EVIDENTIALITY AND QUESTIONS: BANGLA AT THE INTERFACES

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ABSTRACT OF THE DISSERTATION

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This dissertation has two central foci: (i) it examines the behavioral contrasts of perspective-sensitive elements such as evidentials in questions and assertions; (ii) it investigates the connection between alternative questions and the clausal disjunction-embedder *whether*. The overall theme of the dissertation is an exploration into the interaction of questions and doxastic domains, set within formal syntactic, semantic and pragmatic theories. The main empirical focus is the South Asian (Indo Aryan; India, Bangladesh) language Bangla (also known as Bengali), which is analyzed based on the native speaker judgements of the author, as well as several surveys collected from other native speakers.

The interaction of perspectival elements with speech acts have been a relatively under-explored area of study. I undertake the study of evidentials (elements marking an agent's source of information). I argue for a theory that is both syntax and semantics informed. In particular, I propose that evidentials crucially take only finite clauses

as complements, and derive their interpretation from a 'judge' that is syntactically represented in the left periphery, and that interacts with other perspectival heads both inside the finite clause as well as the speech-act projection. This approach enables a unified analysis of the Bangla evidential *naki*, that changes its evidential flavor based on its syntactic position. In the interpretative component, I argue that evidentials embody either Involved (committed) or Uninvolved (not committed) sources of information. I propose that the world's evidentials come in two shapes: those that effect Interrogative Flip (shifting of perspective from the speaker to addressee in questions) and those that do not, and I locate the difference in a formal semantic property. This formal property predicts the presence or absence of bias in questions with evidentials, and forges a cross-linguistic link between evidentiality and bias.

The second focus of the dissertation is alternative questions and disjunction. The main claim offered is that there is a crucial connection between interrogative and *whether* in Bangla: they are underlying the same element *kina*. The surface differences between the two constructions is shown to be derivable from the syntactic processes of head movement and ellipsis. This unification claim has not been undertaken for any other language in the literature. I argue that this claim is also semantically viable, and propose an Alternative Semantics-theoretic analysis that can explain the presence of *kina* ('whether') in Bangla alternative questions. This analysis, while focussed on Bangla, also makes predictions in an area that is understudied in the world's languages - the interrogative-boolean divide within the universal disjunction space. I undertake a comparative study with Mandarin Chinese, and investigate the locus of the divide in the two languages. This study fits into the overall theme of the dissertation by furthering the understanding of Bangla questions and their interaction with other domains such as disjunction and perspective-sensitivity, as viewed from the standpoint of the syntax-semantics-pragmatic interfaces.

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Dedication

To Ma and Baba, my first teachers.

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Part I

Naki at the Interfaces

This part of the dissertation is dedicated to achieving a holistic understanding of the syntactic, semantic and pragmatic contributions of the Bangla evidential *naki*. It consists of two major chapters: one dedicated to the syntax, one to the semantics and pragmatics. A unified analysis of the two apparently disparate occurrences of *naki* is pursued, contrary to previous literature on the particle. The unified analysis ties together various segments of the grammar that have not been connected to evidentiality before: finiteness, indexical shift, complementizer agreement as well as semantic compositionality within and beyond perspectival heads at the left periphery, in addition to bringing constraints imposed by a dynamic scoreboard into the fold.

Chapter 1

Naki: A Syntactic Profile

1   Introduction

The Bangla shows a puzzling pattern whereby the same evidential particle *naki* can denote different evidential flavors based on its syntactic position and the speech act it occurs in. The interpretation that signals the presence of REPORTATIVE evidence is available when *naki* is in any clause-internal position, while the interpretation that signals the presence of INFERENTIAL evidence is only available when *naki* is clause-final. In addition, the latter is available only in polar questions, while the former is available in both polar questions and declarative statements. The pattern shown in (1) is taken from Mukherjee (2008), who makes the claim that only in the clause-medial position, the particle functions as an evidential (which she glossed as H/U (heard/uttered)) while in the clause-final position, the particle functions as an operator for a confirmation question (which she glossed as Confirm):

(1) a. *Shila **naki** gaan shikh-ch-e.*
         Shila H/U song learn-PROG-3P
         'Shila is learning music, as I have heard.'

     b. *Sita bari giy-ech-e **naki**?*
         Sita home go-PERF-3P Confirm
         'Sita has gone home. Has she?

(Mukherjee 2008: 1, 2)

In this chapter, I argue, contra Mukherjee, that *naki* is underlyingly one single lexical item that, in both positions, is crucially a marker of INDIRECT evidence (cf. Willett 1988's evidential taxonomy; also see De Haan 1999; Rooryck 2001; Faller 2002; Aikhenvald 2004; Murray 2010a). I argue that *naki* is sensitive to a 'judge' parameter (cf. Lasersohn 2005, Stephenson 2007) that is available in the syntax. *Naki* will be argued to be base-generated in one single underlying position. I will demonstrate that different judges are syntactically made accessible to *naki* in specific syntactic configurations, which results in different evidential flavors in the semantics module. Crucial word order differences between the two instantiations of the evidential are shown to fall out from standard syntactic principles. This chapter is solely about the syntactic contribution of *naki*. The next chapter deals with the semantic-pragmatic contribution of *naki*. These two chapters together provide a holistic view of *naki* at the syntax-semantics-pragmatics interfaces.

2   The empirical facts

Naki can essentially occur in two positions in a clause - at the clause-final position and a clause-internal position. Depending on the syntactic position, the type of evidentiality denoted by *naki* changes. I provide contexts below to make the evidential distinctions clear.

