The dynamics of evidentials in questions

Diti Bhadra

Abstract

This paper presents a novel cross-linguistic exploration of the phenomenon of Interrogative Flip at the semantics-pragmatics interfaces. Most previous studies describe an obligatory shift in the anchor of an evidential from the speaker to the addressee in interrogatives, across a diverse set of languages. In this work, we discuss a lesser-studied set of facts, which show that in many languages this shift does not take place. Bringing together diverse cross-linguistic data, this paper proposes that evidentials comes in two shapes: those that participate in Interrogative Flip, and those that do not. The difference between the two classes is located in a formal property, and all attested evidential systems are shown to fall in either class, even those that appear to allow for 'mixed' anchors. This work also forges a novel association between evidentiality and bias, arguing that the lack of the Flip results in biased questions. The multifarious contributions of evidentials are modeled in a 'judge'-sensitive semantics, aided by a dynamic pragmatic scoreboard based on novel refinements within the notions of commitment and sourcehood. The predictions of the semantic typological claim are explored, and the analysis is shown to be able to account for a heterogenous array of data.

1 Introduction

Central to the understanding of the concept of a speech act is the notion of an *epistemic authority*, i.e. the person who has primary authority over the validity of the proposition expressed. Simply put, in an assertive speech act, the epistemic authority is taken to be the speaker, while in an interrogative speech act[1], the epistemic authority lies with the addressee.[2]

[1]By using this terminology, I am making a distinction between clause type and speech act, since the lack of a straightforward correlation between the two has been well-studied (Bolinger 1957, Bartels 1999, among many others.). For e.g. an interrogative clause type can serve as an assertion/exclamation – *Are you crazy?*, while the force of asking for information can appear with a non-interrogative clause type – *Tell me whether John eats fish*. For the rest of the paper, the terms 'interrogative'/'question' by themselves will be used to mean the speech act only; reference to clause type will be explicitly specified as such. I thank an anonymous reviewer for asking for clarification on this issue.

[2]This simple characterization of a 'canonical' interrogative excludes several kinds of 'non-canonical' (cf. Dayal 2016: Chapter 8) questions that have been studied as serving different pragmatic functions, such as quiz questions, rhetorical questions, self-directed questions, biased questions, etc. I discuss the latter three in Sections 6.2 and 7. Canonical interrogatives are where the speaker is truly ignorant of the answer, and thus is not an epistemic authority.

This over-arching property of a speech act predicts that when perspective-sensitive elements are embedded in them, the perspective of these elements align with the epistemic authority's. A robustly attested phenomenon that embodies this alignment is *Interrogative Flip*, argued to exist in numerous languages that allow evidentials to occur in questions: Newari (Hale 1980), Wintu (Schlichter 1986), Tibetan (Garrett 2001), Cuzco Quechua (Faller 2002), English (Speas and Tenny 2003), Japanese (Tenny 2006), Magar (Grunow-Harsta et al. 2007), Tsez (Comrie and Polinsky 2007), Cheyenne (Murray 2010), Korean (Lim 2011, Lim and Lee 2012), Turkish (Meriçli 2016), Kalmyk (Brosig and Skribnik 2018), TuparÃ (Singerman 2018). Consider two representative examples from Cheyenne and Korean, respectively (parentheses and emphasis added):

(1) Cheyenne (Murray 2010: 6.10, 6.3)

a. *É-némene-**sėste** Floyd* speaker-oriented
3-sing-rpt.3sg Floyd
'Floyd sang, **I hear**.'

b. *Mó=é-némene-**sėste** Floyd?* addressee-oriented
y/n=3-sing-rpt.3sg Floyd
'**Given what you heard**, did Floyd sing?'

(2) Korean (Lim and Lee 2012: 2a-b)

a. *John-i ne-lul chac-**te**-ra* speaker-oriented
John-nom you-acc look.for-dir-decl
'John looked for you.'

b. *John-i ne-lul chac-**te**-nya* addressee-oriented
John-nom you-acc look.for-dir-q
'Did John look for you$_i$ (given **your**$_i$ direct evidence)?'

The evidentials *sėste* and *te* are anchored to the speaker in the assertions (1a, 2a), but crucially switch to the addressee in the questions (1b, 2b). This shift in perspective is obligatory in all of the languages mentioned above, irrespective of what flavor of evidentiality is being expressed (direct, reportative, inferential, conjectural, etc (Willett 1988)).[3]

With respect to the evidential, the shift in perspective correlates directly with authority: in the assertion, the proposition is evaluated against the evidence of the speaker; in the question, it is the addressee's evidence that is being invoked. This is the phenomenon of Interrogative Flip (henceforth, IF), which is the result of the epistemic authority of the speech act subsuming the authority of the contained perspectival element. I call all questions containing evidentials *evidential questions*, for ease of exposition.

[3]The convention of capitalizing the names of the categories of evidentials was coined by Willett (1988) and I follow the literature in using this convention wherever applicable.

This paper will undertake an investigation of languages where evidentials *do not* flip in questions, with two objectives: (i) to provide a formal explanation of what determines the presence versus absence of IF cross-linguistically, and (ii) to argue for a novel formal relationship between the lack of IF and the presence of *bias* in questions. The primary representative languages will be Bangla (Indo-Aryan; India, Bangladesh; also known as Bengali) and Telugu (Dravidian; India), but the non-trivial predictions of the theoretical claims proposed will be discussed from a diverse cross-linguistic perspective. The data below demonstrates the lack of IF with the two Bangla evidentials *naki* and *bujhi*:

(3) Bangla

a. *Ram-ke naki bonobaash-e pathano ho-cche?*
Ram-dat naki exile-loc send happen-prog
'(I heard) Ram is being exiled, (is that true)?'
'(Given what you heard), is Ram being exiled?'

b. *Ram-ke bujhi bonobaash-e pathano ho-cche?*
Ram-dat bujhi exile-loc send happen-prog
'(I infer) Ram is being exiled, (is that true)?'
'(Given what you infer), is Ram being exiled?'

The anchor of the evidential remains oriented to the speaker even in the interrogatives, and does not shift to the addressee, as shown by the unavailability of the addressee-oriented interpretation.

From an empirical standpoint, *naki* and *bujhi* are not alone. San Roque et al. (2017) provides a list of languages that purportedly do not shift their evidentials in interrogatives. Let us call such languages Non-Flip languages (henceforth, NF languages), and the evidential questions in these languages Non-Flip Interrogatives (henceforth, NFIs.). Some attested NF languages are Eastern Pomo (McLendon 2003), Yukaghir (Maslova 2003), Sochiapam Chinantec (Foris 1993), Bora (Aikhenvald 2004), Shipibo-Konibo (Valenzuela 2003), Jarawara (Dixon 2004). Two representative examples from these languages are given below (emphasis added):

(4) Eastern Pomo (McLendon 2003: 55)
When seeing a bead drill and a grinding stone out:
*t'a=ma dawÃ-**ne**?*
inter=2sg.agent drill.beads-**infer**
'Are you drilling beads (given what **I** infer)?'

(5) Shipibo-Konibo (Valenzuela 2003: 32)
*Mi-n-**mein**-ki a-ti iki?*
2-erg-specl-int do.tr-inf cop
'Would you perhaps do it (the **speaker** is speculating)?'

Though empirically rich, these works do not proffer any formal suggestions regarding the lack of IF in these languages. This paper attempts to contribute to the understanding of this important gap, and proposes a formal implementation of the crucial differences between languages with and without IF.

An important disclaimer needs to be provided at the outset: what is meant by an evidential-containing "question/interrogative" will be refined in this paper. The term will be extended to cover all utterances with interrogative *force*, i.e. all utterances that seek to elicit an immediate corresponding response from the addressee. The main typological explanandum will rest on declarative clauses with an ↑ operator (which has interrogative force) and interrogative clauses with Q (which also have interrogative force). This presence of interrogative force is what is taken to be the common denominator among IF and NFI constructions, and what enables the comparative inquiry undertaken in the paper. IF and NFI constructions are thus argued to differ in their clause types (interrogative vs. declarative, respectively) but be similar in their force (interrogative). Sections 4.2, 5, 6 – all take this issue up in greater detail, and lay out the theoretical and typological ramifications.

The paper is organized as follows: Section 2 lays out the empirical domain of the phenomenon; Section 3 and 4 put forth the main proposal - the semantics and a modified dynamic pragmatics framework, respectively; Section 5 explores crucial interactions with the Q operator; Section 6 formally lays out the typological claims in detail; Section 7 forges a vital link with biased questions; Section 8 provides an in-depth comparison with a previous analysis of IF and NFIs; Section 9 concludes.

2 Empirical domain

Tournadre and Dorje (1998) describe the function of an evidential in a question as the instantiation of the 'rule of anticipation' whereby it anticipates what the hearer would use in her reply. San Roque et al. (2017) describes the phenomenon of IF as "the most common pattern for evidentials cross-linguistically" (pp. 128). This view is found in several places in the literature, and consequently several formal accounts of IF have been proposed. Garrett (2001) views questions as functions that obligatorily make the hearer's perspective, and hence an evidential in a question anchors to the hearer. Faller (2002) argues that evidentials take the answer speech act as their argument, raising the expectation that the hearer's answer is based on that specific type of evidence. Murray (2010) analyzes evidentials in questions as constrainers of the possible answers – the common ground is assumed to contain only those worlds where the addressee has the required flavor of evidence for one of the answers to the question. Lim and Lee (2012) argue that evidentials are functions from propositions to characters and introduce a bound variable over contexts. This property enables evidentials to overwrite the utterance context with one in which the bound variable can only be saturated by the hearer. Korotkova (2016) strongly emphasizes the claim that it is only the IF reading that is found in information-seeking questions given the general pragmatics of such questions themselves, and cross-linguistic non-Flipped readings are not truly non-Flipped. These formal accounts are able to capture IF paradigms in different languages. However, from the generality

of the claims in these works, one does not find any explanatory views proffered about the existence of languages where evidentials do not flip, or about what mechanisms might be at play in such languages. For simple reference, in order to engage with the claims of this body of literature, I will call it the *majority view*. The view that this paper will espouse will be of a different nature: evidentials come in two shapes, i.e. they may or may not trigger IF. Under this view, it is an explicit claim that both IF and NF languages have an equal probability of existence. For simple reference, I call this view the *median view*. The difference between IF and NF languages will be derived formally, with the focus being placed on the formal semantic and pragmatic properties of the evidentials themselves. In addition, it will be shown that the median view can predict the presence of as well as account for languages that allow evidentials to have 'mixed' perspectives, i.e. both the IF reading and some flavor of a speaker-oriented reading as well as forge a link with bias. Overall, the median view will be argued to have a greater variety of demonstrably accurate cross-linguistic predictions.

2.1 NFIs are not self-directed questions

Proponents of the majority view mention that in certain restricted contexts, IF languages do permit speaker-oriented interpretations of evidentials in interrogatives. Crucially, however, such questions function as self-directed questions, and are not real information-seeking questions. The speaker does not expect the addressee to provide an answer, and does not invoke the addressee's evidence base. Consider the representative examples from Tibetan and Cheyenne below.

(6) Tibetan (Garrett 2001: p. 231)

a. *Both questions muttered under one's breath:*
Nga sha za-gi-yin-pas
I meat eat-[ego-fut]-Q
'Shall I eat meat?'

b. *Nga-la lde-mig yod-pas yod*
I-loc key [ego-elpa]-Q [ego-elpa]
'Do I have the keys? Yes, I do.'

(7) Cheyenne (Murray 2010: p. 75)
TÃ³ne'Å¡e Ã©-ho'eohtse-sėste
when 3-arrive-rpt.3sg
i. 'Given what you heard, when did he arrive?'
ii. 'He arrived sometime, I wonder when.'

In this Cheyenne *wh*-question, in addition to the IF interpretation in (i), the speaker's self-directed interpretation in (ii) is also present. In neither of the speaker-oriented interpretations in Tibetan and Cheyenne above is a real answer from the addressee expected.

Questions with evidentials in NF languages stand in sharp contrast to the pattern above. Such questions are always true information-seeking (though not unbiased) questions where the addressee is expected to provide an answer to drive the discourse forward. The interpretation can be paraphrased in the following manner: 'I (the speaker) have *x* type of evidence for the proposition *p*; can you (the addressee) confirm that *p* is true?'. Given the usual not-at-issue nature of an evidential statement (cf. Potts 2005; Faller 2002, Matthewson et al. 2007, Murray 2010, Lee 2012), the request for confirmation only targets the at-issue content - the proposition - and not the evidential qualification. In (3) above, we saw the Bangla patterns. Consider the following examples from Telugu, which mirrors the Bangla facts in both reportative and inferential flavors of evidentiality:

(8) Telugu (Rahul Balusu, p.c.)

a. *Ram roojuu taagutaaDu* ***eemiti****?*
Ram everyday drinks INFE
'(I infer) Ram drinks everyday, (is that true)?'

b. *Ram roojuu taagutaaDu* ***anTa****?*
Ram everyday drinks REP
'(I heard) Ram drinks everyday, (is that true)?'

Thus, the addressee is expected to confirm the truth of the proposition, irrespective of the speaker's declaration of possession of each type of evidence. Crucially, no reference is made to the type of evidence the addressee has. The addressee could have perceptual, reportative, inferential, conjectural, or no evidence in each case (i.e. a felicitous response can be *I don't know* or *No idea*), but is still considered qualified by the speaker to answer the question.

2.2 NFIs do not demand answer parallelisms

This complete lack of a demand on the evidence type of the addressee is another crucial point of difference between NF and IF languages. Murray (2010) reports that when an addressee responds to a question formed with the interrogative clitic *mÃ³=* that contains an evidential, the answer has to contain that specific evidential too. Thus, the evidential in the question determines the evidential in the answer. This property is reflected in a multitude of other languages (Tibetan (Garrett 2001), Duna, Foe, Tariana, Gitksan, Tuyuca (San Roque et al. 2017), TuparÃ (Singerman 2018), among others). In the representative Cheyenne example below, (10a) is a felicitous answer to the question in (9), while (10b) is not.

(9) Murray (2010): (6.2)
*Mó=é-némene-****sèste*** *Floyd?*
y/n=3-sing-rpt.3sg Floyd
'Given what you heard, did Floyd sing?'

(10) a. *HÃ©he'e Ã©-nÃ©mene-**sèste***
yes 3-sing-rpt-3sg
'Yes, he sang, I hear.'

b. # *HÃ©he'e Ã©-nÃ©mÃ©ne-∅*
yes 3-sing-dir
'Yes, he sang, I'm sure.'

In contrast, the answers to the NFI constructions in (3) above can contain different evidential qualifications, as well as be a bare proposition/polarity particle.

(11) A few possible responses to the questions in (3):

a. *Haan, tai toh dekh-lam.*
yes, that emph see-1p.perf
'Yes, that is what I saw.' (direct perceptual evidence)

b. *Haan / Haan, tai toh sun-lam.*
yes yes, that emph hear-1p.perf
'Yes. (no evidential qualification) / Yes, that is what I hear.' (indirect hearsay evidence)

There is another striking point of difference between IF constructions and NFIs. The latter in languages like Bangla and Telugu are obligatorily *biased*, i.e. the questioner considers one answer to be more likely than the other. This property makes these NFIs fundamentally non-neutral assertions which cannot occur in neutral contexts.[4] For example, the *naki*-NFI is infelicitous in the absence of any evidence:

(12) #Ram has been sitting in a windowless room for several hours. Sita enters, Ram asks her:
Baire brishti por-che **naki?**
outside rain fall-prog infe
Intended: '(I infer) it's raining outside, (is that true)?'

Telugu evidentials pattern the same way.

In languages with evidentials that do undergo IF, the prediction would be that they would be able to occur in contexts where the questioner's evidence is not relevant at all, but where the entire focus is on the hearer's evidence. This set-up fits the standard definition of a neutral context. This prediction is borne out, as shown below with a representative example from Tibetan:

(13) Garrett (2001): (6.6)
bkra.shis za.khang-la phyin-song-ngas
Tashi restaurant-loc go-dir.past-q
'Did Tashi go to the restaurant?'

[4]The definition of a 'neutral' context that this paper is assuming is the one standardly followed, as formulated in Buring and Gunlogson (2000). The authors define a neutral context as one in which, when a question is being posed, none of the propositions in the denotation of the question are favored. No likelihood assumption or presupposition about the answers are expressed on the part of the speaker.

Garrett (2001, p. 229) explicitly mentions that the speaker's question above presupposes that the addressee has direct evidence that Tashi has either gone or not gone to the restaurant, and expects the addressee to provide the answer on such an evidential basis. The speaker's evidence or which answer they consider to be more likely based on any evidence plays no part in the discourse here. This direct point of contrast is an important empirical fact that any theory of IF has to capture. The median view is able to account for both the lack of answer parallelisms as well as the presence of bias. I undertake an exploration of bias in Section 7.

Discussion of the issues of tentative commitment and bias lead us directly to a special linguistic form called 'rising declaratives' which have been argued to involve similar notions. Based on surface similarities in form and meaning that the next section describes, one could level the claim that NFIs are simply rising declaratives, and as such not say much more. I argue that such an equivalence cannot be defended, RDs and NFIs are not functionally equivalent.

