evidential implicature

The evidential implicature of German *sollen* in (35a) can be derived along roughly the same lines, though further adjustments are required due to the fact that German does not possess a direct evidential modal.<sup>33</sup>

Following de Haan (1997:156) on Dutch *moeten*, I assume that the stronger alternative to the sentence with the reportative modal is its modally unmarked indicative counterpart, as indicated in (35b).

- (35) a. Es soll ein guter Film sein.  
       'It is supposedly a good movie.'  
       +> speaker does not have adequate evidence for saying that it is a good film.
- b. *Es ist ein guter Film* > *Es soll ein guter Film sein*  
       'It is a good movie' > 'It is supposedly a good movie'

Because unmarked indicative sentences in German do not necessarily convey that the speaker has direct evidence, the implicature triggered by *sollen* is actually wider than  $\neg$ DE, and also includes that the speaker does not have convincing reports from trustworthy reportative sources. For example, suppose there is a

<sup>32</sup>For simplicity, I hold one of these dimensions constant. That is, when comparing degrees of strength for sincerity conditions, I hold the propositional content constant, when comparing the strength of propositional contents, I hold the felicity conditions constant. It is not clear to me what happens when both dimensions are varied simultaneously.

<sup>33</sup>At least not of the same form class or with the same degree of grammaticalization as *sollen*. Ehrich (2001) considers certain constructions with the perception verbs *sehen* 'see' and *hören* 'hear' evidentials.

meeting scheduled and Mo's partner calls me to say that she cannot attend because she is sick. In German, I would excuse her at the meeting simply by saying *Mo ist krank* 'Mo is sick'. If I were to say *Mo soll krank sein* I would be implying that I do not trust the source enough to assume responsibility for asserting *Mo ist krank*.<sup>34</sup> This contrasts with CQ, where I would have to use the Reportative in such a situation. The evidential implicature in German is therefore better formulated as 'I do not have evidence that convinces me enough to commit myself to the truth of *p*'. But this is of course just the negation of Grice's second Quality maxim, "Do not say that for which you lack adequate evidence" (Grice 1989:27).

To make the analysis work along the same lines as developed for the CQ –DE, I propose that we treat Quality 2 in the same way as Quality 1 ("Do not say what you believe to be false" (Grice 1989:27)) and add it as a sincerity condition by default to the speech act of assertion.<sup>35</sup> This move is justified as we can observe a parallel case of Moore's paradox for this condition, that is, (36b) seems just as bad as (36a).<sup>36</sup>

- (36) a. Moore's Paradox:  
       #It's raining and I don't believe that it is.  
       b. Evidential version of Moore's Paradox:  
       #It's raining and I don't have adequate evidence for it.

Thus, the relevant scale of sincerity conditions for calculating the German scalar evidential implicature is  $\langle AdEvid_s(p), Rep_s(p) \rangle$ .

This analysis raises two issues. The first has to do with what restrictions we impose on Horn-scales, the second with the assumption that German reportative *sollen*, like the CQ Reportative =*si*, contributes a sincerity condition  $Rep_s(p)$ . I will address these in turn.

The items on Horn-scales are usually assumed to be constrained to be "of the same form class, in the same dialect or register, and lexicalized to the same

<sup>34</sup>This implicature, if that is what it is, is not always present. For example, news reports are often reported with *sollen*, and there is generally no implication that the source is not considered trustworthy. See also Mortelmans (2000) for arguments that *sollen* cannot generally be assumed to express doubt.

<sup>35</sup>Searle (1969:66 and subsequent work) reformulates Quality 2 as the *preparatory* condition "S has evidence (reasons etc.) for the truth of *p*." Preparatory conditions are presuppositions, however, and I am not convinced that this is the right analysis. The speaker takes on a commitment that they have adequate evidence for *p* in asserting *p*, that is, this (public) commitment does not exist before the assertion is made even though the evidence itself does. This is exactly parallel to belief: in most cases the speaker will believe *p* before asserting *p* and this is not analyzed as a preparatory condition.

<sup>36</sup>Atlas (2005:69) argues that Moore's paradox sentences show that  $Bel_s(p)$  is not cancelable, and that it is therefore not an implicature. Similarly then,  $AdEvid_s(p)$  itself should not be considered an implicature.

degree” (Levinson 2000:79). But there is no lexical scale mate for *sollen* of the same form class and lexicalized to the same degree with the meaning ‘adequate evidence’. However, Horn himself allows for scales where the stronger alternative is unmarked. For example, of modal scalars he says:

If you tell me that X is possibly true, I will infer you don’t know it’s true, [...]. The use of the weak [...] proposition licenses the inference that the speaker was not in a position to use the *basic unquantified, unmodalized proposition* [my emphasis] that unilaterally entails it (Horn 2004:15).