(2) Context: Ram heard a rumor about his neighbor that he is now reporting to his friend Sita:
*Mina **naki** amerika chol-e   ja-cche.*   REPORTATIVE
Mina NAKI America go-IMPV go-3P.PRES.PROG
'Mina is going away to America (I hear).'

(3) Context: Ram knows that Mina has been thinking about going to America for a while now but has not made up her mind yet. Today, he suddenly sees several of her suitcases, all packed, sitting out in the hall and asks her brother:
*Mina amerika chol-e   ja-cche   **naki**?*   INFERENTIAL
mina America go-IMPV go-3P.PRES.PROG NAKI
'(Given what I inferred) Mina is going away to America (is it true)?'

The two sentences above are not really a minimal pair in that (2) appears to be a declarative while (3) is a polar interrogative. The REPORTATIVE interpretation is available in polar interrogatives too, as shown in the counterpart of (2) below:

(4) *Mina **naki** amerika chol-e   ja-cche?*   REPORTATIVE
Mina NAKI America go-IMPV go-3P.PRES.PROG
'(Given what I hear), Mina is going away to America (is it true)?'

The declarative counterpart of the INFERENTIAL interpretation (keeping the context same as in 3) however, is mysteriously ungrammatical/infelicitous.[1]

(5) */# *Mina amerika chol-e   ja-cche   **naki**.*   INFERENTIAL
mina America go-IMPV go-3P.PRES.PROG NAKI
'Mina is going away to America (I inferred).'

One of the hallmark properties of *naki* is that it cannot ever appear in a clause-initial position. Some element needs to linearly precede it.

(6) * *Naki Ram amerika chol-e   ja-cche?*
NAKI Ram America go-IMPV go-3P.PRES.PROG
Intended: '(I hear/infer) Ram is going away to America, (is it true)?'

---

[1]The next chapter provides a detailed semantic-pragmatic solution to this particular puzzle.

There appears to be no syntactic or semantic restriction on what kinds of elements can precede *naki*. The preceding element can be of any syntactic category:

(7) a. *[O-r   jonno] naki amra konodin kichu   ko-ri-ni*   PP
    him-Gen for   NAKI we   ever   anything do-1P-NEG
    Lit. '(I hear) for him we have never done anything.'

   b. *[Konodin] naki amra o-r   jonno kichu   ko-ri-ni*   AdvP
    ever   NAKI we   him-Gen for   anything do-1P-NEG
    Lit. '(I hear) never have we done anything for him.'

   c. *[Amra] naki konodin o-r   jonno kichu   ko-ri-ni*   DP
    We   NAKI ever   him-Gen for   anything do-1P-NEG
    Lit. '(I hear) we never did anything for him.'

   d. *[Amra je   o-r   biye-te   jai-ni   sheta] naki   o*   CP
    We   COMP him-GEN wedding-LOC go-NEG that   NAKI he
    shobai-ke   bol-e   beray.
    everyone-ACC tell-IMPV goes
    Lit. '(I hear) that we didn't attend his wedding he goes around telling everyone.'

The elements preceding *naki* could also be any referential/definite or operator-like elements:

(8) a. *Prottyek-ta chatro   naki porashona-y bhalo.*
    every-CL   student NAKI studies-LOC good
    'Every boy is reportedly good at studies.'

   b. *Jekono   riksha-chalok-i   naki oi-tuku   rasta je-te   raaji*
    whichever/any rickshaw-driver-EMPH NAKI that-much road go-INF agree
    hoy-e   jaa-be.
    happen-IMPV go-FUT.3P
    'Any rickshaw driver will reportedly agree to go only that much distance.'

   c. *Shudhu naki mod   khe-le-i   nesha   hoy,   cha khe-le*
    only   NAKI alcohol eat-PERF-EMPH addiction happens tea eat-PERF
    hoy-na.
    happen-NEG
    'Only drinking alcohol reportedly causes addiction, drinking tea does not.'

Thus, the data shows that *naki* does not appear to be in the least selective about what precedes it as long as something does.

In addition, more than one constituent can precede *naki*. The low verbal complex cannot be broken up by *naki*, but apart from that, all other elements in the structure can precede *naki*. Crucially, in all of the cases below, *naki* has the REPORTATIVE interpretation.

(9) All possible clause-internal positions of *naki*, i.e. no matter which constituent or how many constituents precede *naki*, yield the REPORTATIVE interpretation. The INFERENTIAL interpretation is unavailable in all these configurations.

    a. *Ram naki Sita-ke kalke   skul-e   boi-ta di-te   bhul-e*

        ram NAKI Sita-DAT yesterday school-LOC book-CL give-IMPV forget-IMPV

        ge-chilo.

        go-PAST.3P

        'Ram reportedly forgot to give Sita the book at school yesterday.'

    b. Ram Sita-ke naki ...

    c. Ram Sita-ke kalke naki ...

    d. Ram Sita-ke kalke skul-e naki ...

    e. Ram Sita-ke kalke skul-e boi-ta naki ...

    f. Ram Sita-ke kalke skul-e boi-ta dite naki ...

    g. *Ram Sita-ke kalke skul-e boi-ta di-te bhul-e naki ge-chilo.

Thus, this distribution can be summed up as given in Table 1.

This significant syntactic difference has prompted other studies on *naki* (Mukherjee 2008; Xu 2017) to assume that there are two lexical entries in the Bangla grammar, in spite of both entries belonging to the same grammatical category, having the exact same phonological form, as well as major semantic and pragmatic similarities. In this chapter, I will take up the puzzle of *naki*'s syntactic distribution, as summed up in Table 1. I will argue that *naki* is generated in the same base position in both cases and the difference

in evidential flavor crucially rests on the syntactic representation of a 'judge' argument (cf. Lasersohn 2005, Stephenson 2007) that *naki* has access to and composes with.