2.3 NFIs are not Rising Declaratives

2.3.1 An omnipresent form

Rising Declaratives (henceforth, RDs) in Germanic languages have been well-studied (Ward and Hirschberg 1985, Gunlogson 2004, Gunlogson 2008, Poschmann 2008, Lauer and Condoravdi 2012, Westera 2013, Northrup 2014, Krifka 2014b, Malamud and Stephenson 2015, Farkas and Roelofsen 2015). Consider the exchange below, where (a), (b) and (c) are different discourse moves by Max:

(14) *Laura just entered the room, where Max sees her for the first time that day. Max says:*

a.	Did you get a haircut?	polar question
b.	You got a haircut?	rising declarative
c.	You got a haircut.	falling declarative

(Gunlogson 2008: 8-9)

(14a) is a simple polar interrogative in English, marked by Subject-Aux inversion as well as a rising intonation – both characteristics of a simple interrogative.[5] (14c) is a simple declarative sentence in English with a falling intonation and no Subj-Aux inversion – both characteristics of a simple assertion. The utterance in (14b) combines one characteristic each from the other two - it has a declarative syntax like (14c) but also has rising intonation like (14a), and functions as an interrogative.[6] In the extensive body of literature pertaining to the study of RDs, there

[5]The rising intonational contour has been termed as often being a response-elicitor (cf. Pruitt and Roelofsen 2013, Nilsenová 2006).

[6]Note that RDs are to be kept separate from Conjectural Questions, such as in (15). Littell et al. (2010) argue that Conjectural Questions are syntactically and semantically questions, but have the pragmatic force of an assertion. They are also close to Rhetorical Questions in often not requiring an answer, and are also infelicitous in contexts where the addressee can be assumed to know the answer - both clear differences from RDs.

is a consensus that RDs have two properties:[7] (i) they signal a tentative commitment[8] towards the alternative corresponding to the sentence radical, (ii) they undisputedly function as biased questions, where the speaker expects the alternative in the sentence radial to be more likely to be true than its counterpart.

An NFI, which is a non-flipped interrogative containing an evidential, shares with English RDs the property of being non-neutral. However, to be maximally clear on the relationship between RDs and NFIs, I will maintain a two-fold claim:

(16) a. NFIs are similar to RDs in so far as they both express tentative commitment and bias of the speaker towards the proposition.

b. NFIs are different from RDs in so far as the means of deriving this tentative commitment and bias are concerned.

In what follows, this bifurcation in properties will be the main reason behind arguing for the view that NFIs are not equivalent to RDs.

In RDs, the birth of the tentative commitment itself is usually attributed to the presence of evidence (linguistic or non-linguistic), while the tentativeness stems from the fact that the speaker is dependent on the addressee for the ratification of the speaker's inference. The 'interrogative' effect associated with RDs, thus, comes about from the 'confirmational' flavor introduced by the rising intonation on a syntactically declarative form.

RDs also involve bias. One formulation of this property is in Farkas and Roelofsen (2015) who argue that in uttering an RD, the speaker expresses a bias towards the alternative corresponding to the sentence radical. In the framework of Inquisitive Semantics (Ciardelli et al. 2013, building on Hamblin 1973, Karttunen 1977, Groenendijk and Stokhof 1984, Kratzer and Shimoyama 2002, Simons 2005, Alonso-Ovalle 2006, Aloni 2007), this sentence radical holds a special place. A polar question (henceforth, PolQ) such as *Did Ram leave?* has the two familiar Hamblinian alternatives: $\{p, \neg p\}$. However, the first alternative, i.e. the alternative corresponding to the form of the question radical, has much more prominence, and is therefore 'highlighted' (Roelofsen and van Gool 2010, Farkas 2011, Roelofsen and Farkas 2015). Highlighted alternatives function as propositional discourse referents for subsequent anaphoric expressions, such as particles like *otherwise, if so* and answer particles such as *yes* or

(15) Littell et al. (2010):(1c) (via Matthewson et al. 2007)
lan=as=hÃ¡=k'a *kwÃ¡n-ens-as* *ni=n-s-mets-cÃ¡l=a*
already=3.sbjn=ynq=infer take-dir-3.erg det.abs=1sg.poss-nom=write-act=exis
'I wonder if she's already got my letter.'
'I don't know if she got my letter or not.'

[7]It is important to mention that RDs serving other functions such as checking comprehension, maintaining solidarity, politeness, non-conduciveness, conciliatory attitudes, etc (Gussenhoven 2004, Šafárová 2007) are being excluded here.

[8]Gunlogson (2008) calls this 'contingent' commitment, while Farkas and Roelofsen (2015) call it 'conditional' commitment.

no. Using this terminology, Farkas and Roelofsen (2015) argue that RDs express a bias towards the highlighted alternative.

Thus, on the surface, NFIs and RDs share the two crucial discourse properties of tentative commitment and bias. They also share a vital syntactic-prosodic linguistic form: **[declarative + final rise]**. This ubiquitous syntactic-prosodic linguistic form of [declarative + final rise] will be under investigation from various angles in this paper. This is because some of our central cross-linguistic contrasts of interest involve this form. As has been attested in much scholarly discussion (Bartels 1999, Hedberg et al. 2004, Nilsenová 2006, Šafárová 2007, among many others), the semantic and pragmatic effects of this linguistic form even in various dialects and contexts in English are many in number. For the purposes of this paper, the following uses of the linguistic form are particularly salient across the two representative languages:

(17) Bangla

a. [declarative + final rise] = a PolQ [-biased, -evidence]

b. [declarative containing an evidential + final rise] = an NFI [+biased, +evidence (overt)]

(18) English

a. [declarative + final rise] = an RD [+biased, +evidence (covert)]

b. [declarative containing an evidential + final rise] = an RD [+biased, +evidence (overt)]

The overt versus covert specification alludes to the overt presence of an evidential, i.e. the evidence type being expressly specified with a lexical item or it just being implicitly understood that the speaker has some sort of evidence without any assumptions about the type.

One fundamental difference between Bangla and English the schema in (17)-(18) attempts to highlight is that just by itself, a [declarative + final rise] can be a neutral locution in Bangla, but not in English.[9] Thus, a priori, the same linguistic form does not translate into the same interpretation in the two languages.[10] I demonstrate this difference in felicity between English and Bangla constructions by employing them in one single neutral context.

[9]As in any language, Bangla (and English) can employ extra information-structural devices (of which there are many) within the sentence, such as stress on different chunks of the structure, to convey non-neutrality. I am talking about the default, baseline cases here.

[10]Another very plausible locus of difference could also be in what the final rise itself constitutes in terms of its prosodic structure in the two languages. Detailed intonation-semantics interface studies – such as Bartels (1999), Hedberg et al. (2004), Nilsenová (2006) – describe how a final rise can be a Low-Rise nuclear tune or a High-Rise nuclear tune, each of which have very different pragmatic contributions. A comparison along these lines would be best served by prosody experiments and is outside the scope of this paper.

(19) Ram has been sitting in a windowless room for hours. Sita enters, he asks her:

a. *Brishti por-che + final rise* Bangla
rain fall-prog
'Is it raining?'

b. #It's raining + final rise English

In this context, the speaker has no evidence about the prejacent whatsoever. The Bangla [declarative + final rise] form (a PolQ) is perfectly felicitous here, while the English [declarative + final rise] is not. It is the presence of the evidential that turns a PolQ into a biased interrogative in Bangla. In English, however, both (a) and (b) in (18) are already biased, the difference being the overt evidential in (b). A representative example for (b) is taken from Gunlogson (2004, 36b).

(20) He's evidently/apparently left already? RD containing an evidential

The essence of the discussion here was that NFIs have tentative commitment not because their linguistic form per se – [declarative + final rise], but because of the presence of the evidential (and what the evidential licenses) inside it, which is laid out in Section 3. In contrast, English RDs have been argued to register a tentative commitment just by virtue of the linguistic form (more about this in the next section), given that English has a separate productive form for forming neutral PolQs (i.e. questions formed via subject-auxiliary inversion).

2.3.2 (Non)-Neutrality

It is imperative to motivate the claim in (16b). Given the discussion above, there are three salient components in the study of RDs and NFIs – evidence, commitment, and bias, which are interconnected. Section 3 will argue in detail that in an NFI, the evidential licenses an ↑ operator. This ↑ operator signals tentative commitment (and consequently bias) as well as raises an issue for resolution. The evidential itself supplies just the evidence type. The lack of the evidential in a PolQ (17a) results in the lack of ↑. The generality of this claim is upheld – in all NF languages, the evidential licenses the ↑ operator to form an utterance with interrogative force.

On the other hand, the three components in English RDs have received different levels of attention in different studies. The evidence restriction is generally assumed in the literature to be implicitly present without a source specified (cf. 'covert' as in (18a)), while various methods take care of the other components. The tentative commitment/bias of an RD comes from updates to a specific set of commitments of an agent (Gunlogson 2004, 2008, Northrup 2014, Malamud and Stephenson 2015, among others); indication of a speaker's credence level (Farkas and Roelofsen 2015); a suspension of the maxim of Quality (Westera 2017). The consensus is that RDs are fundamentally non-neutral locutions that signal a bias on the part of the speaker. This paper does not offer any new analysis of RDs, but just focuses on their similarities and differences with NFIs, in order to understand where NFIs fit into the empirical and theoretical landscapes.

Before we get into the details of the proposal, recall that the [declarative +final rise] form does not by default contain any bias on the part of the speaker, as schematized in (17a) and demonstrated in (19a). This explicitly divorces the linguistic form from the presence of the evidential: a neutral locution is turned into a non-neutral one by the evidential.

What I call 'intonational' languages for the purposes of this paper are solely languages that can form PolQs with the syntax of a declarative combined with a final rise in intonation.[11] Intonational languages do not require any overt syntactic cues in order to form PolQs, unlike Germanic languages. The declarative syntax coupled with a final rising intonational contour is sufficient in indicating interrogative status. Languages which lack the ability to form neutral PolQs with just this final rise will be termed 'non-intonational' languages. Consider the following paradigms from Bangla and Hindi, showing that declaratives and interrogatives have identical surface syntactic forms. Bangla and Hindi share this property with numerous other languages in the South Asian region, including Telugu, Marathi, Assamese, Gujarati, Punjabi, etc. The ↑ symbol here simply represents the final rise in intonation:

(21) Bangla

a. *Anu khe-ye niye-che.*
Anu eat-impv take-3p.perf
'Anu has eaten.'

b. *Anu khe-ye niye-che*↑
Anu eat-impv take-3p.perf
'Has Anu eaten?'

(22) Hindi

a. *Anu so gaya.*
Anu sleep go-3p.perf.masc
'Anu fell asleep.'

b. *Anu so gaya*↑
Anu sleep go-3p.perf.masc
'Did Anu fall asleep?'

These are garden-variety PolQs, which are uttered without any expression of speaker bias. This method of forming polar questions is arguably the most productive in such languages. A typological generalization can be made about the occurrence of the [declarative + final rise] form, supported by the cross-linguistic empirical contrasts we have observed so far:

(23) **Neutrality Generalization**
In languages that form polar questions via syntactic means such as Subj-Aux inversion or the obligatory presence of polar question particles, the [declarative + final rise] is consistently a non-neutral locution.

[11] This is a purely descriptive term I am using, without claiming any notational similarities with intonational phonology (cf. Hayes and Lahiri 1991, Hartmann 2008, among many others).

This generalization also suggests that the inverse is true: in all languages that do not use special syntactic means to form PolQs, the [declarative + final rise] *can* be used as neutral PolQs productively.[12]

This section has so far attempted to show what evidential questions in NF are not. These questions are not completely identical to RDs, are not self-directed questions, are not questions that require the addressee to have a specific type of evidence. The ensuing sections will tackle the question of what evidential questions in NF languages *are*. However, before addressing that question, it is imperative that the contribution of evidentials is studied from both semantic and pragmatic viewpoints. I will argue that there are two components to the meaning of evidentials: a hardwired semantic component and a crucial pragmatic component. Both of these modules work as a team to yield the attested patterns. I first provide a Lasersohn-style (Lasersohn 2005) judge-dependent semantics for evidentials, taking the Bangla evidential *naki* as a representative, and consequently map its discourse contributions in a dynamic pragmatics framework. Formulating these proposals will allow us to explore the median view in detail, and help us find the locus of the IF/NF distinctions.

3 Proposal

3.1 Hardwired meaning

Stephenson (2007) (following Lewis 1979, Chierchia et al. 1989, and Lasersohn 2005) invokes the notion of *doxastic alternatives*, but with a 'judge' restriction, in order to implement a core property of attitude predicates like *think* which obligatorily shift the judge parameter of an embedded clause to the matrix subject.

(24) $\text{Dox}_{w,t,x}$ = $\{\langle w', t', y\rangle$: it is compatible with what x **believes** in *w* at *t* that x is *y* in *w*' at *t*'$\}$

For epistemic modals, she introduces the notion of *epistemic alternatives* (also see MacFarlane 2011). I will be employing this idea with respect to the evidential *naki*, given the fact that coming to conclusions based on indirect evidence requires epistemic alternatives.

(25) $\text{Epist}_{w,t,x}$ = $\{\langle w', t', y\rangle$: it is compatible with what x **knows** in *w* at *t* that x is *y* in *w*' at *t*'$\}$

Since a person's knowledge cannot rule out the fact that the actual individual is in the actual world and time at which they are located, the set of epistemic alternatives must always include the index of evaluation - ⟨w,t,x⟩ - itself.
I propose the following meaning for *naki*, an expression of type <<<<s<i,et>>e>s>t>:

[12]Non-neutrality can be achieved with a range of extra special intonational contours, which I do not discuss here.

(26) $[\![naki]\!]^{c,w,t,j} = \lambda p_{<s<i,et>>}\ \lambda z_e\ \lambda w_s\ \exists <w',t',x> \in \text{Epist}_{w,t,z}\text{: } p(w')(t')(x)$

Thus *naki* is a function that requires a proposition and a Lasersohnian judge argument and returns a statement saying that there is at least one alternative in the judge's epistemic domain in which the proposition holds.

The existential quantification in the definition in (26) is significant here. This proposal is geared to deliver an inferential interpretation. Direct evidence, on the other hand, would also propel a proposition to the epistemic alternatives of the speaker. The crucial difference between the two types of evidentials in this analysis then lies in the quantificational force – a direct evidential would universally quantify over an agent's epistemic alternatives, given the strength of one's own perceptual acquisition of information.

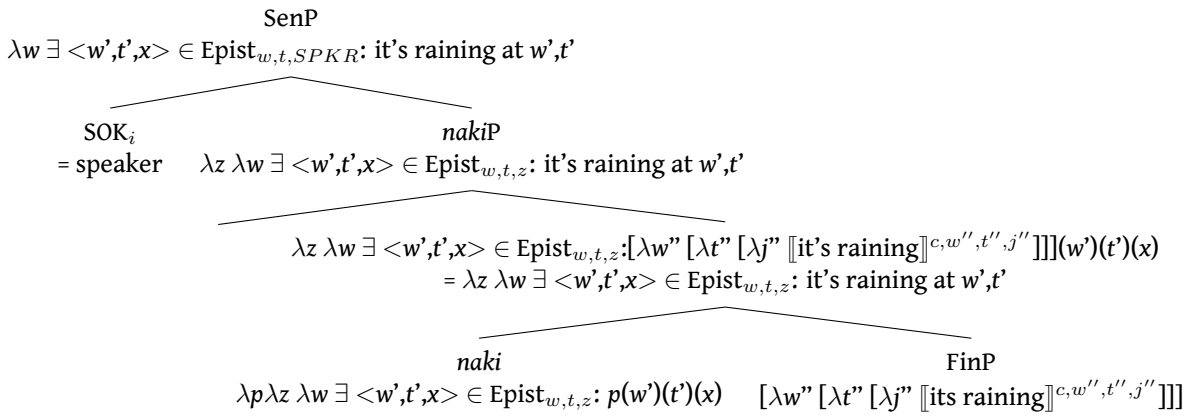
(27) $[\![\text{direct}]\!]^{c,w,t,j} = \lambda p_{<s<i,et>>}\ \lambda z_e\ \lambda w_s\ \forall <w',t',x> \in \text{Epist}_{w,t,z}\text{: } p(w')(t')(x)$

This definition is reflective of the elevated status of perceptual beliefs as the closest indication of the factuality of the information. This has been observed by a number of researchers, including Dancy (1985), Papafragou (1998), Faller (2002).

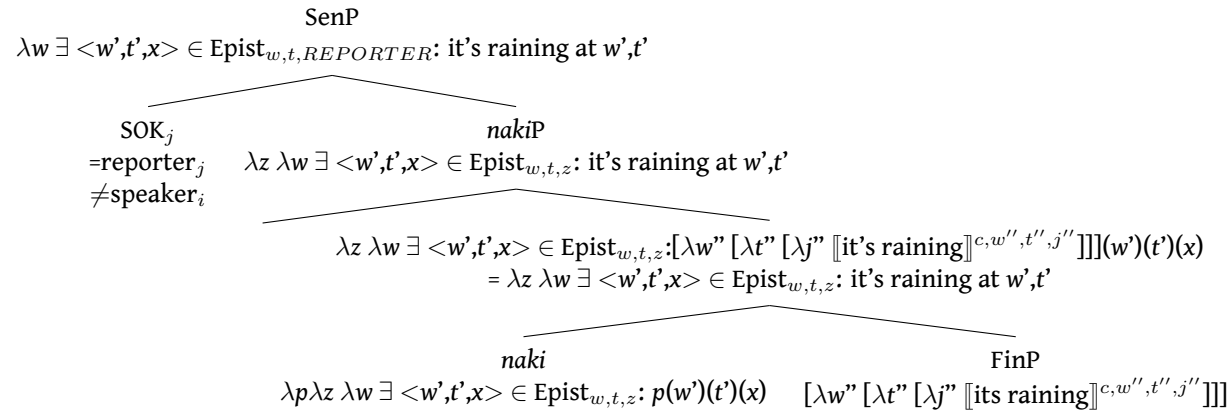
I show two compositional trees below (the inferential interpretation in (28), the reportative interpretation in (29)) with the schematic representations of only the relevant nodes. A few crucial assumptions underlie the syntactic information encoded in the tree. I adopt the idea (following Bhadra 2017, forthcoming) that all evidentials take scope over finite clauses (denoted by the FinP node). Additionally, the high upper left periphery has a Speas and Tenny-ian (Speas and Tenny 2003) formulation. The judge parameter that the semantics of an evidential is sensitive to has a crucial syntactic manifestation: the Seat-of-Knowledge (SOK) node proposed in Speas and Tenny (2003), which heads the Sentience projection (denoted by the SenP node). This node encodes perspective in this system. One of the main insights from Speas and Tenny is that this SOK node has two minimal indexation options: either co-indexed or contra-indexed with the speaker node higher up in the spine. It follows then that in the case of contra-indexation, the index can match any other referential element in the structure which is not the speaker. Bhadra (2017, forthcoming) exploits this contra-indexation configuration to provide an analysis of reportative evidentials. Thus, the differential valuation of the 'judge' parameter is an automatic reflex of the minimal indexation options available in the syntax. The semantic consequences of such valuation are outlined below. In the derivations below, I demonstrate how co-indexation directly results in the inferential interpretation, and contra-indexation leads to the reportative interpretation, given the semantics proposed for the evidential.