Thus, a speaker who asserts *possibly(p)* implicates the negation of the belief sincerity condition of assertion, and my claim that a speaker who asserts *sollen(p)* implicates the negation of the evidential sincerity condition of assertion is exactly parallel.

What does not seem to be possible is a scale where the weaker term is unmarked and the stronger term is less economical:

[...] but if you tell me that X is true [...], I will not infer you don’t know it’s necessarily true. [...] the use of the basic propositional form does not Q-implicate the negation of its strong counterpart (Horn 2004:15).

Again, this is mirrored by the postulated evidential scale. A speaker asserting *Es ist ein guter Film* ‘It is a good movie’ does not implicate that they do not have direct evidence (which is stronger than adequate evidence). Thus, the evidential scale proposed here for German *sollen* is in good authoritative modal company.

Turning now to the second issue in the analysis of German *sollen*, I need to justify the assumption that it contributes the sincerity condition  $Rep_s(p)$ . Formal analyses of *sollen* usually assume that it is an at-issue level operator as in its deontic modal use (Ehrich 2001; Schenner 2009). Evidence for this claim is the fact that *sollen* can be embedded in *if*-clauses and can then be interpreted as scoping under *if* (Schenner 2009), see (37) below. However, embedding is not completely free, e.g., *sollen* always takes wide scope over negation. In main clauses, the evidential meaning of *sollen* does not contribute to the at-issue content, and would have to be located in another dimension of meaning.<sup>37</sup> Moreover, Schenner (2009) observes that in the embedded cases, either the embedding predicate itself is used parenthetically, the embedded proposition is discourse-old/echoes a prior speech act, or constitutes an indirect question. The latter two cases suggest that we might

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<sup>37</sup>Schenner (2009) proposes that this dimension is presupposition, whereas Schenner (2010) explores the possibility that it is a conventional implicature.

be dealing with embedded speech acts or at least descriptions of speech acts, allowing us to maintain that *sollen* contributes (the description) of an evidential sincerity condition. These observations are compatible with an analysis that claims that *sollen* can have both illocutionary as well as descriptive uses, not unlike adverbs like *frankly* (Krifka 2001).<sup>38</sup> I will therefore assume that reportative *sollen* is used as an illocutionary modifier which contributes an evidential sincerity condition when unembedded. When semantically embedded, it is used descriptively and contributes to the at-issue content. One consequence of this analysis is that in the latter cases *sollen* would not contribute an evidential sincerity condition. We therefore also do not expect it to trigger an evidential implicature. This is indeed the case.

- (37) Wenn es über Nacht regnen soll ... lassen Sie den Platz auf keinen Fall trocken und locker liegen.  
'If it is said to rain over night ... do under no circumstances let the arena lie dry and loose. (Reiten in Karben, <http://www.reitverein-karben.de/seite2.htm>), last accessed 15/03/06)

In (37), *sollen* does not refer to the speaker's source of information and there is therefore no suggestion that the speaker does not have adequate evidence for whether it will rain or not. Instead, the focus is on the addressee's likely source for what the weather will be like. In sum, while no strong evidence has been presented for analyzing the evidential meaning of *sollen* as a sincerity condition, such an analysis is compatible with the empirical facts and allows for easy comparison to be made between its implicature and that of the CQ Reportative, the main point of this paper.

## 7 Conclusion

This paper has developed an analysis of the evidential scalar implicature that can be observed with reportatives. The main point was to argue for an illocutionary version of the Q-principle which allows for scalar implicatures that turn on notions other than informativeness. The evidential implicatures discussed are based on the notion of evidential strength. The exact content of this scalar evidential implicature depends on the inventory of evidentials a language has. In CQ, which

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<sup>38</sup>Krifka (2001) gives (i) and (ii) as examples of the illocutionary and the at-issue use of *frankly* respectively.

- (i) A: Quite frankly, I hate broccoli.
- (ii) A said quite frankly that he hates broccoli.

possesses a Direct evidential with which the Reportative can be contrasted, the implicature is  $\neg$ DE. In German, which does not have a direct, the relevant scalar alternative is bare assertion. I've argued that bare assertions have an evidential sincerity condition of the speaker having adequate evidence for  $p$ , and the implicature of the German Reportative is therefore that the speaker does not have adequate evidence.