3   The clause-initial position in Bangla

The clause-initial position in Bangla is, in some respects, special. Apart from *naki*, several other particles are banned from appearing in the clause-initial position. Bayer and Dasgupta (2014) demonstrate this ban for discourse particles such as *ki* (polar question marker), ba ('or'), toh ('of course'/emphasis marker) and je (clause-initial complementizer). These can appear in many other positions, but not in the clause-initial position. The authors accord these particles a clitic-like status in the language, whereby they mandatorily 'attract some focused or at least focusable XP to their left'.A few examples are provided below.

The Bangla polar question particle (henceforth, PolQ) *ki* in the clause-initial position leads to ungrammaticality. *ki* shares core distributional properties with *naki* in that it multiple constituents can precede it, and there are no restrictions on what syntactic or semantic properties these constituents could have (the data pertaining to these observations presented above for *naki* all apply to *ki* as well). Contrast this affinity of *ki* for the second position with the Hindi PolQ which is perfectly grammatical in the clause-initial position:

(10) a. *Ki*   *Anu bhaat kheye niye-che?*   Bangla
       POL Q Anu rice   eat   take-PERF.3P
       'Has Anu eaten rice?'

    b. *Kyaa* *Anu-ne   chawal kha liya?*   Hindi
       POL Q Anu-ERG rice   eat take-PERF
       'Has Anu eaten rice?'

Both Hindi and Bangla are relatively free word order languages. Given that property, the ban on the sentence initial position for *ki* but not *kyaa* is surprising. See Bhatt and

Dayal (2014, 2017) for a discussion of other properties of Hindi polar *kyaa*.

Other examples provided below are slightly modified from Bayer and Dasgupta (2014):

(11) a. *Kothay-i* ***ba*** *ge-che* *Dilip?*
where-FOC BA go-PERF.3P Dilip
'Where is it actually that Dilip went?'

   b. * ***Ba*** *kothay-i* *ge-che* *Dilip?*
BA where-FOC go-PERF.3P Dilip
'Where is it actually that Dilip went?'

(12) a. *Probal* ***je*** *ash-be* *ebong Ushi ghor buk kor-ech-e* *ami*
Probal COMP come-FUT.3P and Ushi home book do-PFC-PERF.3P I
bol-echi-l-am
say-PFC-PAST-1P
'I said that Probal will come and (that) Ushi has booked a room (for him)'

   b. * ***je*** *Probal ash-be* *ebong Ushi ghor buk kor-ech-e* *ami*
COMP Probal come-FUT.3P and Ushi home book do-PFC-PERF.3P I
bol-echi-l-am
say-PFC-PAST-1P
'I said that Probal will come and (that) Ushi has booked a room (for him)'

Dasgupta (2007) assumes the term 'anchors' to refer to clause-internal occurrences of particles such as *ki*, that are associated with sisters of various categorial types - verbs, arguments and adjuncts. The syntactic assumption made is that although anchors are base-generated as particles associated with different categorial constituents, they covertly move their features to C. In this framework, *ki* is generated in a sub-CP position, although it is not clear where. Dasgupta (2007) further argues that that [-wh] hosts of the enclitic move to a TP-adjoined Topic position.

Abstracting away from the technical details provided in these works, the general idea is that all of these elements banned from the clause-initial position in the language

have 'enclitic'-like properties[2] (cf. Faller 2002; Bayer and Dasgupta 2014). I assume that this property is enforced via the the presence of an edge feature (Chomsky 2008). This is an EPP feature that requires that some syntactic unit be Merged as the specifier of the category whose feature bears this property. The EPP feature does not specify any properties of the element to be Merged, which is why it would allow any syntactic category, as well as any referential, non-referential, or operator-like elements to satisfy the criteria (for example, see Gísli Jónsson 1991; Holmberg 2000 for accounts of stylistic fronting in Icelandic showing how any category can function as expletives).

In order to talk about the EPP feature on *naki* in Minimalist terms, let us first very briefly review some of the essential concepts at play.

3.1 Probes, Goals and Minimal Search

Chomsky (2000, 2001) laid down the foundations of an Agree operation that crucially involves probes and goals. AGREE is a syntactic feature checking operation that eliminates the 'feature-movement' part of Chomsky's ATTRACT (Chomsky 1995a). In this formulation, a head H is a probe only if it contains uninterpretable or unvalued features (see Pesetsky and Torrego 2001, 2007 for an alternative formulation where the actual probe is the unvalued feature and not the head). A goal exists in the c-command domain of the probe, and carries a matching interpretable and valued formal feature. This feature on the goal then checks its uninterpretable counterpart on the probe via valuation.

The standard definition of AGREE is given as follows (Chomsky 2000, 2001):

(13) α can Agree with β iff:

   a. α carries at least one unvalued and uninterpretable feature and β carries a matching interpretable and valued feature.

---

[2]These elements do not form one phonological word with the previous XP neither do they bear stress.

      b. α c-commands β.

      c. β is the closest goal to α.

      d. β bears an unvalued uninterpretable feature.