In addition, following Stephenson (2007), I assume propositions are of type <s<i,et>>, i.e. they are relativized to a world, time and judge parameter (the former two satisfied intensionally). Crucially, this perspectivization of propositions is also a natural consequence of the connections between finiteness and the presence of operators such as speaker/addressee *inside* the finite clause proposed in Bhadra (2017). With these structural details in place, consider the following two derivations:

(28)



(29)



The crucial difference between the two derivations lies in the valuation of the judge parameter. In the structure in (28), the proposition in the scope of *naki* exists in the epistemic alternatives of the Speaker of the speech act. This quantification over the Speaker's epistemic alternatives results in an inferential interpretation. In (29), on the other hand, the judge parameter is valued as the Reporter, who is not one of the main discourse participants (Speaker or Addressee). This structure makes the claim that the proposition in the scope of *naki* exists in the set of epistemic alternatives of the Reporter, and the speech-act Speaker is just reporting that fact. This results in the reportative interpretation.

Thus, the main proposal put forth in this paper is that evidentials are quantifiers over the epistemic alternatives of a judge. This account is appealing for two reasons: (i) it demonstrates that a compositional account of the higher domains of the left periphery is not only possible, but essential for the exposition of perspectival elements, and (ii) the perspective of an utterance is *structural*, and extra-linguistic or meta-linguistic pragmatic principles are not required in order to determine the point-of-view.

In the following sections, I demonstrate how this account buys us an elegant analysis of the crucial differences between IF and NF languages discussed above. This exposition will take us into the pragmatic component of evidentials that is the second vital ingredient of the

phenomenon of evidentiality. First, the key pragmatic notions of *commitment* and *sourcehood* will be introduced, following which a dynamic discourse account will be proposed.

3.2 Commitment and Sourcehood

The previous sections compared NFIs to already familiar speech acts, arguing that they are crucially different from these constructions. One of the most prominent candidates of comparison was RDs, which have been argued to interact with both the notions of commitment and sourcehood.

Northrup (2014) provides an exchange highlighting the point that the 'contingent' contribution of RDs is indeed commitment, and not anything weaker. The exchange, given below, demonstrates that if Laura responds to Max's question in the affirmative, then Max's contingent commitment is solidified, and he cannot deny or take back the commitment expressed by his RD locution.

(30) *Laura just entered the room, where Max sees her for the first time that day. Max says:*

a. M: You got a haircut?

b. L: I sure did!

c. M: I thought so. / #Oh, I had no idea. / #Really? It doesn't look like it.

(Northrup 2014: 18)

Alternatively, if Laura answers in the negative, Max's contingent commitment does not transform into an actual commitment. However, he still presents himself as being biased, and thus cannot claim to be committed to the disconfirming answer, as presented in the exchange below (Northrup 2014: 19).

(31) a. M: You got a haircut?

b. L: No, not yet.

c. M: Really? It looks like you did. / # Who cut it? / # (Yeah,) I didn't think so. / # Yes, I know.

Gunlogson (2008) explores the relationship between commitments and *sourcehood*. She argues that all commitments have sources, i.e. they are all based on information that has been acquired via direct or indirect channels. Consider the following exchange, drawn from (Gunlogson 2008: 26).

(32) Amy: The server's down.

a. Ben: Oh. (I didn't know that.) source=Amy

b. Ben: Yes, I know/Yes, that's right. source=Ben

In (32a), Ben's response to Amy's statement signals that he accepts the information Amy is providing him, i.e. he is not the source of that information, Amy is. Ben (of his own accord) had not gathered the information that the server is down. On the contrary, in (32b) Ben had acquired the information about the server being down on his own (either through direct or indirect evidence) and is now conveying to Amy that he, too, is the source for that proposition. Gunlogson provides the following definition for the notion of a source:

(33) An agent α is a **source for a proposition** ϕ in a discourse d iff :

a. α is committed to ϕ; and
b. According to to the discourse context, α's commitment to ϕ in d does not depend on another agent's testimony that ϕ in d.

The first clause of the definition makes the important claim that just possessing the required knowledge to be able to be a source for a proposition is not enough to qualify a participant as source. There has to be an actual discourse commitment made by the participant to qualify them for sourcehood status. The second clause of the definition of source plays into the distinction Gunlogson makes between being an Independent vs. a Dependent source for a commitment. She argues that although being a source for ϕ requires being committed to ϕ (as we saw in the previous definition), being committed to ϕ, however, does not require being a source for ϕ. Gunlogson provides the following definition for dependent commitment:

(34) An agent α has a **dependent commitment** to a proposition ϕ in a discourse d iff:

a. α is committed to ϕ; and
b. According to the discourse context, α is not a source for ϕ in d

(Gunlogson 2008: 28)

Thus, in the exchange in (32a), Amy has an independent commitment while Ben has a dependent commitment to ϕ ('The server's down'). This notion of dependent vs. independent commitment is crucial in the juxtaposition of falling declaratives against rising declaratives. Falling declaratives are assumed to express independent commitment, while RDs essentially signify dependent commitment, which awaits the addressee's (independent) commitment to ϕ. Thus, our RD structure can now be depicted as follows:

(35) English [declarative (ϕ) + final rise] = dependent commitment to ϕ + awaiting confirmation of ϕ

This discussion focused on underlining the fact that there exists a contrast in the commitment and sourcehood distinctions between rising and falling declaratives. The next section will attempt to apply the dependent-independent sourcehood distinction to evidentiality, and argue that several non-trivial refinements to the system are required in order to account for complex empirical patterns.

3.3 Sourcehood vis-Ã -vis Evidentiality

The direct vs. indirect distinction goes back to Willett (1988). The commitments arising out of directly gathered information have been claimed to be 'stronger' than those based on indirect evidence (Izvorski 1997, De Haan 1999, Davis et al. 2007 - though see von Fintel and Gillies 2010 for a rebuttal of such 'strength'-based approaches). Even within the indirect evidence category there appears to be a cross-linguistic distinction between the validity of inference vs. the validity of third-party reports. Consider the following minimal pair in Central Alaskan Yup'ik (Eskimo-Aleut; Siberia), as reported in Krawczyk (2012):

(36) Yup'ik (Krawczyk 2012: 24, 50)

a. *Aya-llru-**llini**-uq* *Aya-ksaite-llru-yuka-a* inferential
leave-past-infer-ind-3rdsg leave-neg-past-think.that-3rdsg
'Evidently, she left...I don't think that she left.'

b. *Aya-llru-uq-**gguq*** *Aya-ksaite-llru-yuka-a* reportative
leave-past-3rdsg-hearsay leave-neg-past-think-that-3rdsg
'It is said that she left...I don't think that she left.'

The contrasting continuation of a reportative evidential statement is felicitous, while the same with an inferential evidential statement is infelicitous, presumably because the latter commits the speaker to the matrix content while the former does not. Faller (2002), Murray (2010), Schwager (2010), and AnderBois (2014) report similar findings from Cuzco Quechua, Cheyenne, Tagalog, and Chol, Estonian, Finnish, respectively. Reportative *naki* also has the same property:

(37) *Gorment naki briddhashrom-e onek taka dhal-be, kintu amar mone*
government rep old age home-loc lot money pour-fut.3p, but I-gen mind
hoy-na sheta konodin ho-be bole
happen-neg that ever happen-fut comp
'The government will reportedly pour a lot of money into old age homes, but I don't think that will ever happen.'

Given the first clause of Gunlogson's definition of a source, being a source for ϕ entails being committed to ϕ. The continuations in (37) and (36b) clearly show that this is not true for reportative statements cross-linguistically. But the second clause of Gunlogson's definition of a source – according to to the discourse context, α's commitment to ϕ in d does not depend on another agent's testimony that ϕ in d – clearly applies here. In the immediately current discourse in which a reportative statement is made, the speaker is not dependent on another agent's testimony about ϕ, and is thus considered an independent source for ϕ. Thus, reportative evidentials of this kind, that allow contradictory continuations, pose a problem for Gunlogson's definition of sourcehood – the speaker is an independent information source for ϕ but he is not committed to ϕ. We cannot use the same notion of source for reportative

evidentials that we use for inferential or direct evidentials.[13]

I propose, therefore, that we recoin Gunlogson's notion of source as an *involved* source. An involved source is an agent who is committed to ϕ (in addition to not being dependent on any other agent's testimony in the same discourse). I propose a new category – an uninvolved source, which differs from an involved source in only one respect – the agent is not committed to ϕ.

(38) **Independent Sourcehood**:

Involved Source	**Uninvolved Source**
agent is committed to ϕ	agent distances self from commitment to ϕ
α's commitment to ϕ in d does not depend on another agent's testimony that ϕ in d	α's commitment to ϕ in d does not depend on another agent's testimony that ϕ in d
Examples: direct/inferential /conjectural evidentials, falling declaratives, tag/negated/biased polar questions, RDs, *naki*$_{\text{inf}}$	*apparently, evidently*, *naki*$_{\text{rep}}$, Cheyenne *seste*, Quechua *si*, Chol *-bi*, Estonian *-vat*, Yup'ik *-gguq*, Finnish *kuulemma*, Tagalog *daw*

Thus, independent sources can be either involved or uninvolved. Involved independent sources personally engage in some degree or other with the validity of ϕ, and are thus committed to ϕ. Uninvolved independent sources, on the other hand, are still independent because they acquired ϕ by themselves outside of the current discourse, but are uninvolved because there is no personal engagement with the validity of ϕ. This space is crucially where a reportative evidential and its relatives reside, allowing for contradictory continuations. All utterances marked with independent sourcehood by default are marked with involved independent sourcehood unless explicitly marked otherwise with markers corresponding to *apparently, seems* and the like.

An important disclaimer needs to be made about the use of reportative evidentials cross-linguistically.[14] This disclaimer concerns trustworthy vs. non-trustworthy third-party reports. The speaker's evaluation of the reliability of a third-party source is gradient, but additionally the content of the proposition might interact with this evaluation in interesting ways. Faller (2002) discusses this interaction within the Cuzco Quechua evidentiality paradigm. For example, just (39a) is uttered when the speaker prefers the reporter's eyewitness account to their own inference, Faller describes. Clearly the reporter is trusted and foxes are known to

[13] An evidential contributes multiple propositions to the discourse – for e.g. one at-issue proposition (the prejacent) and some not-at-issue propositions, such as the speaker is committed to having *heard* the proposition, etc (cf. Murray 2010). An anonymous reviewer asks for clarification regarding which proposition is salient here. The ϕ in the discussion strictly stands for the prejacent of the evidential, i.e. the at-issue proposition that the evidential scopes over. This is in line with Gunlogson's use of ϕ as well, as used in the discourse. I do not explore any of the meta-commitments here.

[14] I thank an anonymous reviewer for asking for clarification on this issue.

be fairly frequent stealer of hens. On the other hand, (39b) shows that there can be situations when the speaker is conflicted between their inference of a fairly frequent event and the reliable source's (trustworthy neighbor) report of a rare event (such as a puma stealing a hen), and thus reports both. Such an utterance straddles the line between the evaluation of the possibility of the event and the reliability of the source, and pits them against one own's trustworthiness as an inferrer.

(39) Cuzco Quechua (Faller 2002: 56-57)

a. *Atuq-**si** wallpa-y-ta apa-sqa.*
fox-**si** hen-1-acc take-pst2
p='A fox took my hen.'
ev= speaker was told that *p*

b. *Atuq-**chÃ¡** wallpa-y-ta apa-rqa-n. Ichaqa wasi masi-y riku-sqa, puma-**s** apa-n-man ka-rqa-n.*
fox-**chÃ¡** hen-1-acc take-pst1-3. But house friend-1 see-sqa, puma-**si** take-3-irr be-pst1-3
p='A fox must/might have taken my hen. But my neighbor saw it, and a puma took (it).'
ev=speaker conjectures that a fox must have taken the hen, and speaker was told (by neighbor) that a puma took the hen.

The moral of this story is that reportative evidentials cross-linguistically can lie along a spectrum of the involvement/uninvolvement distinction formulated in this paper. The position of a reportative evidential on this spectrum is mediated by the factors mentioned above. It may happen that a reported proposition has a status akin to that of direct evidence if it comes from the right source, i.e. it can be placed above one's own inference. It may be helpful to think of this spectrum as a simple scale with many gradient mid-points and the involved/uninvolved distinctions as the end points:

(40) |_____|_____|_____|_____|_____|_____|
involved somewhat involved somewhat uninvolved uninvolved

Predicting the exact positions of language-specific reportatives is not always straightforward because of their very high pragmatic variability and interactions with real world knowledge. But it is important to note that reportatives are somewhat special in the class of evidentials in allowing for this great degree of flexibility.

Going back to our proposed formulation, dependent sources (i.e. a source who has not acquired the information in ϕ by themselves by some means) can also be involved or uninvolved. An *involved dependent source* is committed to ϕ based on whosever testimony he depends on in the discourse, while an *uninvolved dependent source* has the same dependency while presenting himself as being neutral about whether to believe the other agent's testimony or not. I claim that the latter space is where both neutral, canonical polar questions as well as evidential questions with IF reside (more details in Section 6).

(41) **Dependent Sourcehood**:

Involved Source	**Uninvolved Source**
agent is committed to ϕ	agent distances self from commitment to ϕ
agent is not a source for ϕ in d	agent is not a source for ϕ in d
Examples: exchanges where an agent trusts another agent's provided information (cf. 32a)	simple polar questions, evidential questions with IF

Armed with these fine distinctions of sourcehood and commitment and their interaction with different types of evidentials in different speech acts, the next section undertakes the task of providing an analysis of non-Flipping evidentials in a dynamic pragmatics framework, taking *naki* as a representative.

4 A dynamic discourse analysis

The idea of a dynamic scoreboard (Stalnaker 1978, Lewis 1979, Roberts 1996, Gunlogson 2004, 2008, Farkas and Bruce 2009, Krifka 2014a, Northrup 2014, Farkas and Roelofsen 2015 and Malamud and Stephenson 2015) has been shown to be a very useful tool in analyzing linguistic phenomena that is sensitive to varying stages within a complex, structured discourse. In this paper, I adopt Malamud and Stephenson (2015)'s, [henceforth, M & S], model of the conversational scoreboard. Firstly, a description of the model is provided, and then the contribution of evidential locutions is located within the framework (using *naki*-locutions as representatives), while introducing some crucial modifications along the way.

4.1 Malamud and Stephenson (2015)

The authors base their model on Farkas and Bruce (2009)'s framework, building on Hamblin (1971), Gunlogson (2004), Ginzburg (2012) and others, further developed in Farkas and Roelofsen (2012). The 'Lewis-style' scoreboard contains the following elements:

(42) a. ***DC***$_X$: for each participant X, X's public discourse commitments (i.e. propositions that the participant has publicly committed to in the discourse).
b. **the Table**: a stack of issues (sets of propositions) to be resolved (the top issue first).
c. **Common Ground** (CG): the intersection of the DCs of all participants (cf. Stalnaker 1978).
d. **Projected CGs** (CG*)[15]: a set of potential CGs with possible resolution(s) of the top issue on the Table in the expected next stage of the conversation.
e. **Projected Commitments (*DC*$_{X*}$)**: sets of *tentative* commitments of the speaker and

[15]This component is inspired by Farkas and Bruce (2009)'s 'Projected Set'.

the hearer(s), allowing the speaker to offer a tentative commitment himself or make a best guess of commitments of other participants by adding to their projected commitment sets.

f. **Projected Table (Table*)**: a set containing stacks of tentative issues, i.e. proposals to add to the Table for future resolution.

Projected sets are always sets of sets of propositions. In this framework, it is possible to anticipate the hearer's discourse stance, because of the presence of the hearer's projected commitment set. This technical method to map the guessing of other participants' possible discourse commitments aids us to a great degree in understanding the contribution of evidentials.

An anonymous reviewer raises the point that in a framework such as Malamud and Stephenson's, the set of Projected Commitments is formulated to contain not so much *tentative* commitments as *expected* ones (akin to Farkas and Bruce 2009's Projected CGs). That is to say, nothing by definition entails that the speaker is unsure/hesitant about the members of the set, or that the members of the set are unconfirmed and need confirmation of their truth. The speaker may be the ultimate authority on the content of the utterance, but not be sure if the speech act matches the requirements of the context in its "relevance, sufficiency or clarityâ (Farkas and Roelofsen 2015, p. 3). For example, consider the following range of RDs (most of them highlighted in Farkas and Roelofsen 2015 from the works of the authors cited therein), in all of which the speaker is presumably fully certain of the truth of the prejacent and yet utters them with a final rise in intonation (which I denote as "final rise" in order to maintain consistency).