The illocutionary Q-principle is formulated in terms of illocutionary strength, of which evidential strength is only one subtype. We would therefore expect to find illocutionary implicatures of different kinds, involving other components of the illocutionary force. Such implicatures have indeed been discussed in the literature. For example, we get scalar implicatures resulting from expressions encoding different degrees of the speaker's beliefs. Thus, *I guess that  $p$*  implicates that the speaker was not in a position to assert  $p$ , either because they only weakly believe  $p$ , or because they do not have adequate evidence that would allow them to assert  $p$  (Fogelin 1967:73; Mackenzie 1987). Krifka (2004) analyzes the German adverbs *wohl* and *sicherlich* as “downtoners” and “uptoners” of assertions, that is, as de- and increasing illocutionary strength respectively. As predicted by the Q-principle, (38a) Q-implicates that the speaker is not in a position to assert (38b).

- (38) a. Es wird **wohl** regnen.  
       ‘It will probably rain.’  
        $+\rangle$   $s$  is not certain that it will rain
- b. Es wird **sicherlich** regnen.  
       ‘It will certainly rain.’

This paper has been concerned with the question of implicatures arising at the illocutionary level. What would be interesting to explore in the future is the question of what happens when an at-issue scalar occurs in the scope of an illocutionary scalar. For example, what implicatures do we expect to arise from a weak quantifier in a reportative sentence such as (39)?

- (39) Cookie Monster soll ein paar Kekse gegessen haben.  
       ‘Cookie Monster allegedly ate some cookies.’

In using the Reportative, the speaker essentially “signs away” their claim to competence on  $p$  (Faller 2007), thus, we would not expect for the strong implicature *Cookie Monster didn't eat all of the cookies* to arise, at least not as part of the current speaker's meaning. But do we even have the weak implicature that the speaker does not believe that Cookie Monster ate all? It seems to me that the answer to this is ‘no’, as reportative utterances simply do not tell us anything about

the speaker's beliefs. This is predicted by the current analysis, as the set of sincerity conditions of reportative utterances does not contain any belief conditions. Whether this prediction is borne out requires further empirical study.

As a last point, I would like to briefly address the question of how the evidential meaning component of English *must* might be derived as an implicature within the current approach. Von Fintel and Gillies (2010) analyze the evidential meaning of *must* as the speaker's privileged information, which includes direct evidence and reports from trustworthy sources, not directly settling the question of *p*. They analyze this as a presupposition, but note that an implicature analysis would in principle be preferable. They do not pursue this alternative because "the bare assertion of [p] does not convey that the truth of [p] is known directly or through trustworthy reports. After all, it is perfectly felicitous to say that it is raining (instead of that it must be raining) upon seeing wet rain gear. So, in the absence of an appropriate stronger competitor, a derivation of the indirect inference signal carried by *must* via conversational implicature reasoning cannot get off the ground." (p. 368). Still, I think this alternative to the presuppositional account of *must* is worth exploring. The account developed here would say that the relevant competitor is the evidential sincerity condition associated with bare assertion that the speaker has adequate evidence, as argued for the German *sollen* above. What counts as adequate evidence differs from context to context, speaker to speaker. Indeed, von Fintel and Gillies (2010) themselves recognize this when they give the following example: the majority of people would be happy to assert *It is raining* upon seeing the rain, whereas "a professional epistemologist, even when on vacation in Seattle, might be tempted to say: Well, I am getting the kind of visual input that is only consistent with rain, so it must be raining." (p. 370). Thus, in choosing *must* over the bare assertion in a situation where the speaker sees wet rain gear (or even the rain itself) the speaker would thereby convey that they do not consider the wet rain gear (or rain itself) to be adequate evidence to assert *It is raining* in that particular context. In contrast, a speaker who is happy to assert *It is raining* in this same context would consider the wet rain gear to be adequate evidence.

In sum, I hope that the account developed in this paper of evidential illocutionary scales and of Grice's second Maxim of Quality as a (default) sincerity condition has wider applicability than to the particular evidential elements discussed.

## References

Atlas, Jay David. 2005. *Logic, meaning, and conversation*. Oxford: Oxford University Press.