(Zeijlstra 2012: 1)

Notice that though this early definition contains a restriction of locality, i.e. the goal that is chosen by the probe has to be the closest goal available, it does not make explicit how far a search domain extends. In Chomsky (2001, 2008), Chomsky argues for the notion of phases, which prevents linguistic elements at arbitrary structural depths from being potential targets for movement. From Chomsky (2008), "For minimal computation, the probe should search the smallest domain to find the goal: its c-command domain." (p. 146). This is the foundational basis of the idea of Minimal Search (see Aoun and Li 2003 for a similar formulation of the Minimal Match Condition). Numerous studies have exploited this notion of the smallest possible search domain. In particular, Larson (2015) argues that an optimally economical minimal search constraint serves to restrain the application of Chomsky's Merge operation (Chomsky 1995b). The default for Merge is to apply to the smallest domain possible, following the exhaustion of which Merge across a wider domain is permitted. This leads to a hierarchy of possible Merge operations, with Internal Merge being the default and Parallel Merge (Citko 2005) being the most marked:

(14)   Internal Merge > External Merge > Parallel Merge

Larson (2015) argues that phases embody the notion of minimal search to constrain the freedom of Merge to look deep in a given structure. The relevant EPP probe in this study will be assumed to be compliant of this restriction.

3.2 EPP on *naki*

Evidence for the claim that an EPP probe on *naki* (and *ki*) makes it look into its c-command domain comes from 'high' adverbs. Another syntactic similarity between *ki* and *naki* is the fact that higher (speaker or subject oriented) adverbials cannot appear preceding *naki*, while lower adverbials can. Bayer and Dasgupta (2014) report that the exact same pattern holds for je (the je examples are from their work).

(15) a. **Obosso **je**   Dilip as-te   par-be   na, ...*
             however COMP Dilip come-IMPV can-FUT.3P NEG
             'However, that Dilip will not be able to come...'

      b. **Durbhaggoboshoto **je**   Dilip as-te   par-be   na, ...*
             unfortunately   COMP Dilip come-IMPV can-FUT.3P NEG
             'Unfortunately, that Dilip will not be able to come...'

      c. **Obosso **naki** Dilip as-te   par-be   na.*
             however NAKI Dilip come-IMPV can-FUT.3P NEG
             'However, reportedly Dilip will not be able to come.'

      d. **Durbhaggoboshoto **naki** Dilip as-te   par-be   na.*
             unfortunately   NAKI Dilip come-IMPV can-FUT.3P NEG
             'Unfortunately, reportedly Dilip will not be able to come.'

      e. **Obosso **ki** Dilip as-te   par-be   na.*
             however POL Dilip come-IMPV can-FUT.3P NEG
             'However, will Dilip not be able to come?'

      f. **Durbhaggoboshoto **ki** Dilip as-te   par-be   na.*
             unfortunately   POL Dilip come-IMPV can-FUT.3P NEG
             'Unfortunately, will Dilip will not be able to come?'

In (7), we saw that *naki* does not appear to care what category or size or how far the goal is, as long as its edge feature is satisfied. From that perspective, it is surprising that the adverbials in (15) cannot precede *naki*. I claim that the ungrammaticality in (15) stems from the fact that these 'high' adverbials are speaker-oriented, which means that they adjoin at a position higher than *naki*, above the C-domain, and are therefore outside its c-command domain (cf. Cinque 1999). These high adverbials thus cannot serve to satisfy *naki*'s EPP needs, because they are not visible to the probe. The derivations for

the sentences in (15) thus crash because of the unsatisfied EPP. Note that as soon as this requirement is met by an element inside the probe domain of *naki*, the sentences become grammatical:

(16) a. *Obosso Dilip naki as-te   par-be   na.*
          however Dilip NAKI come-IMPV can-FUT.3P NEG
          'However, reportedly Dilip will not be able to come.'

  b. *Durbhaggoboshoto Dilip naki as-te   par-be   na.*
          unfortunately   Dilip NAKI come-IMPV can-FUT.3P NEG
          'Unfortunately, reportedly Dilip will not be able to come.'

The facts about 'high' adverbials predict that 'low' adverbials (adjoined to vP and therefore visible to *naki* in its probe domain) should be able to qualify as goals. This prediction is borne out for both *naki* and *ki*, as shown below (the choice of adverb inspired by Bayer and Dasgupta 2014: 41b):

(17) a. *Matal hoye   naki ma-baba-r   kache bari phera jay-na.*
          drunk become NAKI mom-dad-GEN near home return go-NEG
          'Reportedly (one) cannot return home to their parents drunk.'

  b. *Matal hoye   ki ma-babar   kache bari phera jayna?*
          drunk become POL mom-dad-GEN near home return go-NEG
          'Can (one) not return home to their parents drunk?'

The search domain of *naki* is restricted by phases. Support for this claim comes from the fact that in a bi-clausal structure, when *naki* occurs in the matrix clause, elements cannot be extracted from the embedded clause and moved to the specifier of *naki*. Consider the minimal pair below:

(18) a. *Ram naki boleche [Sita bhogobaan maan-e   na]*
          ram NAKI said   sita god   regard-HAB NEG
          'Ram has reportedly said Sita does not believe in God.'

  b. ** Bhogobaan$_i$ naki Ram boleche [Sita t$_i$ maan-e   na]*
          god   NAKI ram said   sita t regard-HAB NEG
          'Ram has reportedly said Sita does not believe in God.'

As we saw above, no matter what or how many elements inside the clause precede *naki*, the evidential flavor is always REPORTATIVE. Interestingly, however, as soon as the whole finite clause precedes *naki*, the INFERENTIAL interpretation is obtained. This clause-final position is the only position the INFERENTIAL is felicitous in. The REPORTATIVE interpretation is unavailable in this configuration.

(19) *Ram Sita-ke kalke skul-e boi-ta di-te bhul-e*
ram Sita-DAT yesterday school-LOC book-CL give-IMPV forget-IMPV

  ge-chilo naki?
  go-PAST.3P NAKI

'(Given what I infer) Ram forgot to give Sita the book at school yesterday (is it true)?'