(43) Not sure whether relevant (Westera 2013)

a. A: Was John at the party?
b. B: [Well, he was planning to go] + final rise

(44) Not sure whether sufficient (Ward and Hirschberg 1985)

a. A: Do you speak Ladino?
b. B: [I speak Spanish] + final rise

(45) Not sure whether clear (Westera 2013)
(English tourist in a French cafe)
[I'd like...err...je veux...black coffee] + final rise

(46) Politeness or checking device (inspired by Pierrehumbert 1980, Šafárová 2007)
(to a receptionist)
[Hi, my name is Sophia Malamud] + final rise

The authors mentioned here mostly agree on pragmatic reasoning-based analyses of such examples. Westera (2013) argues that such utterances exhibit an uncertainty on the part of the speaker regarding their contribution's compliance with Gricean Maxims such as Relevance, Quantity, Manner, etc. Farkas and Roelofsen (2015) concur with Westera on this approach towards this genre of RDs. Malamud and Stephenson (2015) also suggest that the hearer, on hearing an utterance similar to the one in (46), reasons that the final rise is an extralinguistic clue. The fact that the speaker chose to not plainly assert the content leads to the inference that she is unsure of the speech act itself, while conveying new truth-conditional information not previously present in the discourse (the speaker's name).

Given my formulation of the Projected Commitments component in (42) as a tentative set and not an expected set per se, the anonymous reviewer points out that this is a departure from the adopted framework (M & S) and asks for clarification regarding such examples as above, where the speaker is not unsure about the truth-conditional content. I contend that the current definition of Projected Commitments as predicated on tentativeness can be maintained while accommodating such uses of the [declarative + final rise] form. This is because in all of the analyses presented above as well as in the current paper, there is always an extralinguistic reasoning in place in these examples about the speaker's authority over the prejacent. It is only in such cases, where the hearer knows that the speaker is an authority, that such pragmatic reasoning about cooperational behavior comes into play. Note that this approach is completely compatible with the formulation of projected commitments as tentative ones. Just like in the framework of expected commitments, the content is still added to the speaker's tentative commitment set. That is to say, the set containing the proposition "My name is Sophia Malamudâ□□ still gets added to the Projected Commitment set. Now, this failure to fully commit (i.e. the speaker's choice of not updating her public commitment set (DC_X) with a proposition that she has complete authority over) sets the metalinguistic inferences about cooperational behavior into motion, in a manner identical to how the authors mentioned above describe. No other extra stipulations are necessary.

Moving on to implementation, given below is a sample derivation of the discourse structure associated with a simple act of assertion - A asserts *p* - in the M & S system. B's acceptance puts *p* in the CG.

(47) (Assume that the Common Ground already includes a proposition *q*.)
A asserts *p*.

	Previously	After A's assertion	After B accepts A's assertion
DC_A	$\{\}$	$\{p\}$	$\{\}$
DC_{A*}	$\{\{\}\}$	$\{\{\}\}$	$\{\{\}\}$
DC_B	$\{\}$	$\{\}$	$\{\}$
DC_{B*}	$\{\{\}\}$	$\{\{\}\}$	$\{\{\}\}$
Table	$<>$	$<\{p\}>$	$<>$
CG	$\{q\}$	$\{q\}$	$\{q,p\}$
CG*	$\{\{q\}\}$	$\{\{q,p\}\}$	$\{\{q,p\}\}$

(Malamud and Stephenson 2015: 13)

Following Gunlogson (2008), I will assume that information about sources is a crucial part of the discourse context. Gunlogson defines a **source set** (ss) for each agent:

(48) ss = {w ∈ W: all commitments of agent χ in discourse d for which agent χ is a source are true in w}

(Gunlogson 2008: 30b)

Given the proposed definitions of uninvolved sources in the previous section, where the uninvolved (either dependent or independent) agent distances themselves from commitment to ϕ, uninvolved source sets cannot be defined in terms of commitments. To resolve this issue I adopt the term 'presenting' from Faller (2002), to indicate that the propositions that a speaker *presents* (and not asserts) do not have to be statements about the supposed beliefs of the speaker. A proposition ϕ can be felicitously presented without any conviction in ϕ or even possibly ϕ. This distinction plays a major role in defining uninvolved source sets below.

Two new source sets (instead of four) can be added to the scoreboard. Following Farkas and Bruce (2009)'s and M & S's formulation of DCχs and in tandem with the scoreboard proposed in (42), each source set is formulated as a set of propositions instead of the Gunlogson-style set of worlds.

(49) a. ***IIss***$_\chi$: Independent Involved ss = {p: all commitments of agent χ in discourse d for which agent χ does not depend on another agent's testimony in d}

b. ***IUss***$_\chi$: Independent Uninvolved ss = {p: all propositions presented by agent χ in discourse d for which agent χ does not depend on another agent's testimony in d}

This elaborated scoreboard can help us account for fundamental differences in the pragmatic contributions of varying types of polar questions, varying types of evidentials, as well as a family of different sourcehood-status related exchanges.

The next section makes use of all of these notions to formally define what an NFI is. I argue, following Davis (2009), that the final rise witnessed in Section 2.3 and a final fall in intonation, represented as ↑ and ↓, are actual morphemes with real semantic denotations. The main claim will be that NFIs are the result of teamwork: the particle itself and the intonation morpheme that it licenses work jointly in updating two sets on the scoreboard simultaneously. First, the semantics of the intonational morphemes are discussed, followed by *naki*-locutions as a whole.

4.2 What is an NFI?

Davis (2009), in his study of the Japanese particle *yo*, demonstrates that *yo* can occur with distinct rising and falling intonational patterns. Following Koyama (1997), Davis argues that the meaning of *yo* and other sentence final Japanese particles should be distinguished from the meaning that is attributed to its intonational contour. The empirical pattern with *yo*↑ and and *yo*↓ are as follows:

(50) Japanese *yo*↓ (Davis 2009: 8)

a. *A: souridaijin-ga nakunat-ta*
prime.minister-nom die-past
'The prime minister died.'

b. *B: sin-de-nai yo↓/ #yo↑*
die-inf-neg yo↓/ #yo↑
'(No), he did not die.'

(51) Japanese *yo*↑ (Davis 2009: 9)

a. *A: go-han mou tabe-ta*
hon-rice already eat-past
'Did you eat already?'

b. *B: tabe-ta (yo↑/ yo↓)*
eat-past (yo↑/ yo↓)
'(Yeah,) I ate.'

Koyama (1997), as reported in Davis (2009), argues that *yo*↓ lends to an utterance a sense of incompatibility between the speaker's and addressee's states of understanding. This is illustrated in the first exchange, where *yo*↓ signals B's disbelief of A's assertion that the prime minister has died. On the other hand, Koyama associates *yo*↑ with the function of typically signaling 'notification, information-transmission, and attention-calling' (Davis 2009, p. 336). This function makes *yo*↑ natural in neutral exchanges where the speaker is not challenging any commitments by the addressee, one example of which is (51b). The felicitous use of *yo*↓ in the same context is taken to signal overt confrontation – B thinks A is taking something for granted (for e.g. the appropriateness of the question itself), and B is protesting against that with *yo*↓.

Crucially, Davis argues that the rising and falling intonational contours that *yo* appears with are actual morphemes that contribute to the update semantics of the sentence, resulting in the observed distributional differences. These morphemes attach to the force head assert and return a function of the same type, from propositions to *context change potentials*. $\mathrm{PB}_{\chi}(\mathrm{C})$ stands for the *public beliefs* of agent χ in context C.

(52) CCP of assertions (Davis 2009: 7)

a. Force heads in this system are monotonic arguments that take a propositional argument and return a function from contexts to contexts (i.e. a context change potential (CCP)):

b. $[\![\text{assert}]\!] = \lambda p \lambda \mathrm{C}.\ \mathrm{PB}_{spkr}(\mathrm{C}) + p$

(53) (Davis 2009: 10a-b)

a. $[\![\uparrow]\!] = \lambda F \lambda p \lambda C.\ F(p)\ (\mathrm{PB}_{addr}(\mathrm{C}) + p)$ type: <<<s,t>,<C,C>>,<<s,t>,<C,C>>>

b. $[\![\downarrow]\!] = \lambda F \lambda p \lambda C.\ F(p)\ ((\mathrm{PB}_{addr}(\mathrm{C}) \downarrow q) + p)$ type: <<<s,t>,<C,C>>,<<s,t>,<C,C>>>

According to these definitions, ↑ and ↓ can directly add propositions to an interlocutor's PB set without any negotiation. Approaches of this nature (including Farkas and Bruce 2009) are called into question by M & S. The authors argue that a conversational move should be able to add present/actual commitments to the speaker's set but only tentative/projected

commitments to the hearer's set, to avoid the unhelpful enterprise of speaking unauthorized on someone's behalf. This is why (42) contains projected commitment sets for both participants.

I model the meanings of ↑ and ↓ Davis-style[16] in that they are functions that have context change potentials, but I depart from Davis in two crucial ways. Firstly:

(54) For ↑, what's crucial is the speaker's *projected* commitment set, not the actual commitment set.

↑ crucially functions to update some individual χ's projected commitment set - $DC_{\chi*}$; whereas, ↓ functions to update some individual's actual commitment set.

My second departure from Davis leads us to another component of M & S's analysis, included in the scoreboard in (42). In their analysis of RDs, (the authors call them 'NI-rises' for 'non-interrogative rising intonation') M & S propose that an RD signals addition of *q* not just to the speaker's projected commitment set, but also to the **Projected Table** component. This move distances the speaker from making any suggestions regarding potential resolutions for issues on the Projected Table, and in that differs from a plain assertion by not adding to projected CGs. The authors presumably deem RDs to be 'non-interrogative' given the lack of an inquisitive update (along the lines of Hamblin 1971, Groenendijk et al. 2003, Farkas and Bruce 2009), i.e. an update that adds the denotation of a PolQ – $\{p, \neg p\}$ – to the Table, resulting in projected CGs containing both outcomes.

Let us apply the insight to our problem at hand. I define the operators in (55) below. The ↑ operator below updates both the speaker's projected commitment set – $DC_{SPKR*}(C)$ – as well the projected Table – Table*. The ↓ operator updates the non-projected counterparts.[17]

(55) a. $[\![\uparrow]\!] = \lambda q\ \lambda C\ (DC_{SPKR*}(C) + q \wedge Table^*(C) + q)$ type:<s<i,et>>,<C,C>>

b. $[\![\downarrow]\!] = \lambda q\ \lambda C\ (DC_{SPKR}(C) + q \wedge Table(C) + q)$ type:<s<i,et>>,<C,C>>

Thus, the presence of ↑ registers a tentative issue which the speaker wishes to be moved to the Table for resolution in the (immediate) future. I differ from M & S in one respect, however. Since upgrading an issue from the projected Table to the Table by definition requires some sort of approval from the addressee, a move that adds to the Projected Table is still an interrogative move. It is, of course, not equivalent to the canonical inquisitive update just described above. In seeking approval from the addressee, however, the ↑ operator ensures that the declarative in its scope has interrogative *force*. This statement then calls for a refinement within the notion of force: both a canonical question update to the Table and an

[16]This paper is not assuming or claiming in any manner that the prosodic forms in all of these structures, from Japanese to English to Bangla and Telugu and beyond, are the exact same. That contention is best explored in a paper reporting the results of detailed phonetic/phonological experiments, a goal that is beyond the scope of this paper. The claim here is just about the semantics – the semantic equivalent of this operator will be argued to be present in all NFI constructions.

[17]Davis (2009) does not include a discussion of whether his ↑ and ↓ operators raise or manipulate any issues at all (since they are force head modifiers) or any potential resolutions of any raised issues.

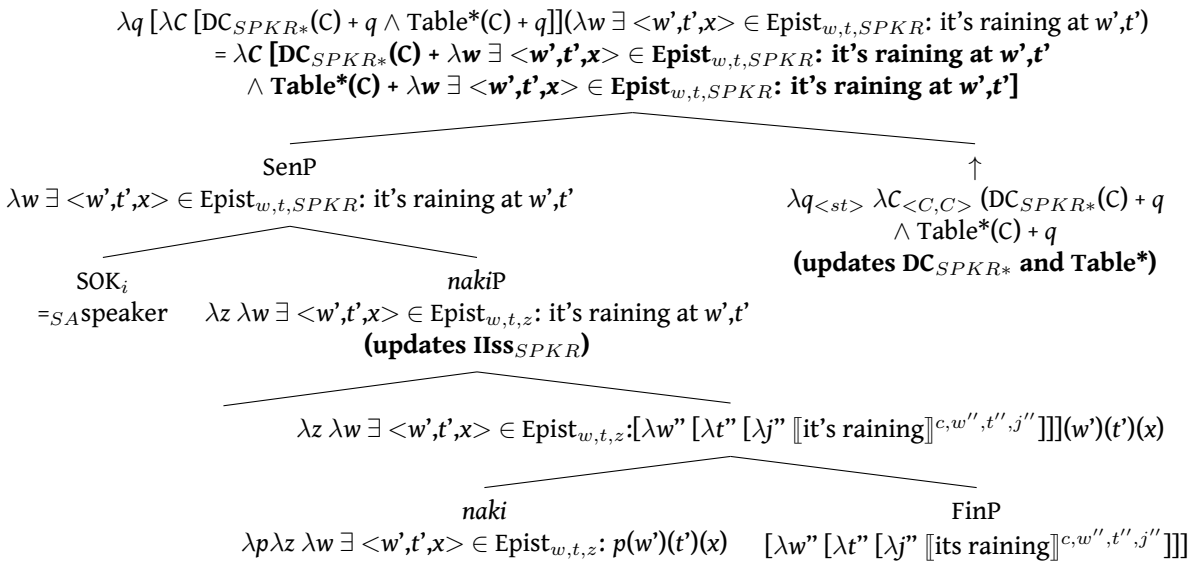
update to Table* to convey approval-seeking lend interrogative force to a structure.

What is an NFI then? An NFI is a declarative containing an evidential that licenses the ↑ operator. The presence of this operator makes the structure, in spite of being a declarative clause type, have the force of a question and not an assertion. Simple examples of such declarative-interrogatives abound in natural languages; for example, *Tell me whether the test is tomorrow.* Note that it is in this property of interrogative force that a comparison with IF constructions becomes salient, because both structures with flipped evidentials and those with non-flipped evidentials function as an information-seeking mechanisms in the discourse, i.e. both have the same force. This non-trivial typological claim and its consequences are taken up in more detail in Section 6. The reason such declarative + ↑ structures have been and will be continued to be called NFI(nterrogatives) in this paper is because of their interrogative force (a result of updating the Table*).

It is crucial to stress that, both in this work and in Davis, the ↑ operator is phonologically manifested as the final rising intonational contour (and vice-versa for the ↓). Just as lexical items and functional operators have phonological shapes in the PF, so do these operators. Although, in the languages other than Bangla, Telugu and Japanese being investigated here, the semantic equivalent of the ↑ could very well be manifested as a different intonational contour from the final rise, given that the discussion includes a very diverse set of languages. Note that the current analysis is compatible with such empirical patterns - the main claim is regarding the presence of ↑ in NFIs, and not so much about the exact intonational contours it maps onto in every NF language with differing prosodic systems. For illustration: just like the word "dog" has both a standard cross-linguistic lexical semantics and a phonological form that varies from language to language, so do the ↑ and ↓ operators.

Going forward, with the understanding of NFIs as outlined above, I provide sample derivations of *naki*-locutions below to show that the analysis is fully compositional, and well as what each piece contributes to the discourse. A compositional tree for *naki* and an intonational morpheme looks like the following:

(56)



The final meaning this structure contributes is the following:

(57) The speaker is making a tentative public claim that there is at least one alternative in her epistemic domain where it is raining, and she adds this claim to Table*.

The expectation here is that the addressee will now grant the speaker permission to move the issue from Table* to the Table. In the case of the reportative interpretation with ↑, the configurational details are exactly the same with two crucial differences: the judge is the reporter, and the evidential updates IUss$_{SPKR}$. In that case, what the update would entail is the following:

(58) The speaker is making a tentative public claim that there is at least one alternative in the epistemic domain of the reporter where it is raining, and she adds this claim to Table*.

These updates directly translate onto the scoreboard in the manner shown below, taking the inferential interpretation of *naki* as an example. The evidential updates the speaker's Independent Involved source set, while the ↑ operator updates the speaker's tentative commitment set and the Projected Table. This structure makes the non-trivial claim that the update to the projected sets – DC$_{SPKR*}$ and Table* – is not a bare proposition but a higher order statement.