- Bach, Kent. 2006. The top 10 misconceptions about implicature. In *Drawing the boundaries of meaning*, ed. Betty Birner and Gregory Ward, volume 80 of *Studies in Language Companion Series*, 21–30. Amsterdam: John Benjamins.
- Cole, Peter. 1981. *Imbabura Quechua*. London: Croom Helm.
- Cusihuaman, Antonio. 2001. *Gramática Quechua: Cuzco-Collao*. Cuzco: Centro de Estudios Regionales Andinos “Bartolomé de las Casas”, second edition.
- Dancy, Jonathan. 1985. *An introduction to contemporary epistemology*. Oxford: Blackwell.
- Diewald, Gabriele. 1999. *Die Modalverben im Deutschen*, volume 208 of *Germanistische Linguistik*. Tübingen: Niemeyer.
- Ehrich, Veronika. 2001. Was *nicht müssen* und *nicht können* (nicht) bedeuten können: Zum Skopus der Negation bei den Modalverben des Deutschen. In *Modalität und Modalverben im Deutschen*, ed. Reimar Müller and Marga Reis, volume 9 of *Linguistische Berichte Sonderhefte*, 149–176. Hamburg: Buske.
- Fabricius-Hansen, Catherine, and Kjell Johan Sæbø. 2004. In a mediative mood: the semantics of the German reportive subjunctive. *Natural Language Semantics* 12:213–257.
- Faller, Martina. 2002a. Remarks on evidential hierarchies. In *The construction of meaning*, ed. David Beaver, Stefan Kaufmann, Brady Zack Clark, and Luis Casillas, 89–111. Stanford: CSLI Publications.
- Faller, Martina. 2002b. Semantics and pragmatics of evidentials in Cuzco Quechua. Doctoral Dissertation, Stanford University.
- Faller, Martina. 2004. The deictic core of “non-experienced past” in Cuzco Quechua. *Journal of Semantics* 21:45–85.
- Faller, Martina. 2007. The Cusco Quechua Reportative evidential and rhetorical relations. In *Endangered languages*, ed. Andrew Simpson and Peter Austin, volume 14 of *Linguistische Berichte Sonderhefte*, 223–251. Hamburg: Buske.
- Faller, Martina. 2011. A possible worlds semantics for Cuzco Quechua evidentials. In *Proceedings of Semantics and Linguistic Theory 20*, ed. David Lutz and Nan Li. Ithaca, NY: CLC Publications.
- von Fintel, Kai, and Anthony S. Gillies. 2010. Must ... stay ... strong! *Natural Language Semantics* 18:351–383.



- Floyd, Rick. 1997. *La estructura categorial de los evidenciales en el Quechua Wanka*. Lima: Ministerio de Educación. Instituto Lingüístico de Verano.
- Fogelin, Robert John. 1967. *Evidence and meaning*. London: Routledge and Kegan Paul.
- Gazdar, Gerald. 1979. *Pragmatics: Implicature, presupposition, and logical form*. New York: Academic.
- Geurts, Bart. 2010. *Quantity implicatures*. Cambridge: Cambridge University Press.
- Grice, Paul. 1989. *Studies in the way of words*. Cambridge: Harvard University Press.
- de Haan, Ferdinand. 1997. *The interaction of modality and negation*. New York: Garland.
- Halliday, M. A. K. 1970. Functional diversity in language as seen from a consideration of modality and mood in English. *Foundations of Language* 6:322–361.
- Harnish, R. 1976. Logical form and implicature. In *An integrated theory of linguistic ability*, ed. T. Bever, J. J. Katz, and T. Langendoen, 313–392. New York: Crowell.
- Hirschberg, Julia. 1991. *A theory of scalar implicature*. New York: Garland.
- Horn, Laurence R. 1985. Metalinguistic negation and pragmatic ambiguity. *Language* 61:121–174.
- Horn, Laurence R. 1991. Given as new: when redundant affirmation isn't. *Journal of Pragmatics* 15:313–336.
- Horn, Laurence R. 2004. Implicature. In *Handbook of pragmatics*, ed. L. Horn and G. Ward, 3–28. Oxford: Blackwell.
- Iatridou, Sabine. 1991. Topics in conditionals. Doctoral Dissertation, MIT.
- Itier, César. 1995. *El teatro Quechua en el Cuzco*. Cuzco and Lima: Centro de Estudios Regionales Andinos “Bartolomé de las Casas” and Institut Français D'études Andines.
- Karttunen, Lauri. 1973. Presupposition and linguistic context. *Theoretical Linguistics* 1:182–194.