Thus, there is a strict position vs. interpretation correlation that can be summed up in terms of the following generalization:

(20) ***Naki* Positional Generalization**

  Whenever *naki* moves its own finite clausal complement to its specifier to satisfy the EPP, the resulting interpretation of *naki* is obligatorily INFERENTIAL. At all other times, its interpretation is REPORTATIVE.

To demonstrate an example, consider the following pair, in which the fronted constituent in (21a) is the quotative CP Mary ashbe bole ('that Mary will come') which moves from its base-generated position of the complement of the verb. The resulting evidential flavor is REPORTATIVE. This can be demonstrated with other embedded finite clauses as well. In contrast, when the whole finite complement of *naki* is moved, the resulting flavor of evidentiality is INFERENTIAL.

(21) a. [*Mary ash-be bole*]$_i$ *naki shobai asha ko-re boshe ache t$_i$*
    Mary come-FUT COMP NAKI everyone hope do-IMPV sit is
    Lit. '(**I hear**) that Mary will come everyone is hoping.'

b. [*shobai* [*Mary ash-be bole*] *asha ko-re boshe ache*]$_i$ *naki t$_i$*
    everyone Mary come-FUT COMP hope do-IMPV sit is NAKI
    Lit.'(**I infer**) that everyone is hoping that Mary will come, (is it true)?'

Why should this crucial difference arise based on which constituent satisfies the EPP? I argue in the following sections that the answer lies in the finiteness properties of the moved phrase.

4   Coordinates of a finite clause

Cross-linguistically, finite clauses have been argued to have the following characteristics: presence of independently referring overt subjects, opacity with respect to movements out of the clause, case-marking of the clausal subject (see McFadden and Sundaresan 2014 for a discussion). Another important property has also been attributed to finite clauses - independent sentencehood status. Nikolaeva (2007) describes the long standing view that non-finite verbs occur exclusively or predominantly in dependent contexts. The many non-finite forms in Bangla (participles, gerunds, dependent conditionals, subjunctives, infinitives) have many syntactic differences, but none of them can stand alone as an independent utterance in the language, they are always dependent on the matrix tense (Ramchand 2014). Even the subjunctive in Bangla, which behaves like finite indicative clauses as far as syntactic properties are concerned (Dasgupta 1996; Datta 2016), cannot have independent assertive force. Ramchand was the first to suggest that the locus of deficiency in Bangla is not at T but higher up in the clause - namely, in Fin° (following Rizzi 1997).

Bianchi (2003) (as well as Adger 2007; Giorgi 2010) also relates finiteness to temporal anchoring. Simplifying the details, a finite verb has its own temporal encoding

in relation to the speech time, while a non-finite verb does not. A non-finite tense is always connected to the temporal anchoring in the main clause (via adjunction or complementation). Bianchi assumes the following configuration:

(22) [Force [(Topic*) [(Focus) [+**Fin**° (**Speech Event S**$_e$) [... Tense VP]]]]]

The 'speech event' S$_e$ is formulated as the center of deixis. Being able to encode its presence is the difference between a [+finite] Fin° and a [-finite] Fin°.

Bianchi draws on the literature on logophoricity to claim that speech events have internal speakers or internal addressees that logophoric pronouns in embedded clauses can take as antecedents. She defines a Logophoric Centre.

(23) A **Logophoric Centre** is a speech or mental event which comprises (Bianchi 2003: 26):

    a. an obligatory animate participant (Speaker/Source)

    b. an optional Addressee

    c. a temporal coordinate

    d. possibly spatial coordinates (for physical events)

        and is associated with a Cognitive State of the participants in which the proposition expressed by the clause must be integrated.

Based on this formulation, Bianchi ties the ability of introducing a Logophoric Center crucially to only the +finite head in the structure, to which the -finite heads are anaphorically related:

(24) a. Finite clauses encode the **external Logophoric Center (eLC) in** [+**finite**] **Fin**°.

     b. A [-finite] Fin° encodes an **internal Logophoric Centre (iLC)**, whose participants are the participants of the matrix clause event (the eLC).

Thus, external Logophoric Centers project independent coordinates of Speaker and (optional) Addressee which always correspond to the actual participants in the matrix speech event, i.e. the matrix subject and matrix object. Thus, what Bianchi calls 'coordinates' are actual arguments of the matrix verb. The following example taken from Bianchi schematically represents the idea:

(25)   Gianni$_i$ asked$_1$ Maria$_j$ [iLC$_1$ Person$_j$ to cook the dinner].

Coordinates of the speech event encoded by the matrix [+finite] Fin° that the [-finite] Fin° is anaphorically related to:

SPEAKER = Gianni = i

ADDRESSEE = Maria = j

The iLC is coindexed with the matrix verb, as per the formulation in (24b).

I propose that in addition to the two coordinates above, a [+finite] Fin° also crucially encodes two other coordinates, which are (null) coordinates of the finite utterance and not the event. This proposal is based on the crucial connection between clausal independence and assertion that has been argued for in many studies on properties of finiteness (Givón 1990; Anderson 1997; Klein 1998; Cristofaro 2007). These studies have claimed that only a finite clause can be independently asserted and that the major function of non-finiteness is signaling syntactic and semantic embedding.

The two null coordinates of a [+finite] Fin° that I propose to add are the SPEAKER and ADDRESSEE of the finite clause. Let us call these $_{FIN}$SPEAKER and $_{FIN}$ADDRESSEE. Crucially, they are not the arguments of the matrix verb that Bianchi equates with the internal coordinates above. Thus, my proposal indicates there are four coordinates in total, as defined and represented below.