(59) *p naki*-inferential ↑

	Previously	After A's utterance	After B accepts
DC_A	$\{\}$	$\{\}$ $\}\}$	$\{\lambda w \exists < w', t', x > \in$ $Epist_{w,t,SPKR}$:it's raining at *w'*,*t'*$\}$
DC_{A*}	$\{\{\}\}$	$\{\{\lambda w \exists < w', t', x > \in$ $Epist_{w,t,SPKR}$:it's raining at *w'*,*t'*$\}\}$	$\{\{\}\}$
DC_B	$\{\}$	$\{\}$	$\{\}$
$IIss_A$	$\{\}$	$\{p\}$	$\{p\}$
Table*	$\{\{\}\}$	$\{<\lambda w \exists < w', t', x > \in$ $Epist_{w,t,SPKR}$:it's raining at *w'*,*t'*$>\}$	$\{\{\}\}$
Table	$<>$	$<>$	<it's raining at *w'*,*t'*$>$
CG	$\{q\}$	$\{q\}$	$\{q$, it's raining at *w'*,*t*$\}$
CG*	$\{\{q\}\}$	$\{\{q\}\}$	$\{\{q\}\}$

Analogous to the mechanism in M & S for 'NI-rises', here too, if B accepts A's discourse move, then the evidential claim is added to the speaker's actual commitment set. Since the speaker chose to add to the Projected Table, therefore the projected CG remains the same, i.e. no resolutions are proposed for the issue on the Projected Table. With respect to the Table, however, what gets pushed onto it is the main issue (i.e. whether or not it's raining). B's acceptance leads to this proposition entering the CG (since both parties are committed to it). Note that in this system, B accepting an NFI (for e.g. with a *yes*) approves both the discourse move of allowing the issue to be moved to the Table as well as the content of the proposition (i.e. akin to *Yes, it is raining*).[18]

In the case of ↓, the difference lies in the fact that it signals actual commitment, and not tentative commitment, and puts an issue directly on the Table. Thus, a sample derivation of *naki*'s reportative interpretation looks like the following:

(60) $[\![\downarrow$ (SenP)$]\!]$
= $\lambda q\,[\lambda C\,[DC_{SPKR}(C) + q \wedge Table(C) + q\,]](\lambda w \exists <w',t',x> \in Epist_{w,t,REPORTER}$: it's raining at *w'*,*t'*)
= $\lambda C\,[DC_{SPKR}(C) + \lambda w \exists <w',t',x> \in Epist_{w,t,REPORTER}$: it's raining at *w'*,*t'* $\wedge$ Table(C) + $\lambda w \exists <w',t',x> \in Epist_{w,t,REPORTER}$: it's raining at *w'*,*t'*]

This update states the following:

(61) The speaker is making an actual public commitment that there is at least one alternative in the epistemic domain of the reporter where it is raining, and she adds this claim to the Table.

The Telugu evidentials also work exactly like the Bangla evidentials, licensing ↑ to form NFIs.

[18]The discussion of the contribution of 'NI-rises' (RDs) in M & S (2015: Section 8) also point to a similar notion of acceptance: an RD such as *John is tall?* puts an issue on the Projected Table, but B's acceptance both moves the issue to the Table and adds *John is tall* to the CG.

(62) a. *Ram roojuu taagutaaDu* ***eemiti*** ↑
Ram everyday drinks infe
'(I infer) Ram drinks everyday, (is that true)?'
= λC [DC_{SPKR*}(C) + $\lambda w \exists <w',t',x> \in Epist_{w,t,SPKR}$: Ram drinks everyday at *w'*,*t'* ∧ Table*(C) + $\lambda w \exists <w',t',x> \in Epist_{w,t,SPKR}$: Ram drinks everyday at *w'*,*t'*]
= *eemiti* updates $IIss_{SPKR}$

b. *Ram roojuu taagutaaDu* ***anTa*** ↑
Ram everyday drinks rep
'(I heard) Ram drinks everyday, (is that true)?'
= λC [DC_{SPKR*}(C) + $\lambda w \exists <w',t',x> \in Epist_{w,t,REPORTER}$: Ram drinks everyday at *w'*,*t'* ∧ Table*(C) + $\lambda w \exists <w',t',x> \in Epist_{w,t,REPORTER}$: Ram drinks everyday at *w'*,*t'*]
= *anTa* updates $IUss_{SPKR}$

The analysis presented here essentially views rising intonation as being the manifestation of two possible operators: either the ↑ operator, or the Q operator. The next section explores the interaction between these two operators, and demonstrates that non-trivial patterns arise when the two are present in the same structure.

5 Interaction with Polar-Q operators

5.1 Polar questions are singleton sets

The traditional view (Hamblin 1973) of PolQs claims that PolQs denote a set of alternative propositions with the cardinality of two: the prejacent and its negation (see Dayal 2016 for a comprehensive overview of the literature). On such accounts, a specialized PolQ operator is stipulated to generate the two-proposition set (Biezma and Rawlins 2012). An alternate view going back to Bolinger (1978) has gained ground in recent research on questions (Gawron 2001, Van Rooy and Šafářová 2003, Roelofsen and Farkas 2015, Biezma 2009, Biezma and Rawlins 2012) which holds that a PolQ denotes *a singleton set* containing only the nucleus proposition. I will adopt this singleton set approach to polar questions, following Biezma and Rawlins (2012)'s definition:

(63) **Question operator** (Biezma and Rawlins 2012: 53)
$[\![\mathbf{[}_{[Q]}\alpha\mathbf{]}]\!]^c = [\![\alpha]\!]^c$ defined only if
a. $[\![\alpha]\!]^c \subseteq$ SalientAlts(*c*) or if SalientAlts(*c*) = ∅ and
b. $|[\![\alpha]\!]^c \cup$ SalientAlts(*c*)$| > 1$.

(64) SalientAlts(*c*) is the set of propositional alternatives that are salient in the context of interpretation *c*, i.e. they are possible answers to the QUD. (Biezma and Rawlins 2012:48)

The answerer of a PolQ must thus choose between the mentioned alternative (the question nucleus) and other salient alternatives that are inferable from the context (all of these being members of SalientAlts(*c*)). This approach aims to achieve a crucial objective: a single operator across question types that collects alternatives, rather than defining multiple operators for polar versus other question types, which is what would be required if one were to take the standard Hamblin/Kartunnen approach (see Biezma and Rawlins 2012 for an extensive comparative discussion of question operators across a range of different interrogative constructions).

5.2 Q $\neq \uparrow$

In the previous sections we saw that in intonational languages such as Bangla, Hindi-Urdu, Telugu, etc, a final rise shifts the interpretation from an assertion into a PolQ. Another strategy of forming PolQs in this category of languages is an *optionally overt* Q-operator – morphologically manifested as the particle *ki* in Bangla; *kyaa* in Hindi (see Thompson 2012, Bayer et al. 2014, Bhadra 2017, Bhatt and Dayal 2018). Thus, in these languages, both this final rise and the visible presence of *ki* are valid strategies for signaling the presence of the Q-operator, as defined above. It is therefore an explicit assumption here that the final rise added to an assertion to form a neutral polar question is the *covert* manifestation of the same Q-operator. To demonstrate this fact, note that in a completely neutral context with no prior evidence, both the questions below are equally felicitous and identical in their meaning:

(65) a. *Berale **ki** pakhi kha-y?*
cat Q bird eat-hab
'Do cats eat birds?'

b. *Berale pakhi kha-y?*
cat bird eat-hab
'Do cats eat birds?'

The Q operator is an universal operator present in all languages that allows the difference between an assertion and an interrogative to exist. Crucially, however, in intonational languages, there arises the possibility of a high-level ambiguity: is the final rise at the end of an assertion to be interpreted as the presence of Q or the presence of ↑, given that each of the operators have fundamentally different contributions to the discourse? I propose that this ambiguity be resolved via a fundamental restriction based on a simple idea of markedness. Q and ↑ are similar in that they both put an issue on the Table and the projected Table, respectively, serving as a legitimate request for information. However, ↑ serves the extra purpose of updating the speaker's projected commitment set with the evidentialized proposition in its scope. We can employ a simple yet productive idea in linguistic theory in this domain as well – the element with the least restrictions has the greater distribution. This approach then begs the question – what is the distribution of the specialized ↑ operator? The restriction on its distribution can be enumerated as follows:

(66) The ↑ operator can only appear when **licensed**.

The ↑ can appear only when licensed by other elements that are structurally present either overtly or covertly, or by very marked intonational devices such as stressing on particular

words in a sentence. The Q operator, in contrast, does not require special licensing conditions. This difference will be vital in later sections as well, when exploring fundamental distinctions between IF and NF languages.

Considering operators such as ↑ as being specially licensable in some languages is not new. In his study of Japanese sentence final particles described above in Section 4.2, Davis (2009, 2011) makes a strong case for keeping different instantiations of rising intonation separate (arguing against the Pierrehumbert and Hirschberg 1990-style one-to-one mapping between intonational phonemes and meaning approach). Not all occurrences of rising and falling intonation should be equated with the presence of ↑ and ↓. I argue, following Davis' insight about Japanese *yo*, that Bangla *naki*, Bangla *bujhi*, Telugu *anTa*, Telugu *eemiti* and all non-flipping evidentials in NF languages are examples of elements which license such an operator.

Positing this fundamental distinction between the two operators raises a vital question: if the evidential itself licenses an ↑ operator, what happens when the speech act operator Q is *also* present in the structure? Bangla exhibits an interesting pattern of interaction between the Q operator *ki* and the evidential *naki*. The entire empirical paradigm is presented below:

(67) a. * *Tumi* ***ki naki*** *amerika chole jaccho?*
you pol.q rep america go.impv go.2p.pres.prog.
'(I heard) you are going away to America, (is it true)?'

b. * *Tumi* ***naki ki*** *amerika chole jaccho?*
you rep pol.q america go.impv go.2p.pres.prog.
'(I heard) you are going away to America, (is it true)?'

c. * *Tumi* ***naki*** *amerika chole jaccho* ***ki****?*
you rep America go.impv go.2p.pres.prog. pol.q
'(I heard) you are going away to America, (is it true)?'

(68) a. *Tumi* ***ki*** *amerika chole jaccho* ***naki****?*
you pol.q America go.impv go.2p.pres.prog. inf
'(I infer) you are going away to America, (is it true)?'

b. * *Tumi amerika chole jaccho* ***naki ki****?*
you America go.impv go.2p.pres.prog. inf pol.q
'(I infer) you are going away to America, (is it true)?'

c. * *Tumi amerika chole jaccho* ***ki naki****?*
you America go.impv go.2p.pres.prog. pol.q inf
'(I infer) you are going away to America, (is it true)?'

As one might notice, the only grammatical sequence in this paradigm[19] of interaction between

[19]All of the Bangla data used in this paper has been collected from 12 adult native speakers, via detailed questionnaires with follow-up confirmations of crucial contrasts. The same methodology has been used for the Telugu data, with 3 adult native speakers.

the PolQ particle *ki* and *naki* is the one associated with the inferential interpretation of *naki* and clause-medial *ki*. The reportative interpretation of *naki* is completely ungrammatical with *ki*. Interestingly, Bangla appears to fit into a greater cross-linguistic pattern in this regard; in the data from Telugu below, notice that the exact same pattern holds.

(69) Telugu (Rahul Balusu, p.c.)

a. *Ram roojuu taagutaaDu-**aa**?* — simple PolQ with overt Q
Ram everyday drinks-POLQ
'Does Ram drink everyday?'

b. *Ram roojuu taagutaaDu-**aa eemiti**?* — inferential with Q = ✓
Ram everyday drinks-POLQ infe
'Does Ram drink everyday (as I infer)?'

c. **Ram roojuu taagutaaDu-**aa anTa**?* — reportative with Q = *
Ram everyday drinks-POLQ rep
'Does Ram drink everyday (as I heard)?'

Valenzuela (2003:40) reports that in Shipibo-Konibo, only inferential evidentials are permitted in interrogatives, while reportative evidentials are not. McLendon (2003) reports that in Eastern Pomo, only the marker of reportative evidence is disallowed in questions, while other evidentials are attested in questions. This striking similarity across such diverse languages makes one think that there is quite possibly a deep reason to be found for the compatibility of the PolQ operator with inferential evidentials, and its fundamental incompatibility with reportative evidentials in these systems. In the following discussion, I claim that this pattern arises out the interaction of what the inferential evidential contributes and what the PolQ marker contributes.

5.3 Q *and* ↑

Biezma and Rawlins (2012), in their analysis of the semantic differences between polar and alternative questions, crucially assume that both types of questions (and other types of questions too), in spite of surface differences, have the same question operator. This is the operator that we are already familiar with, which was defined in (63). In alternative questions, however, the alternative structure of the question is argued to come from the interaction of disjunction with the Q operator, in addition to the presence of a closure operator at LF that enforces that the generated alternatives are the exhaustive list of alternatives in the context.

Importantly, PolQs lack both the presence of disjunction as well as such a closure operator. Thus, PolQs introduce a non-exhaustive set (typically of size 1) of alternatives. Biezma and Rawlins (2012) emphasize that in uttering a PolQ, the speaker is actively choosing one alternative amongst the set of contextually available alternatives. This choice indicates that the speaker favors this spelled-out alternative over the other silent, inferable-from-context ones. Given that the inferential evidential updates the IIss_{SPKR} set on the scoreboard, as discussed above, we can observe a preference concord:

(70) The PolQ operator presents the prejacent proposition as the speaker's preferred alternative, and inferential *naki* updates the IIss$_{SPKR}$. Thus, both signal preference towards the alternative expressed in the question nucleus over other salient alternatives in SalientAlts(*c*).

The discord in Bangla, Telugu, Shipibo-Konibo, and Eastern Pomo between the PolQ operator and reportative evidentials can now be straightforwardly explained. The reportative interpretation updates the speaker's IUss set, which distances them from any commitment towards the proposition. This absence of commitment is incompatible with a PolQ structure where the prejacent proposition is offered as the preferred alternative.

Given this analysis, it would be useful to explicate what happens in a configuration such as (68a) and (69b) – the only configuration where both PolQ and the evidential are present and compatible. The configuration is schematically represented below:

(71) XP Q FinP *naki* ↑

Naki operates on the bare proposition first and produces a evidentialized (modal) claim taken as an argument by ↑, repeated below from (56). After that, *ki* operates on it and produces a singleton set with that complex claim:

(72) Stages of a derivation with both Q and ↑ present

a. *naki* + ↑ (ψ)
= λC [DC$_{SPKR*}$(C) + $\lambda w \exists <w',t',x> \in$ Epist$_{w,t,SPKR}$: it's raining at *w'*,*t'* $\wedge$ Table* (C) + $\lambda w \exists <w',t',x> \in$ Epist$_{w,t,SPKR}$: it's raining at *w'*,*t'*]

b. *ki* (i.e. Q) (λC [DC$_{SPKR*}$(C) + $\lambda w \exists <w',t',x> \in$ Epist$_{w,t,SPKR}$: it's raining at *w'*,*t'* $\wedge$ Table* (C) + $\lambda w \exists <w',t',x> \in$ Epist$_{w,t,SPKR}$: it's raining at *w'*,*t'*])
= {λC [DC$_{SPKR*}$(C) + $\lambda w \exists <w',t',x> \in$ Epist$_{w,t,SPKR}$: it's raining at *w'*,*t'* $\wedge$ Table* (C) + $\lambda w \exists <w',t',x> \in$ Epist$_{w,t,SPKR}$: it's raining at *w'*,*t'*]}

The resultant meaning that we get in (72b) states that the whole claim is a member of SalientAlts(*c*). It can be paraphrased as – 'Do you think I (speaker) should add to my tentative commitments and to the projected Table the claim that in at least one of my epistemic alternatives, it is raining?' Although complex, a sensible meaning is deducible from this - the speaker is asking the addressee whether he should tentatively claim to know that *p* might possibly be true, and if this is an issue that can be considered for resolution. The Telugu counterpart (69b) would work in exactly the same way.

This analysis, of the individual operators as well as their interaction, can also capture the crucial data from Eastern Pomo and Shipibo-Konibo, presented in Section 2, repeated below. The vital observation is that in these structures, there is an overt Q-morpheme present, although the result is still a speaker-oriented interpretation of the evidential (crucially inferential, and not reportative, as discussed above).

(73) Eastern Pomo (McLendon 2003: 55)
When seeing a bead drill and a grinding stone out:
t'a=ma *dawÃ-**ne**?*
inter=2sg.agent drill.beads-**infer**
'Are you drilling beads (given what **I** infer)?'

(74) Shipibo-Konibo (Valenzuela 2003: 32)
*Mi-n-**mein**-ki* *a-ti* *iki?*
2-erg-specl-int do.tr-inf cop
'Would you perhaps do it (the **speaker** is speculating)?'

These derivations for these constructions would proceed in exactly the same manner as shown in (72) above. The evidential itself operates on the bare proposition, and in addition licenses the ↑ operator. The evidentialized claim is taken as an argument by ↑, and the result is operated on by the Q-operators *t'a* (Eastern Pomo) and *ki* (Shipibo-Konibo), which produce a singleton set with the complex claim. Thus, this analysis can capture patterns of NFIs with overt Q-morphemes as well.[20]

6 IF vs. NF revisited

With all of the components of the framework as well as the discussion of interactions of the different operators in place, let us return to our original puzzle: what factors ensure a strongly binary typological space between IF and NF languages?

In the previous sections, one of main claims was that evidentials in NF languages are able to license the ↑ operator that updates the projected commitment set of the speaker and the Projected Table. I propose that the particular ability of licensing ↑ is what leads to the bifurcation within the typological space. This licensing ability is a formal characteristic of an evidential, and can be stated as follows:

[20] An anonymous reviewer asks, why are the other configurations in (68) ungrammatical? Note that the only counterparts which are ungrammatical are where *naki* and *ki* are directly linearly adjacent. I suggest that the phenomenon at play here is the Syntactic OCP, which is the enforcement of the Obligatory Contour Principle in the syntax, attested in several languages (Ackema 2001 and the references therein). Following Hiraiwa (2010)'s formulation of the principle, *naki* and *ki* with their (partially) identical morphophonological forms are banned in the same domain at PF.

(75) The Syntactic OCP (Hiraiwa 2010: 7)
Multiple elements with an identical morphophonological specification are disallowed in the same Spell-Out domain at PF.

The same principle renders the constructions in (67a) and (67b) ungrammatical too. Note that (67c) does not violate the syntactic OCP (just like (68a) does not) but it is ungrammatical because of the interaction of ↑-licensing reportative evidentials and Q as analyzed in Section 5.3.