- Krifka, Manfred. 2001. Quantifying into question acts. *Natural Language Semantics* 9:1–40.
- Krifka, Manfred. 2004. Semantics below and above speech acts. Handout of talk presented at Stanford University.
- LaPolla, Randy J. 2003. *A grammar of Qiang*, volume 31 of *Mouton Grammar Library*. Berlin: Mouton de Gruyter.
- Levinson, Steven C. 2000. *Presumptive meanings: The theory of generalized conversational implicature*. Cambridge: MIT Press.
- Mackenzie, Jim. 1987. I guess. *Australasian Journal of Philosophy* 65:290–300.
- Matsumoto, Yo. 1995. The conversational condition on Horn scales. *Linguistics and Philosophy* 18:21–60.
- Matthewson, Lisa, Henry Davis, and Hotze Rullmann. 2007. Evidentials as epistemic modals: evidence from St’át’imcets. *Linguistic Variation Yearbook* 7:201–254.
- Mortelmans, Tanja. 2000. On the ‘evidential’ nature of the ‘epistemic’ use of the German modals *müssen* and *sollen*. In *Modal Verbs in Germanic and Romance Languages*, ed. Johan van der Auwera and Patrick Dendale, volume 14 of *Belgian Journal of Linguistics*, 131–148. John Benjamins.
- Papafragou, Anna, Peggy Li, Youngon Choi, and Chung-hye Han. 2007. Evidentiality in language and cognition. *Cognition* 103:253–299.
- Peterson, Tyler. 2009. Pragmatic blocking in Gitksan evidential expressions. In *Proceedings of the 38th Meeting of the North East Linguistic Society*, volume 2, 219–232. Amherst: GLSA Publications.
- Roberts, Craige. 2012. Information structure: Towards an integrated formal theory of pragmatics. *Semantics and Pragmatics* .
- van Rooij, Robert, and Katrin Schulz. 2004. Exhaustive interpretation of complex sentences. *Journal of Logic, Language, and Information* 13:491–519.
- Sadock, Jerrold M. 1998. On testing for conversational implicature. In *Pragmatics—critical concepts*, ed. Asa Kasher, volume IV, 315–331. London: Routledge.
- Sauerland, Uli. 2004. Scalar implicatures in complex sentences. *Linguistics and Philosophy* 27:362–391.

- Schenner, Mathias. 2009. Semantics of evidentials: German reportative modals. In *Proceedings of ConSOLE XVI*, ed. Sylvia Blaho, Camelia Constantinescu, and Bert Le Bruyn, 179–198. Leiden: Universiteit Leiden.
- Schenner, Mathias. 2010. Evidentials in complex sentences: Foundational issues and data from German and Turkish. In *Evidence from evidentials*, ed. Tyler Peterson and Uli Sauerland, 183–220. Vancouver: University of British Columbia.
- Searle, J. R., and Daniel Vanderveken. 1985. *Foundations of illocutionary logic*. Cambridge: Cambridge University Press.
- Searle, John R. 1969. *Speech acts*. Cambridge: Cambridge University Press.
- Siebel, Mark. 2003. Illocutionary acts and attitude expression. *Linguistics and Philosophy* 26:351–366.
- Tenny, Carol, and Peggy Speas. 2003. Configurational properties of point of view roles. In *Asymmetry in grammar*, ed. Anna Maria Di Sciullo, 315–343. Amsterdam: John Benjamins.
- Traugott, Elizabeth Closs. 1989. On the rise of epistemic meanings in English: an example of subjectification in semantic change. *Language* 65:31–55.
- Vanderveken, Daniel. 1990. *Meaning and speech acts, vol. 1. Principles of language use*. Cambridge: Cambridge University Press.
- Vanderveken, Daniel. 1997. Formal pragmatics of non literal meaning. In *Linguistische Berichte Sonderheft*, ed. E. Rolf, volume 8, 324–341. Opladen: Westdeutscher Verlag.
- Weber, David J. 1986. Information perspective, profile, and patterns in Quechua. In *Evidentiality: The linguistic coding of epistemology*, ed. Wallace Chafe and Johanna Nichols, 137–155. Norwood: Ablex Publishing Corporation.
- Wiemer, Björn. 2010. Hearsay in European languages: toward an integrative account of grammatical and lexical marking. In *Linguistic realization of evidentiality in European languages*, ed. Gabriele Diewald and Elena Smirnova, volume 49 of *Empirical Approaches to Language Typology*, 59–129. Berlin: de Gruyter.
- Zeevat, Henk. 2003. The syntax semantics interface of speech act markers. In *Proceedings Diabruck, 7th Workshop on the Semantics and the Pragmatics of Dialogue, Wallerfangen*.