(26)   a.   Bianchi's internal coordinates (arguments of the matrix verb that the non-finite clause is anaphoric to). These are inside the TP selected by Fin°.

    b.   Two **null coordinates** - $_{FIN}$SPEAKER and $_{FIN}$ADDRESSEE - that denote the speaker and addressee of the finite utterance. These coordinates are above Fin°, in the matrix clause that selects the FinP.

These are structurally represented in the following configuration:

(27)
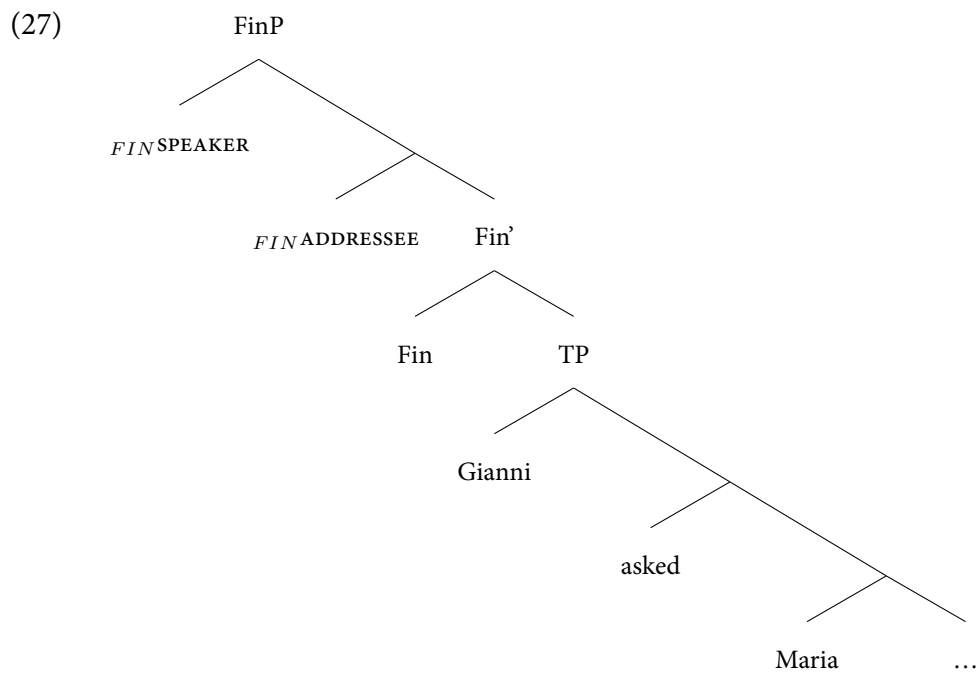
    [+finite] Fin°'s SPEAKER and ADDRESSEE are to be crucially kept separate from the Speech Act shells proposed in Speas and Tenny (2003). Speas and Tenny propose that null DPs corresponding to SPEAKER, ADDRESSEE and SEAT OF KNOWLEDGE are generated in Larsonian shells in the speech act domain in all sentences of every language. These are not tied to events or finiteness in any way, but by virtue of every utterance being a speech act of some kind or the other, they are present in the left periphery. I will adopt this Speas-Tennyian formulation of the highest segment of the left periphery in this work. Their proposal combined with my hypothesis about coordinates that are crucially tied to finiteness gives us a structure like the following:[3]

---

[3]Since these are declarative structures, I will not be concerned with the speech act ADDRESSEE node very much.

(28)

```
                          sap
                         /    \
                  SA SPEAKER    sa
                               /   \
                             sa     sa*
                                   /    \
                                FinP      sa*
                               /    \    /    \
                      FIN SPEAKER    \  sa*   SA ADDRESSEE
                                  \   \
                           FIN ADDRESSEE  Fin'
                                         /    \
                                      Fin      TP
```
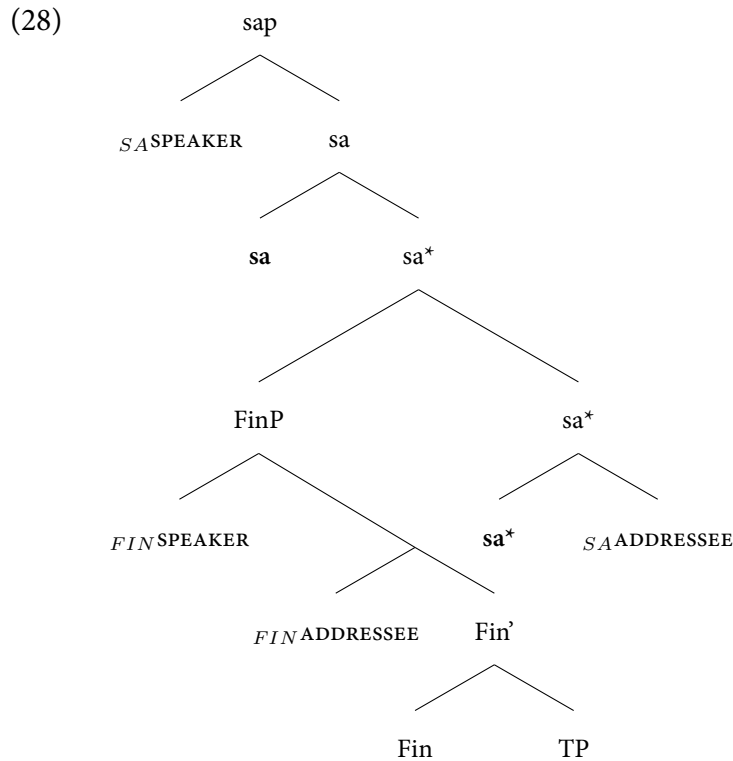
In order to avoid notational confusion, let us be extremely clear about each of these coordinates. The notation - $_{SA}$SPEAKER and $_{SA}$ADDRESSEE - refer to the Speas-Tennyian speech act coordinates. On the other hand, the notation - $_{FIN}$SPEAKER and $_{FIN}$ADDRESSEE - refer to the coordinates of the finite clause, as projected by Fin°.