(76) An NFI is the result of the presence of an evidential capable of licensing ↑. In the absence of this ability, an evidential question will have obligatory Interrogative Flip.

Cutting the pie this way has a vital consequence that has already been highlighted in Section 4.2 – cross-linguistically, the NFI construction is a declarative clause type with the force of an interrogative, given that ↑ updates the Projected Table. In contrast, an IF structure is an interrogative clause with the force of an interrogative as well, given the inquisitive update of Q. Thus, the typological space then includes a comparison between NF languages (in which evidential questions are actually declaratives with a ↑ operator) and IF languages (in which evidential questions are canonical polar questions with a Q operator).

Crucially, note that it would not be a valid claim to state that NF languages do not allow evidentials in inquisitive clauses *at all*; many of the NF patterns discussed above – (68a), (69b), (73), (74) – show the cooccurrence of a clause-typing Q-morpheme and a non-Flipping evidential. But as the analysis in (72) shows, the Q merges later and turns the still declarative clause into an interrogative clause. And as seen, this cooccurrence is only attested with inferential evidentials, and not reportative ones, a cross-linguistic pattern well captured by the current analysis.

The current analysis has some important consequences, especially with respect to the source sets that get updated on the dynamic scoreboard. I take Cheyenne as the representative of an IF language (i.e. a language where evidentials systematically appear unable to license ↑), and Bangla as a representative NF language (i.e. a language where evidentials systematically appear able to license ↑). As seen in Section 2, in Cheyenne, an evidential that is anchored to the speaker in declaratives obligatorily[21] shifts to the addressee in questions, while the Bangla counterparts remain anchored to the speaker. I discuss each type of language in turn.

In the Cheyenne examples of polar interrogatives provided by Murray, the questions are actual polar questions with a polar Q-particle clitic present (*mó=*, cf. (1b)). Thus, we can assume that *mó=* is the overt instantiation of the Q-operator just like the Bangla *ki*.

To recap, I adopted a singleton set analysis of PolQs, and modeled the Q-operator along the lines proposed by Biezma and Rawlins (2012) (see (63)). The authors argue that what is involved in asking a PolQ is a call to the addressee to choose between the mentioned alternative (the element in the singleton set) and other salient alternatives. A number of other works (Gunlogson 2004, Farkas and Bruce 2009, Roelofsen and van Gool 2010, Pruitt and Roelofsen 2013) propound the idea that the 'answer' to a PolQ is actually accepting or denying the alternative in the question prejacent (hence its representation as a singleton set). I informally describe a PolQ as follows:

(77) A true polar question, given its structural and semantic properties, is an operation that marks an agent's contribution to the discourse as belonging to dependent source sets.

To formulate this idea in terms of the terminology used in this paper, the following contrast is of vital importance:

[21] I return to the additional self-directed interpretation in Section 6.2.

(78) a. The Q operator in all languages adds the proposition to the **tentative commitment set** of the **addressee** - DC_{ADDR*}.

b. The ↑ operator in all languages adds the proposition to the **tentative commitment set** of the **speaker** - DC_{SPKR*}.

Thus, the presence of the Q operator immediately signals the speaker's dependent sourcehood, because it is the addressee's knowledge base that is called upon.

When an evidential is present, it applies to the proposition first. In a declarative, this ends up as an update to either IIss_{SPKR} or IUss_{SPKR} (depending on the type of the evidential). In a question, this evidentialized proposition is in the scope of the Q-operator. In that case, there is a foreseeable clash – let's say the evidential wants to update the independent source set IIss_{SPKR}, but the Q operator wants to update the dependent source set DC_{ADDR*}. The result would be contextually very odd – because the speaker would be attempting to signal both independent sourcehood and dependent sourcehood with regards to the same prejacent in one move. I propose that the oddness is repaired by the evidential in the scope of the Q-operator also updating a dependent source set with respect to the evidence.

(79) In an IF construction,

a. an inferential evidential updates $\textbf{IIss}_{ADDR*}$

b. a reportative evidential updates $\textbf{IUss}_{ADDR*}$

c. As always, the Q-operator updates $\textbf{DC}_{ADDR*}$

Thus, two factors jointly result in an IF construction: both the evidential and the Q operator update dependent sets, making the addressee the sole locus of information. Empirical support for this view comes from the important observation cited above from Murray (2010): when an addressee responds to a question formed with the interrogative clitic *mÃ³=* that contains an evidential, the answer has to contain that specific evidential too. As mentioned, this property holds of many other IF languages as well – Tibetan (Garrett 2001), Duna, Foe, Tariana, Gitksan, Tuyuca (San Roque et al. 2017), TuparÃ (Singerman 2018), among others. Thus, the evidential in the question determines the evidential in the answer. The example is repeated below from (9); (81a) is a felicitous answer to the evidential question, (81b) is not.

(80) Murray (2010): (6.2)

a. Q: *Mó=é-némene-**séste** Floyd?*
y/n=3-sing-rep-3sg Floyd
'Given what you heard, did Floyd sing?'

(81) a. *HÃ©he'e Ã©-nÃ©mene-**séste***
yes 3-sing-rpt.3sg
'Yes, he sang, I hear.'

b. # *HÃ©he'e Ã©-nÃ©mÃ©ne-∅*
yes 3-sing-dir
'Yes, he sang, I'm sure.'

In the current analysis, this empirical detail can be captured by the fact that the questioner adds *p* ('Floyd sang') to IUss$_{ADDR*}$, which imposes a restriction on the addressee to respond with the evidential in the answer, and thus confirm that he indeed is the independent source for *p* with the specified kind of evidence.

In an NFI construction in languages like Bangla, the ↑ operator is present. The speaker is crucially not a dependent source in this configuration, but an independent source instead. When an evidential is present, it applies to the proposition first, just like in the case above. The syntax being that of a declarative, this ends up as an update to either IIss$_{SPKR}$ or IUss$_{SPKR}$ (depending on the type of the evidential, as discussed above). This evidentialized proposition is consequently in the scope of the ↑ operator, and this does not result in a clash like in the earlier case. The evidential wants to update the independent source sets IIss$_{SPKR}$ or IUss$_{SPKR}$, and the ↑ wants to update the DC$_{SPKR*}$, so the relevant updates are all to the speaker's sets and consequently, there is no interrogative flip in this configuration.

(82) In an NFI construction,

a. an inferential evidential updates **IIss**$_{SPKR}$

b. a reportative evidential updates **IUss**$_{SPKR}$

c. As always, the ↑ updates **DC**$_{SPKR*}$

This analysis reiterates the claim that NFI structures are those that are syntactically declaratives accompanied by the ↑ operator. Q, if present, always merges after ↑ (cf. the derivations in (72)).

Epistemic modals are another famous perspectival category that participates in IF. For example, consider the following contrasts:

(83) Woods (2014): (10-11)

a. Allegedly$_{speaker}$, Ahmad is at the top of the list.

b. Is Ahmad allegedly$_{addressee}$ at the top of the list?

c. Ella is definitely$_{speaker}$ at the top of the list.

d. Is Ella definitely$_{addressee}$ at the top of the list?

Again, since English is a Subj-Aux inversion language, we can assume that the Q operator in present in these PolQs. As a result, the epistemic modals in these PolQs shift their orientation from the speaker in declaratives to the addressee in questions, i.e. they participate in IF.

Standing in sharp contrast are Bangla epistemic modals - *nishchoi* ('surely/necessarily/probably') and *bodhoy* ('possibly'), which are completely ungrammatical with the PolQ operator *ki*, signaling that the final rising intonation in the absence of *ki* cannot be an instantiation of Q, but of ↑:

(84) a. *Ram bari-te ache* ***nishchoi***$_{speaker}$.
Ram house-loc is probably/must
'Ram is probably at home/must be at home.'

b. **Ram* ***ki*** *bari-te ache* ***nishchoi****?*
Ram Q house-loc is probably/must
Intended: 'Is Ram probably at home?'

c. *Ram bari-te ache* ***nishchoi***$_{speaker}$ + *[final rise]*
Ram house-loc is probably/must
'(I believe its probable that) Ram is at home, (is that true)?'

(85) a. *Ram bari-te ache* ***bodhoy***$_{speaker}$.
Ram house-loc is possibly
'Ram is possibly at home.'

b. **Ram* ***ki*** *bari-te ache* ***bodhoy****?*
Ram Q house-loc is possibly
Intended: 'Is Ram possibly at home?'

c. *Ram bari-te ache* ***bodhoy***$_{speaker}$ + *[final rise]*
Ram house-loc is possibly
'(I believe its possible that) Ram is at home, (is that true)?'

The current proposal can be extended to epistemic modals as well. In languages like Bangla, epistemic modals routinely license the ↑ and thus crucially always update the speaker's projected commitment set and the Projected Table, resulting in an NFI construction.

To summarize, this section argued that the phenomenon of Interrogative Flip depends on two vital factors: the presence of the Q vs ↑, and the source set updated by the evidential. Based on these factors, key cross-linguistic differences were explained.

6.1 Languages with 'mixed' perspectives

One possible challenge to the proposal in this paper may arise with respect to its typological predictions. San Roque et al. (2017) describes empirical patterns in a few languages, most notably Qiang (Sino-Tibetan; China) and Duna (Papuan; Papua New Guinea), which in different sets of restricted contexts, allow either the addressee-oriented (IF) interpretation or the speaker-oriented interpretation (NF). Consider an example:

(86) Duna ((San Roque et al. 2017: 23)
Annabel and Sarah are at their friend Jenny's house, when they notice an empty medicine packet on the table. Annabel asks Sarah:
Jeni siki so-nei=pe?
jeni sickness take/get-reason=int
'Has Jenny been sick (do you think)?'

Annabel assumes that the same evidence is available to both of them, and the evidential is addressee-oriented (IF). In contrast, in the following scenario, Sarah is a member of Jenny's household and thus is expected to have more direct knowledge about Jenny's state. The evidential is anchored to the speaker (NF), and functions to express surprise (San Roque et al. 2017: 24).

(87) *Jeni siki so-nei=pe?*
jeni sickness take/get-reason=inter
'Oh, has Jenny been sick? (I think—I'm surprised)'
(San Roque et al. 2017: 24)

Note that the authors describe the IF interpretation as being the **typical** or the most unmarked interpretation, while the NF interpretation is available only under very specific conditions. Another language with such a 'mixed' perspective is Cuzco Quechua (Quechuan; Peru), studied in Faller (2002). The following example shows the presence of both the IF and the NF readings:

(88) Cuzco Quechua (Faller 2002: 197a)
Pi-ta-n InÃ©s-qa watuku-rqa-n?
who-acc-mi Ines-top visit-pst1-3
'Who did Ines visit?'

This sentence has two possible interpretations: (i) speaker has best possible grounds for asking, (ii) speaker expects hearer to base his or her answer on best possible grounds.

The presence of this empirical pattern of ambiguity across such diverse languages raises an important question: can the current proposal account for this variability in the anchoring of evidentials? I will argue that the bifurcation within the typological space (i.e. IF vs. NF) can still be maintained. In essence, languages like Qiang, Duna, and Quechua can still be classified under IF languages, and the NF interpretation can be shown to arise out of a specific structural configuration.

The previous sections argued for locating the IF vs. NF difference in the ability of individual evidentials to license the ↑ operator. Crucially, the proposal centered on the perspective-sensitive elements themselves and did not make a blanket statement about entire languages. It is an observable fact that in a given language, the otherwise heterogenous class of perspective-sensitive elements *tend* to behave the same way: they all either tend to be able to license the ↑ or not. The analysis leaves room for intra-language differences, given the item-based focus instead of the language-based focus.

The evidentials in Qiang, Duna and Quechua do not license the ↑ operator. The unmarked IF-interpretation in these languages is achieved via the same mechanism as described above (taking Duna *nei* as a representative):

(89) In the IF construction, the evidential is in the scope of the Q operator (the overt Qiang particle *pe*):

a. *nei* updates **IIss**$_{ADDR*}$

b. As always, the Q-operator *pe* updates **DC**$_{ADDR*}$

Thus, the addressee is made the sole locus of information. Note that the parallelism between the typologically diverse languages Duna and Cheyenne is striking: the addressee has to respond with the same evidential in the response to an evidential question with IF in both languages.

In order for NF interpretations of evidentials to be possible in such languages as Qiang and Duna, very distinct structural restrictions need to be in place (cf. San Roque et al. 2017). Duna allows the NF interpretation only when the speaker knows that the addressee does not have the specific flavor of evidence denoted by the evidential, and Qiang allows it only with second person subjects (again from a similar assumption about the addressee's evidential status).

I propose that this class of NF interpretations with evidentials that generally prefer the IF interpretation is due to a scope interaction between the evidential and the Q operator.[22] We saw above in (89) that Q scoping over the evidential resulted in the latter updating the *dependent* projected source set – IIss$_{ADDR*}$. In contrast, when the evidential outscopes the Q operator, then it no longer updates a dependent source set, but the independent source set that is originally meant to be its contribution. This scopal interaction allows the speaker-oriented interpretation to arise, since the speaker's independent source set is updated.

(90) When the evidential *nei* scopes over the Q operator *pe*,

a. *nei* updates **IIss**$_{SPKR}$

b. As always, the Q-operator *pe* updates **DC**$_{ADDR*}$

The result is that the speaker's evidential qualification is registered in the discourse, while the addressee still remains the locus of information.

Thus, languages (such as Macedonian, Qiang, Duna, Quechua) that allow evidentials with mixed perspectives to exist do so because the evidentials are independently allowed to participate in scopal interactions with the speech act operator Q. Other languages under the IF category do not allow for such scope interactions, and thus only the IF interpretation (Q > evidential) is attested.

This analysis is provided more empirical support from fresh fieldwork results reported in Singerman (2018).[23] In the endangered language TuparÃ, evidentials in interrogatives usually undergo IF. However, when an evidential occurs in an adjunct clause such as an internally headed relative clause, an NF interpretation is suddenly the only one possible:

[22]Faller (2002) argues, in her adopted framework of speech acts and sincerity conditions, that the Quechua ambiguous pattern is due to the scope interactions between the evidentials and the complex speech act of request + assert. I refer the reader to the original work for details.

[23]I thank Adam Singerman for making his new fieldwork data available to me, followed by detailed discussions of the crucial contrasts.

(91) TuparÃ (Singerman 2018: 372)
Context: During a WhatsApp conversation my friend tells me that she has eaten dinner. I ask if her meal was tasty, and she says yes. She then asks if my meal was tasty, too.
Earet *nẽ* *awe* *heporet* *∅-kopnã* *'en* *hÃ¨t?*
2sg-food.nuc y/n tasty also 3-eat-ev.sg-th 2sg hÃ¨.nuc
'Is your food tasty also, that which you ate (non-witnessed)?'
Author's comment: "She did not witness me eat my food, which is why she had to employ -pnẽ."

Singerman notes that the in spite of the presence of the PolQ marker nẽ, which usually results in an IF interpretation, the evidential in (91) is anchored to the speaker. This shows that the evidentials in this language can outscope Q when embedded in adjunct clauses such as relative clauses or *when*-clauses (Singerman 2018: 373). Regular interrogative configurations in TuparÃ adhere to the Q > evidential scope structure, leading to IF being the predominant reading.

This scopal interaction occurs inside the IF languages mentioned in this section. With respect to concerns about typological transparency, one could ask, why is it the case that only the languages examined in this section allow such scope reversals and not all IF languages? This question can be asked of greater cross-linguistic patterns of quantifier scope in general. Why do we find the existence of both languages that allow their quantifiers to only take surface scope (for example, Mandarin Chinese, Hungarian, etc) as well as languages that allow both surface and inverse quantifier scope (for example, English)? I do not take up the task of answering this question in this paper. This section argued that the current analysis can account for 'mixed' perspective IF languages as well, without affecting the central typological bifurcation proposed in the paper.

6.2 Self-directed questions

Another empirical fact could be cited as a challenge to the current analysis. This fact is the ambiguity reported to exist in evidential questions in languages such as Tibetan and Cheyenne (cf. (6) and (7) above). The representative example is repeated below.

(92) Cheyenne (Murray 2010: p. 75)
TÃ³ne'Åje *Ã©-ho'eohtse-**sėste***
when 3-arrive-rpt.3sg
i. 'Given what you heard, when did he arrive?'
ii. 'He arrived sometime, I wonder when.'

This Cheyenne evidential *wh*-question allows for both the familiar addressee-oriented IF interpretation in (i), as well the speaker-oriented self-directed interpretation in (ii). If we assume, given the analysis proposed in this paper, that IF constructions contain a Q that scopes over the evidential (and crucially no ↑ operator), then a valid concern can be raised: where does the speaker's self-directed interpretation in similar constructions in Cheyenne and Tibetan

come from?[24]

Pursuing the answer to this question will lead us into an exploration of self-directed questions (henceforth, SDQs) in general, for which no formal semantic accounts exist, to the best of my knowledge. I first discuss SDQs as a general speech act, and then return to the Cheyenne/Tibetan puzzle.

A SDQ is felicitous in a context where the speaker either utters a question to himself with no addressee present, or when an addressee is present but is not expected to answer.

(93) John is watching a match alone, and his favorite team, The Hawks, loses for the fifth time in a row.

a. John: *Will they ever win a game?*

This construction, although lacking an addressee, forms a part of a coherent self-oriented discourse that John is a participant in. John is not really seeking any information in the form of an answer to his question. Such a SDQ might remind the reader of another genre of interrogative speech acts – *rhetorical questions*. The asker of a rhetorical question (henceforth, RQ) also does not appear to expect an answer to the question (Caponigro and Sprouse 2007). They are, however, characterized by one fundamental difference. An interrogative can be used rhetorically only when the answer exists in the Common Ground, i.e. both the speaker and the addressee share knowledge of the answer (Rohde 2006, Caponigro and Sprouse 2007). The answer to a SDQ does not necessarily have a such a status. All participants in a discourse in which a SDQ is uttered by one speaker might be ignorant about the answer to the question. The answer could be completely unknown and yet the SDQ can be felicitous. In spite of this fundamental difference, one of the main shared properties is that fact that neither SDQs nor RQs really require an answer. This overarching parallelism can be stated as follows:

(94) Neither SDQs nor RQs put any issues on the Table.

A hallmark of information-seeking questions is their contribution of issues to the Table (cf. Roberts 1996, Ginzburg 2012, among others). Modeling the non-information-seeking discourse contributions of SDQs and RQs in the manner in (94) captures their departure from canonical interrogative speech acts.

The second possible interpretation in the Cheyenne example in (92) is that of a SDQ, while the first interpretation is a direct question with IF. I propose that co-existence of these readings is possible because of a simple parallelism of dependent sourcehood: in both cases, the speaker is ignorant regarding the answer to the question, i.e. the speaker is a dependent source in both constructions. In the IF case in (i), an issue is actively put on the Table to be resolved; in the SDQ case in (ii), no issue is put on the Table. The exact same explanation can be extended to the Tibetan data.

[24]Garrett (2001) and Murray (2010) do not discuss why more languages do not have this sort of ambiguity in evidential questions, and I do not pursue this question here.

In essence then, the 'mixed' perspective pattern in this section does not pose a challenge. The main typological claim – that cross-linguistically, evidentials are either IF evidentials or NF evidentials, can still be defended.

In Section 2.2, a striking point of overlap between the NFI constructions in Bangla and Telugu was presented. NFI constructions in both languages are biased questions. No IF constructions in the literature have been attested to have bias. The next section investigates the presence of bias, and argues for forging a novel connection between NFI constructions and bias. Such a connection has not been made in the literature before, and I argue that it makes several desirable predictions.

7 Biased questions

In discourse, not all interrogative structures are equivalent in their contribution.[25] For example, consider the following minimal pair:

(95) a. Does John drink? b. Doesn't John drink?

While (95a) can be uttered in a completely neutral context where the speaker does not know or believe anything about John, (95b) requires an additional level of computation in the addressee's mind. Ladd (1981), Han (1998), Buring and Gunlogson (2000) and Romero and Han (2002) point out that questions with preposed negation such as (95b) necessarily contribute an implicature with a strong, non-cancellable effect: the speaker believes or at least expects that the positive answer is correct. This contribution of certain polar questions where the speaker conveys an expectation towards one of the outcomes being more likely to be true than the other (irrespective of what the actual case may be or what answer is provided by the addressee) is called *bias*.

7.1 Biased NFIs

All questions with *naki* and *bujhi* in Bangla, and all questions with *anTa* and *eemiti* in Telugu are obligatorily biased.[26] The speaker expects the proposition in the question nucleus to be more likely to be true over its complement. As a consequence, these evidential questions cannot be employed felicitously in neutral situations where the speaker has no evidence for the prejacent. For example, consider the representative *naki* exchanges below, the first one repeated from above:

[25] See Buring and Gunlogson (2000) for an extensive discussion of the felicity conditions of a range of interrogative constructions; see Dayal (2016) for discussion on numerous forms non-canonical questions such as tag questions, questions with inner vs. outer negation, questions with NPIs, RQs, echo questions, ability questions.

[26] I do not employ Sudo (2013)'s division between 'epistemic' vs. 'evidential' bias here, since the bias in the questions being studied here can be a result of both private beliefs as well as contextual evidence.

(96) *Ram has been sitting in a windowless room for several hours. Sita enters, Ram asks her:*

a. *#Baire brishti por-che* **naki?**
outside rain fall-prog infe
Intended: '(I infer) it's raining outside, (is that true)?'

b. *#Baire* **naki** *brishti porche?*
outside rep rain fall-prog
Intended: '(Given what I heard) it's raining outside, (is that true)?'

The polarity of the bias always matches the polarity of the prejacent. For example, in the scenario below, the speaker can express a negative bias or a positive bias by manipulating the polarity of the prejacent in the scope of *naki*:

(97) *Ram asks Sita to leave their house-keys with the neighbor, and NOT the caretaker. Upon return, Ram sees Sita dialing the caretaker's number, and asks*:

a. *cabi-ta kyaartekar-er kache rekh-e esh-e-chish naki?* ***p***
key-cl caretaker-loc close keep-impv come-impv-perf.2p. inf
'(I infer) you left the keys with the caretaker, (is that true)?'

b. *cabi-ta protibeshi-er kache rekh-e a-shish-ni naki?* ***¬p***
key-cl neighbor-loc close keep-impv come-perf.2p.-neg inf
'(I infer) you didn't leave the keys with the neighbor, (is that true)?'

There have been numerous characterizations of bias in natural language: the formulation of bias as a pragmatic presupposition (Rohde 2006, Caponigro and Sprouse 2007); bias as a semantic presupposition (Guerzoni 2003, 2004); bias as compelling evidence (Ladd 1981, Buring and Gunlogson 2000); bias as a conversational implicature (Krifka 1995, Van Rooy 2003, Romero and Han 2004); bias as an assertion (Reese 2007, Asher and Reese 2005, Asher and Reese 2007). This paper aims to contribute to this body of work in establishing a novel connection between the presence of bias and the presence of an evidential in an interrogative (a declarative clause with interrogative force). To my knowledge, this particular association has not been formally posited before. I argue below that to correctly characterize all of the nuanced distinctions surrounding bias in evidential questions, one should focus on the link between the lack of IF and the presence of bias, as mediated by the notion of independent sourcehood.

Bias can be defined in the following manner:

(98) Bias in interrogatives is a not-at-issue public statement by an agent of their independent sourcehood status with regard to the prejacent.

In essence, this claim makes two predictions:

(99) a. Structures with IF, i.e. where the speaker is a dependent source, should not be biased questions.

b. Neutral polar questions with the Q operator, i.e. where the speaker is a dependent source, should not be biased questions.

The discussion in the preceding sections all point towards both of these being true – none of the studies on languages where evidentials flip in interrogatives have ever reported that these interrogatives are biased, neither do any of the interrogatives with just overt Q-particles presented here (from Bangla and Telugu, at the very least) can be argued to be biased. In the Telugu data presented in (62), in both the instances where each of the evidentials appear with ↑, the resulting utterance of interrogative force is biased, while the simple polar question with the Q-operator (69a) is not.

Thus, a strong claim can be defended – the presence of bias and the presence of IF are in complementary distribution. This can be schematically represented in the following manner:

(100)

Bias	**Interrogative Flip**
operator present: ↑	operator present: Q
the evidential adds p to IIss_{SPRK} or IUss_{SPKR}	the evidential adds p to IIss_{ADDR*} or IUss_{ADDR*}
i.e. speaker has independent sourcehood	i.e. speaker has dependent sourcehood

A biased polar question is minimally different from a neutral polar question as well as a question with IF in its assertion of independent sourcehood. As soon as there is no evidence for p that is anchored to the speaker, the possibility of speaker bias is eliminated. This formulation forges a pivotal link between evidentiality and bias, between (the lack of) IF and bias, and helps us achieve an unified analysis of biased NFI constructions.

8 Comparison: Korotkova (2016)

As per the suggestion of an anonymous reviewer, I undertake a comparative study with a previous analysis of IF – Korotkova (2016). I first compare the key parts/predictions of each proposal to highlight the novel contributions of this paper, following which I discuss how the issue of bias is handled completely differently in the two approaches.

8.1 The proposals and their predictions

Firstly, Korotkova (2016)'s analysis of Interrogative Flip excludes an important attested empirical pattern. Korotkova's analysis of IF is a purely pragmatic one. Since information-seeking questions are about the addressee's opinion/information state, automatically evidentials are assumed to orient to the addressee. It is not clear how this analysis would account for languages with "mixed perspectives" (cf. Section 6.1), examples of which are Macedonian, Qiang, Duna, Quechua. Such languages, in information-seeking

questions, allow both a Flipped and non-Flipped interpretation. Any adequate theory of Interrogative Flip would have to contend with these mixed paradigms. Korotkova's overarching claim of universality – "If an evidential in a given language can occur in information-seeking questions, it will be anchored to the addressee." (Korotkova 2016, p. 260) is directly contradicted by these empirical patterns, which Korotkova does not discuss.

Secondly, there are several problems with the derivation of self-directed interpretations (cf. Section 6.2 in the current paper) in Korotkova's analysis. Korotkova argues that languages which allow self-directed interpretations (which Korotkova calls 'ignorance readings' and I refer to them as such in the following discussion) in evidential questions are solely *wh*-indefinite languages. Given the functional overlap between *wh*-words and indefinite pronouns often observed cross-linguistically, Korotkova makes the claim that the ignorance interpretation arises out of an indefinite (e.g. *someone*, which expresses ignorance on the part of the speaker) being identical to a *wh*-word. Thus, the fact that an evidential inside a *wh*-question gets a speaker-oriented reading has nothing to do with the evidential itself in this analysis; rather, it has to do with the *wh*-indefinite. Three problematic issues arise from such an approach: (i) if the *wh*-indefinite contributes the ignorance reading anyway, then how does the Flipped interpretation (which is the other interpretation in these constructions in these languages) even arise? And in each case then, what does the evidential contribute? In general, there is no discussion of the interaction of the contribution of the *wh*-indefinite and that of the evidential such that both readings can be derived compositionally or pragmatically; (ii) Korotkova appears to use the fact that ignorance readings are available via the mere presence of *wh*-indefinites (in structures with no evidentials in them) cross-linguistically to function as proof for her claim that evidentials are not needed for ignorance anyway. Her argument can be paraphrased as follows – since there are languages where the ignorance effect arises without evidentials, then it cannot be the case that the evidential contributes that ignorance interpretation. This argument appears to be circular – because structures without evidentials have ignorance readings from other elements does not mean that in structures with evidentials, the evidential (or another element interacting with the evidential) cannot be the source of the ignorance interpretation; (iii) Additionally, the reverse of this argument leads straight to overgeneration – why is it the case that in all languages where evidentials do not participate in the Flip there aren't any ignorance readings available? Forker (2018) points this out as well, contending that not all examples of evidentials without the shift as provided in Aikhenvald (2004) and San Roque et al. (2017) have conjectural/ignorance/self-directed readings, contrary to Korotkova's prediction.

The current paper derives the mixed perspectives and the self-directed perspective via compositional and principled discourse contributions of the evidential itself, and the interaction between the evidential and other operators present in the structure such as Q. For example, languages with mixed perspectives are still argued to be IF languages, and the atypical NF interpretation is attributed to scopal interactions of the evidential with the Q operator, with crucial consequences in discourse updates. The current analysis also captures the presence of additional self-directed interpretations in IF constructions in some languages without any additional stipulations. The notion of (in)dependent sourcehood

explored throughout the paper is shown to be crucial in this domain as well. Thus, the current analysis is able to derive a much more diverse set of patterns correctly than Korotkova (2016).

Korotkova (2016) (p. 221) explicitly makes the generalization that "the semantics of evidentials is incompatible with non-shifted readingsâ□□. This generalization is then defended from three standpoints: (a) by asking an information-seeking question, the speaker is acknowledging they do not know the answer, and thus any overt markers of point of view inside such a question just shifts to the addressee automatically and obligatorily; (b) what may seem like a speaker-oriented reading is just an example of a quotative reading (relayed speech acts in which the speaker is repeating a third party's question), or a mirative reading (the speech act containing which Korotkova dismisses as an exclamative, and not a question; discussed in Section 6.1 in the current paper), or the ignorance reading discussed in detail above; (c) the presence of epistemic states in the semantics of an evidential distinguishes it from an indexical, and that is the reason evidentials shift in questions and indexicals do not.

At the level of the analysis, the current paper's major departure from Korotkova is two-fold. Firstly, the current paper does not assume or claim any inherent incompatibility between the semantics of evidentials and non-shifted readings. Instead, it argues for a refinement within the class of evidentials â□□ evidentials are not a homogenous class of elements; they come in two shapes whereby one subclass is able to license an ↑ operator and the other subclass is not. This ability, combined with refinements within the notions of commitment and sourcehood is shown to be able to account for all of the typologically diverse patterns attested in the literature on evidentials. Secondly, as argued above, NFI (Non-Flip Interrogatives) are actually **declarative clause-types with interrogative force**, and hence the "NFIâ□□ nomenclature is retained. This presence of interrogative force is what is taken to be the common denominator among IF and NFI constructions, justifying the comparative inquiry undertaken in the paper. One of the ways the paper attempts to contribute to the literature is by proposing a refinement in what counts as interrogative force â□□ a declarative with interrogative force can still put an issue up for resolution by updating the Projected Table, while an interrogative clause with interrogative force puts an issue up for resolution by updating the Table directly. The interrogative force in the former case comes from the speaker awaiting ratification from the addressee to move the issue from the Projected Table to the Table.

This approach then invokes a direct comparison with Korotkova's claim: "[the shifted interpretation] is the only interpretation available to evidentials in information-seeking questions, provided that evidentials in a given language can be used in interrogatives at all.." (Korotkova 2016; p. 220). The keywords here are 'information-seeking' and 'interrogative'; I discuss each in turn. On the surface, it appears that this claim holds up completely â□□ NFI constructions are actually declarative clauses, and thus speaker-oriented readings in NFIs do not challenge a claim about interrogatives. However, as we know, clause-types and illocutionary force are notorious for not lining up straightforwardly. As discussed above, the current paper strongly emphasizes the interrogative force of NFI constructions by modeling their discourse updates as such, and thus the speaker-oriented reading in an NFI still classifies as a speaker-oriented reading in an interrogative. Unless Korotkova conceptualizes 'interrogative' strictly as being interrogative clause-type only without any

reference to illocutionary force, her generalization cannot subsume the data in the paper. In addition, the speaker's request for ratification from the addressee in order to move the issue from the Projected Table to the Table makes these utterances information-seeking as well (though not asking for the same kind of information that Korotkova presumably means).

Another bone of contention with Korotkova's generalization is the existence of empirical paradigms in Bangla, Telugu, Eastern Pomo, and Shipibo-Konibo described in Section 5.3 above, where an overt Q-operator co-occurs with an evidential and results in a speaker-oriented meaning. Such constructions are both interrogative clauses as well as information-seeking utterances, given both the structural presence and discourse contribution of Q, and yet do not have the Flip. The current approach is extended naturally to these examples, with Q argued to merge after the licensed ↑ operator.

Furthermore, given that Korotkova explicitly states that the semantics of evidentials is incompatible with non-shifted readings, her analysis cannot capture distinctions that an analysis interacting with a judge-dependent semantics and an operator such as ↑ can. We saw in Section 5.3 a puzzling pattern in some languages (Bangla, Telugu, Eastern Pomo, and Shipibo-Konibo) where reportative evidentials are banned against co-occurring with the Q operator, while inferential evidentials are not. Given that all evidentials in Korotkova's system interact uniformly with the Q-operator (which has the traditional non-singleton set formulation), this particular asymmetry between inference and reports remains unexplained. The current paper's formulation of commitment, sourcehood and discourse updates, and their application across evidentials and speech act operators resolve this mystery.

8.2 Bias

There is a fundamental difference between Korotkova (2016) and the current paper with regards to the issue of bias in interrogative utterances with evidentials.

In an approach similar to the one she adopted for ignorance readings described above, Korotkova assumes that the bias in evidential utterances with speaker-oriented readings have nothing to do with the evidential itself. Non-shifted readings are possible in biased questions because they are already biased, due to some other factor such as the presence of a separate bias particle like *nali* below (emphasis added).

(101) Bulgarian (Korotkova 2016: 402b-c)

a. Context: I see Ortcutt on the beach and he looks suspicious. I conclude that he is a spy and ask to confirm this conclusion.
*Ortcutt e Å¡pionin **nali**?*
Ortcutt be.3sg.pres spy prtcl
'Isn't Ortcutt a spy?'

b. Context: I hear rumors that Ortcutt is a spy. I ask to confirm that.
*Ortcutt bi-**l** Å¡pionin **nali**?*
Ortcutt be-ind spy prtcl
'Ortcutt is a spy, I heard. Is that true?'

Korotkova claims that when the evidential *-l* occurs in such an already biased question, it automatically gets a speaker-oriented reading.

This claim is neither compositionally supported nor the pragmatic contributions of the various elements clarified. As such, it does not account for empirical paradigms where the question has bias because of the sole presence of the evidential. The Bangla and Telugu data cited in the paper where regular, unbiased, polar interrogatives are turned into biased inquiries by evidentials, cannot be accounted for with Korotkova's approach. There is no other particle present in the structure in these languages to introduce an epistemic bias before/apart from the evidential. The core explanandum is not met in Korotkova (2016) â□□ the presence of bias is stipulatively equated with no Flip, and there is no link established between particles demonstrating a speaker's declaration of their evidence type and their consequent expectation that one answer is likelier than the other. The current paper, on the other hand, argues for a strong compositional link between evidentiality and bias. The observable bias is analyzed as arising from the interaction of the ↑ operator licensed by the evidentials and the semantics of the evidentials themselves.