Making these distinctions between speech act participants and finite clause participants help us to make important crucial distinctions in evidential paradigms. For example, consider the English triplet below - the first is a regular assertion, the second an assertion with a REPORTATIVE evidential and the third with an INFERENTIAL evidential. Let us assume a context where John is telling Mary about a party he attended yesterday for some time for all three constructions. The default configuration is one where the speech act coordinates and the finite clause coordinates have the exact same referents.

(29)   [Ram [$_{[+finite]Fin}$ sang at the party yesterday]]

Speech Act: $_{SA}$SPEAKER = John, $_{SA}$ADDRESSEE = Mary

Finite clause: $_{FIN}$ADDRESSEE = John, $_{FIN}$ADDRESSEE = Mary

(30) [Ram reportedly [$_{[+finite]Fin}$ sang at the party yesterday]]

 Speech Act: $_{SA}$SPEAKER = John, $_{SA}$ADDRESSEE = Mary

Finite clause: $_{FIN}$SPEAKER = reporter = a third party (cannot be John himself), $_{FIN}$ADDRESSEE = John (could have been told directly or he could have overheard it).

The reason behind equating the source of the report with the $_{FIN}$SPEAKER coordinate of the finite event is that he/she is the one who told John about it. Crucially, the coordinates of an event being reported with a REPORTATIVE evidential are different from the coordinates of an event being reported with an INFERENTIAL evidential below, given the personal nature of inference:

(31) [Ram presumably [$_{[+finite]Fin}$ sang at the party yesterday]]

 Speech Act: $_{SA}$SPEAKER = John, $_{SA}$ADDRESSEE = Mary

Finite clause: $_{FIN}$SPEAKER = John, $_{FIN}$ADDRESSEE = Mary[4]

My proposal thus makes finite clauses perspective-sensitive because of the presence of these two extra coordinates. Perspective-sensitivity, as the name suggests, requires that there be an anchor in the structure that perspective-sensitive elements can take as antecedents, thus making some individual's perspective salient . A syntactic way to think about this perspective-sensitivity resulting from finite clauses introducing $_{FIN}$SPEAKER and $_{FIN}$ADDRESSEE operator-like elements is with respect to binding and

---

[4]Going into different possibilities of who the addressee might be is outside the scope of this investigation, and not very relevant to the central thesis of the analysis.

agreement. Finite clauses with these operators should then be able to enable the following two scenarios:

(32)   a.   In languages with attested indexical shift, indexicals inside a finite clause should be able to take $_{FIN}$SPEAKER and $_{FIN}$ADDRESSEE as antecedents.

b.   Since $_{FIN}$SPEAKER and $_{FIN}$ADDRESSEE can themselves be controlled by higher operators, indexicals in their scope should be able to, by transitivity, be controlled by these higher operators without violating any locality principles.

I now proceed to show that both of these predictions are borne out. To illustrate (32a), I draw on the indexical shift and complementizer agreement literature, and to illustrate (32b), I discuss the presence of indexical shift across multiple embedded clauses cross-linguistically.

4.1   Finiteness and Indexical Shift

Shklovsky and Sudo (2014) demonstrate that indexical shift in Uyghur (Turkic; North China and Kazakhstan) is crucially sensitive to the finiteness of the clause containing the indexicals. The phenomenon of indexical shift in Uyghur is confined to attitude report constructions. Uyghur attitude reports can appear in two syntactic forms - as a nominalized complement clause and as a finite complement clause. Although both forms are used to convey similar (synonymous) readings, indexicals have to shift only when they appear in the finite complement clause constructions, and they are banned from shifting in the nominalized clauses. This contrast is demonstrated below:

(33)   Uyghur (Shklovsky and Sudo 2014: 4a-b)
a.   **nominalized complement**

Ahmet [mening   kit-ken-lik-im-ni]   di-di.
Ahmet [1.SG.GEN leave-REL-NMLZ-1SG-ACC] say-PAST.3P
✓ (non-shifted) 'Ahmet said that I$_{speaker}$ left.'
* (shifted) 'Ahmet$_i$ said that he$_i$ left.'

  b. **finite complement**
    Ahmet [men ket-tim]   di-di.
    Ahmet [1   leave-PAST.1SG] say-PAST.3P
    *(non-shifted) 'Ahmet said that I$_{speaker}$ left.'
    ✓ (shifted) 'Ahmet$_i$ said that he$_i$ left.'