9 Conclusion

This paper undertook a cross-linguistic exploration of the phenomenon of Interrogative Flip at the formal semantics-pragmatics interfaces. The main proposal was in favor of a typological divide within the space of evidential systems that is sensitive to the licensing abilities of evidentials. The ability of an evidential to license the operator ↑ was shown to have very wide-ranging effects in the grammars of a distinct set of languages. Refinements within the notions of sourcehood and commitment were proposed, and modeled in a dynamic pragmatic discourse model. The phenomenon of Interrogative Flip was shown to not be universal or obligatory (contra some prevalent views in the literature), but instead crucially dependent on the presence of either the Q operator, or the ↑ operator. Flipped and non-Flipped constructions are argued to differ in their clause types (interrogative vs. declarative, respectively) but be similar in their force (interrogative). A wide spectrum of behavior on the part of evidentials occurring in utterances with interrogative force, including 'mixed' perspective readings and self-directed readings, were derived keeping the binary typological space intact. Puzzling asymmetries in the interaction of different types of evidentials with operators such as Q were also analyzed within the dynamic discourse setup and its synergy with sourcehood. Forging a novel connection between Interrogative Flip and biased questions was another undertaking of this paper. A causal relationship between the lack of the Flip and the presence of bias was argued for. Overall, the paper targets an extensive range of cross-linguistic evidential and perspective-sensitive qualifications across a variety of speech acts.

References

Ackema, P. (2001). Colliding complementizers in {D}utch: another syntactic {OCP} effect. *Linguistic Inquiry 32*(4), 717–726.

Aikhenvald, A. (2004). *Evidentiality*. Oxford University Press.

Aloni, M. (2007). Free choice, modals and imperatives. *Natural Language Semantics 15*, 65–94.

Alonso-Ovalle, L. (2006). *Disjunction in Alternative Semantics*. Ph. D. thesis, University of Massachusetts, Amherst.

AnderBois, S. (2014). On the exceptional status of reportative evidentials. In *Semantics and Linguistic Theory*, Volume 24, pp. 234–254.

Asher, N. and B. Reese (2005). Negative bias in polar questions. In *Proceedings of SuB9*, pp. 30–43.

Asher, N. and B. Reese (2007). Intonation and discourse: Biased questions. *Interdisciplinary studies on information structure 8*, 1–38.

Bartels, C. (1999). The intonation of english statements and questions: A compositional approach.

Bayer, J., P. Dasgupta, S. Mukhopadhyay, and R. Ghosh (2014). Functional structure and the bangla discourse particle to. In *30th South Asian Languages Analysis Roundtable (SALA 30)*.

Bhadra, D. (2017). *Evidentiality and Questions: Bangla at the Interfaces*. Ph. D. thesis, Rutgers University.

Bhadra, D. (forthcoming). Evidentials are syntax-sensitive: the view from Bangla. *Glossa: a journal of general linguistics*.

Bhatt, R. and V. Dayal (2018). Polar question particles.

Biezma, M. (2009). Alternative vs polar questions: The cornering effect. In *Semantics and Linguistic Theory*, Volume 19, pp. 37–54.

Biezma, M. and K. Rawlins (2012). Responding to alternative and polar questions. *Linguistics and Philosophy 35*(5), 361–406.

Bolinger, D. (1978). Yes-No Questions are not Alternative Questions. In H. Hiz (Ed.), *Questions*, pp. 87–105. Dordrecht: Reidel Publishing Company.

Bolinger, D. L. M. (1957). *Interrogative Structures of American English:(the Direct Questions)*. University of Alabama Press.

Brosig, B. and E. Skribnik (2018). Evidentiality in Mongolic. In A. Y. Aikhenvald (Ed.), *The Oxford Handbook of Evidentiality*. Oxford University Press.

Buring, D. and C. Gunlogson (2000). Aren't positive and negative polar questions the same?

Caponigro, I. and J. Sprouse (2007). Rhetorical questions as questions. In *Proceedings of Sinn und Bedeutung*, Volume 11, pp. 121–133.

Chierchia, G., B. H. Partee, and R. Turner (1989). *Properties, types and meaning*. Dordrecht ; Boston: Kluwer Academic Publishers.

Ciardelli, I., J. Groenendijk, and F. Roelofsen (2013). Inquisitive semantics: a new notion of meaning. *Language and Linguistics Compass 7*(9), 459–476.

Comrie, B. and M. Polinsky (2007). Evidentials in tsez. In *L'énonciation médiatisée II: le traitement épistémologique de l'information, illustrations amérindiennes et caucasiennes*, pp. 335–350. Peeters.

Dancy, J. (1985). *An introduction to contemporary epistemology*, Volume 27. Blackwell Oxford.

Davis, C. (2009). Decisions, dynamics and the japanese particle yo. *Journal of semantics 26*(4), 329–366.

Davis, C., C. Potts, and M. Speas (2007). The pragmatic values of evidential sentences. In *Semantics and Linguistic Theory*, Volume 17, pp. 71–88.

Davis, C. M. (2011). Constraining interpretation: Sentence final particles in japanese.

Dayal, V. (2016). *Questions*. Edited by Chris Barker and Chris Kennedy, Oxford University Press.

De Haan, F. (1999). Evidentiality and epistemic modality: Setting boundaries. *Southwest journal of linguistics 18*(1), 83–101.

Faller, M. T. (2002). *Semantics and pragmatics of evidentials in Cuzco Quechua*. Ph. D. thesis, Stanford University.

Farkas, D. (2011). Polarity particles in English and Romanian. In *Romance Linguistics 2010: Selected papers from the 40th Linguistic Symposium on Romance Linguistics (LSRL)*, pp. 303–328. John Benjamins.

Farkas, D. and F. Roelofsen (2012). Polar initiatives and polarity particles in an inquisitive discourse model. In *colloquia at Yale and Nijmegen University*.

Farkas, D. F. and K. B. Bruce (2009). On reacting to assertions and polar questions. *Journal of semantics*.

Farkas, D. F. and F. Roelofsen (2015). Division of labor in the interpretation of declaratives and interrogatives. *Manuscript, ILLC/UCSC, submitted for publication*.

Foris, D. P. (1993). *A grammar of Sochiapan Chinantec*. Ph. D. thesis, University of Auckland(New Zealand).

Forker, D. (2018). Evidentiality and its relations with other verbal categories. In A. Y. Aikhenvald (Ed.), *The Oxford Handbook of Evidentiality*. Oxford University Press.

Garrett, E. J. (2001). *Evidentiality and Assertion in Tibetan*. Ph. D. thesis, UCLA.

Gawron, J. M. (2001). Universal concessive conditionals and alternative nps in english. *Logical perspectives on language and information*, 73–105.

Ginzburg, J. (2012). The interactive stance: Meaning for conversation.

Groenendijk, D. d. J. and M. Stokhof (1984). *Studies in the semantics and of questions and the pragmatics of answers*. Phd, University of Amsterdam.

Groenendijk, J. et al. (2003). Questions and answers: Semantics and logic. In *Proceedings of the 2nd CologNET-ElsET Symposium. Questions and Answers: Theoretical and Applied Perspectives*, pp. 16–23. Utrecht.

Grunow-Harsta, K. et al. (2007). Evidentiality and mirativity in magar. *Linguistics of the Tibeto-Burman area 30*(2), 151.

Guerzoni, E. (2003). *Why even ask?: on the pragmatics of questions and the semantics of answers*. Ph. D. thesis, Massachusetts Institute of Technology.

Guerzoni, E. (2004). Even-npis in yes/no questions. *Natural Language Semantics 12*(4), 319–343.

Gunlogson, C. (2004). *True to form: Rising and falling declaratives as questions in English*. Routledge.

Gunlogson, C. (2008). A question of commitment. *Belgian Journal of Linguistics 22*(1), 101–136.

Gussenhoven, C. (2004). *The phonology of tone and intonation*. Cambridge University Press.

Hale, A. (1980). Person markers: Finite conjunct and disjunct verb forms in Newari. *Pacific Linguistics. Series A. Occasional Papers* (53), 95.

Hamblin, C. (1973). Questions in {M}ontague grammar. *Foundations of Language 10*(1), 41–53.

Hamblin, C. L. (1971). Mathematical models of dialogue1. *Theoria 37*(2), 130–155.

Han, C.-h. (1998). Deriving the interpretation of rhetorical questions. In *Proceedings of West Coast Conference in Formal Linguistics*, Volume 16, pp. 237–253. Citeseer.

Hartmann, K. (2008). Focus and emphasis in tone and intonational languages. *The discourse potential of underspecified structures*, 389–411.

Hayes, B. and A. Lahiri (1991). Bengali intonational phonology. *Natural Language and Linguistic Theory 9*(1), 47–96.

Hedberg, N., J. M. Sosa, and L. Fadden (2004). Meanings and configurations of questions in english. In *Speech Prosody 2004, International Conference*.

Hiraiwa, K. (2010). The syntactic ocp. In *The Proceedings of the 11th Tokyo Conference on Psycholinguistics*, pp. 35–56.

Izvorski, R. (1997). The {P}resent {P}erfect as an Epistemic Modal. In A. Lawson (Ed.), *Proceedings of {SALT VII}*, Ithaca, NY, pp. 222–239. {CLC} Publications.

Karttunen, L. (1977). Syntax and Semantics of Questions. *Linguistics and Philosophy 1*(1), 3–44.

Korotkova, N. (2016). *Heterogeneity and uniformity in the evidential domain*. Ph. D. thesis, University of California at Los Angeles.

Koyama, T. (1997). Bunmatsushi to bunmatsu intoneeshon [sentence final particles and sentence final intonation]. *Bunpoo to onsei [Speech and grammar] 1*, 97–119.

Kratzer, A. and J. Shimoyama (2002). Indeterminate pronouns: The view from japanese. In *3rd Tokyo conference on psycholinguistics*.

Krawczyk, E. A. (2012). *Inferred Propositions and the Expression of the Evidence Relation in Natural Language Evidentiality in Central Alaskan Yup'ik Eskimo and English*. Ph. D. thesis, Georgetown University.

Krifka, M. (1995). The semantics and pragmatics of polarity items. *Linguistic Analysis 25*, 209–257.

Krifka, M. (2014a). Embedding illocutionary acts. In *Recursion: Complexity in cognition*, pp. 59–87. Springer.

Krifka, M. (2014b). Negated polarity questions as denegations of assertions. *Contrastiveness and scalar implicatures. New York: Springer*.

Ladd, D. R. (1981). A first look at the semantics and pragmatics of negative questions and tag questions. In *Papers from the Regional Meeting. Chicago Linguistics Society, Chicago, Ill.*, Number 17, pp. 164–171.

Lasersohn, P. (2005). Context dependence, disagreement, and predicates of personal taste. *Linguistics and philosophy 28*(6), 643–686.

Lauer, S. and C. Condoravdi (2012). The basic dynamic effect of interrogative utterances. In *13th Texas Linguistics Society Conference*.

Lee, C. (2012). Perspective shifts of Korean evidentials. pp. 26–42.

Lewis, D. (1979). Scorekeeping in a language game. In R. Baüerle, U. Egli, and A. von Stechow (Eds.), *Semantics from a Different Point of View*. Berlin: Springer.

Lim, D. (2011). Temporal and inferential interpretation of korean direct evidential-te. In *Proceedings from the Annual Meeting of the Chicago Linguistic Society*, Volume 47, pp. 183–197. Chicago Linguistic Society.

Lim, D. and C. Lee (2012). Perspective shifts of korean evidentials and the effect of contexts. In *Semantics and Linguistic Theory*, Volume 22, pp. 26–42.

Littell, P., L. Matthewson, and T. Peterson (2010). On the semantics of conjectural questions. *Evidence from evidentials 28*, 89–104.

MacFarlane, J. (2011). Are assessment-sensitive. *Epistemic modality*, 144.

Malamud, S. A. and T. Stephenson (2015). Three ways to avoid commitments: Declarative force modifiers in the conversational scoreboard. *Journal of Semantics 32*(2), 275–311.

Maslova, E. (2003). Evidentiality in yukaghir. *TYPOLOGICAL STUDIES IN LANGUAGE 54*, 219–236.

Matthewson, L., H. Davis, and H. Rullmann (2007). Evidentials as epistemic modals: Evidence from st'át'imcets. *Linguistic variation yearbook 7*(1), 201–254.

McLendon, S. (2003). Evidentials in eastern pomo with a comparative survey of the category in other pomoan languages. *TYPOLOGICAL STUDIES IN LANGUAGE 54*, 101–130.

Meriçli, B. S. (2016). *Modeling indirect evidence*. Ph. D. thesis, University of California, Santa Cruz.

Murray, S. E. (2010). *Evidentiality and the structure of speech acts*. Ph. D. thesis, Rutgers University.

Nilsenová, M. (2006). Rises and falls. *Studies in the semantics and pragmatics of intonation. Ph. D. thesis, University of Amsterdam*.

Northrup, O. B. (2014). *Grounds for Commitment*. Ph. D. thesis, University of California at Santa Cruz.

Papafragou, A. (1998). Inference and word meaning: The case of modal auxiliaries. *Lingua 105*(1-2), 1–47.

Pierrehumbert, J. (1980). *The Phonetics and Phonology of {E}nglish Intonation*. Ph. D. thesis, Massachusetts Institute of Technology.

Pierrehumbert, J. and J. Hirschberg (1990). The meaning of intonational contours in the interpretation of discourse. *Intentions in communication*.

Poschmann, C. (2008). All declarative questions are attributive? *Belgian Journal of Linguistics 22*(1), 247–269.

Potts, C. (2005). *The Logic of Conventional Implicatures*. Oxford: Oxford University Press.

Pruitt, K. and F. Roelofsen (2013). The interpretation of prosody in disjunctive questions. *Linguistic Inquiry*, 611–631.

Reese, B. J. (2007). *Bias in questions*. ProQuest.

Roberts, C. (1996). Information structure in discourse: Towards an integrated formal theory of pragmatics. *Working Papers in Linguistics-Ohio State University Department of Linguistics*, 91–136.

Roelofsen, F. and D. F. Farkas (2015). Polarity particle responses as a window onto the interpretation of questions and assertions. *Language 91*(2), 359–414.

Roelofsen, F. and S. van Gool (2010). Disjunctive questions, intonation, and highlighting. In M. Aloni, H. Bastiaanse, T. de Jager, and K. Schulz (Eds.), *Logic, Language, and Meaning: Selected Papers from the Seventeenth Amsterdam Colloquium*, pp. 384–394. Springer.

Rohde, H. (2006). Rhetorical questions as redundant interrogatives. *San Diego Linguistics Papers 2*, 134–168.

Romero, M. and C.-h. Han (2002). Verum focus in negative yes/no questions and ladd's p/¬ p ambiguity. In *Semantics and Linguistic Theory*, Volume 12, pp. 204–224.

Romero, M. and C.-h. Han (2004). On negative yes/no questions. *Linguistics and Philosophy 27*(5), 609–658.

Šafárová, M. (2007). Nuclear rises in update semantics. *Questions in dynamic semantics*, 295–314.

San Roque, L., S. Floyd, and E. Norcliffe (2017). Evidentiality and interrogativity. *Lingua 186*, 120–143.

Schlichter, A. (1986). The origins and deictic nature of wintu evidentials. *Evidentiality: The linguistic coding of epistemology 20*, 46–59.

Schwager, M. (2010). On what has been said in tagalog: Reportative daw. *Evidence from evidentials 28*, 221–246.

Simons, M. (2005). Dividing things up: the semantics of *or* and the modal/*or* interaction. *Natural Language Semantics 13*(3), 271–316.

Singerman, A. R. (2018). *The morphosyntax of Tuparí, a Tupían language of the Brazilian Amazon*. Ph. D. thesis, University of Chicago.

Speas, P. and C. Tenny (2003). Configurational properties of point of view roles. *Asymmetry in Grammar 1*, 315—-345.

Stalnaker, R. (1978). Assertion. In P. Cole (Ed.), *Syntax and Semantics 9: Pragmatics*, pp. 315–322. New York: Academic Press.

Stephenson, T. (2007). Judge dependence, epistemic modals, and predicates of personal taste. *Linguistics and Philosophy 30*(4), 487–525.

Sudo, Y. (2013). Biased polar questions in english and japanese. *Beyond expressives: Explorations in use-conditional meaning*, 275–296.

Tenny, C. L. (2006). Evidentiality, experiencers, and the syntax of sentience in japanese. *Journal of East Asian Linguistics 15*(3), 245–288.

Thompson, H.-R. (2012). *Bengali*, Volume 18. John Benjamins Publishing.

Tournadre, N. and S. Dorje (1998). Manuel de tibétain standard, langue et civilisation: Bodkyi spyiskad slobdeb. *Paris: Langues & Mondes/L'Asiathèque. Zeisler: Review of Huber*.

Valenzuela, P. M. (2003). Evidentiality in shipibo-konibo, with a comparative overview of the category in panoan. *TYPOLOGICAL STUDIES IN LANGUAGE 54*, 33–62.

Van Rooy, R. (2003). Negative polarity items in questions: Strength as relevance. *Journal of semantics 20*(3), 239–273.

Van Rooy, R. and M. Šafářová (2003). On polar questions. In *Semantics and Linguistic Theory*, Volume 13, pp. 292–309.

von Fintel, K. and A. Gillies (2010). Must stay strong! *Natural Language Semantics 18.4*.

Ward, G. and J. Hirschberg (1985). Implicating uncertainty: The pragmatics of fall-rise intonation. *Language*, 747–776.

Westera, M. (2013). 'attention, i'm violating a maxim!' a unifying account of the final rise. In *17th Workshop on the Semantics and Pragmatics of Dialogue (DialDam)*.

Westera, M. (2017). Rising declaratives of the Quality-suspending kind.

Willett, T. (1988). A cross-linguistic survey of the grammaticization of evidentiality. *Studies in Language 12*(1), 51–97.

Woods, R. (2014). The syntax of orientation shifting: Evidence from english high adverbs. In *ConSOLE XXII: Proceedings of the 22nd Conference of the Student Organization of Linguistics in Europe (8-10 January 2014, Lisbon)*., Volume 22, pp. 205–230.