Exactly the same pattern holds for second person indexicals in the language as well. The authors propose that a monstrous operator is syntactically present in Uyghur finite attitude report constructions, which is responsible for shifted interpretation of indexicals. Note that this proposal is compatible with the individual coordinates such as $_{FIN}$SPEAKER or $_{FIN}$ADDRESSEE being present to shift the reference of indexicals; for example, see Anand and Nevins (2004), Deal (2013), among others, for arguments for individualized monstrous operators such as OP$_{AUTH}$, OP$_{LOC}$, etc. A structure representative of what is assumed in the literature is given below, from Deal (2017): (61). Deal argues that this structure is mostly invariant across languages (with the locus of variation being restricted to the nature of C°):

(34)
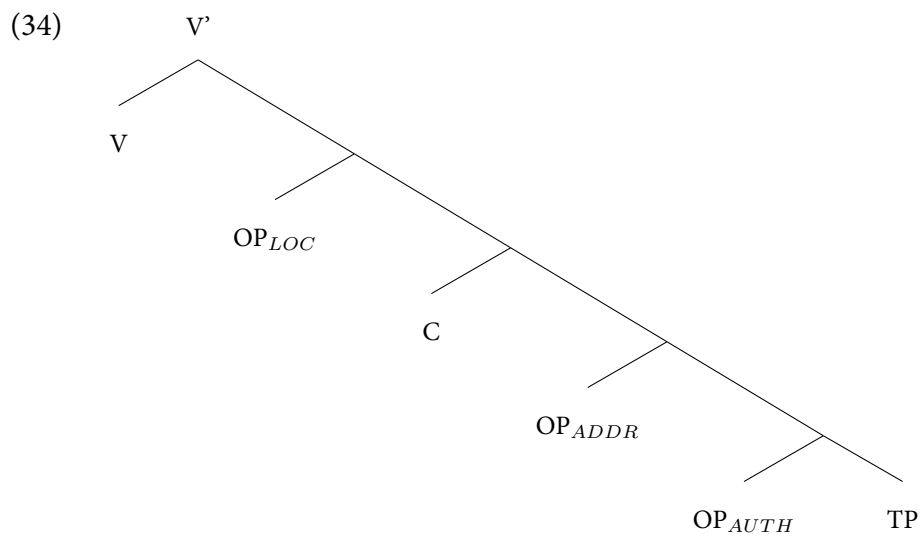
The hypothesis made in this chapter, that finite clauses project their own coordinates - $_{FIN}$SPEAKER and $_{FIN}$ADDRESSEE - which are essentially 'controllable' by higher operators, is supported by the fascinating pattern in a language with complementizer agreement, Kipsigis (Nilotic; Kenya):

(35)   Kipsigis (Diercks and Rao 2016: 31e)

    a.   *ko-i-mwaa-wɔɔɤ*   **ɑ**-*lɛ*-**ndʒɔɔɤ** *ko-∅-ɪt*   *laɤok*
          PST-1SG-tell-2PL.OBJ   1SG-C-2SG   PST-3-arrive   children
          'I DID tell you (pl) that the children arrived.'

It can be argued that the presence of the two operators - $_{FIN}$SPEAKER and $_{FIN}$ADDRESSEE - is what licenses both the affixes on the complementizer, i.e. reflexes of C agreeing with both of them. Thus, it appears to be empirically viable to maintain the hypothesis that finiteness is correlated with its own coordinates that themselves need to be controlled and can also serve as anchors.

With regard to the prediction in (32b), Baker (2008) (Chapter 3; as discussed in Vinokurova 2011) offers a syntactic reformulation of the semantic accounts of indexical shift in Stechow (2003) and Schlenker (2004). He argues that while third person agreement occurs via the usual Agree, agreement with first and second person indexicals is an instance of operator-variable agreement. To this end, Baker proposes the presence of two null arguments - S and A (as mnemonics for speaker and addressee) within the CP projection of all matrix clauses and certain embedded clauses. Vinokurova (2011) schematically represents the structural differences this system would assume between a non-shifting language like English and an indexical shift language like Slave (Anand and Nevins 2004):

(36)   Vinokurova (2011): (8-9)

    a.   **English**: [CP1 S$_i$, A$_k$ [TP1 John$_j$ told Mary$_m$ [CP2 [TP2 I$_{i/*j}$ like you$_{k/*m}$]]

    b.   **Slave**: [CP1 S$_i$, A$_k$ [TP1 John$_j$ told Mary$_m$ [CP2 S$_j$, A$_m$ [TP2 I$_j$ like you$_m$]]

In (36b), the Speaker and Addressee in the embedded CP are controlled by John and Mary, and consequently the indexicals in the embedded clause are bound by them. In the English counterpart in (36a), the embedded clause does not project the necessary coordinates and thus indexical shift is unavailable. As may be apparent to the reader, there is a non-trivial similarity between Baker's approach and my proposal. The difference lies, crucially, in the connection with finiteness. Baker (2008) assumes that selecting for a CP complement with S and A operators is a lexical property of a certain class of verbs (those predicates that cross-linguistically allow indexical shift), which would have to vary language by language. My proposal, which ties the presence of these operators to a [+finite] Fin°, would claim that all finite clauses have the same two operators but these operators differ in whether they are monstrous or not. Thus, in the current proposal, Bangla and Slave have the same operators yet the former does not have indexical shift while the latter does, owing to the monstrous nature of the latter's operators.

This tie-up between finiteness and the presence of $_{FIN}$SPEAKER and $_{FIN}$ADDRESSEE coordinates is also strengthened by the cross-linguistically overwhelming preference of indexicals to shift in finite environments. Deal (2017) draws the following generalization in light of the literature on indexical shift, most directly from the work of Sudo (2012) and Shklovsky and Sudo (2014):

(37) Finite Complements Only

Indexical shift is restricted to finite complement clauses.

For attitude verbs that allow both finite and non-finite complements, indexical shift has been attested only in the finite complements. For example, similar to the pattern in Uyghur above, Tsez (Caucasian; Russia) also permits indexical shift only in finite-clause embedding constructions, while non-finite forms such as clausal nominalizations only have the non-shifted reading, as shown below:

(38) Tsez (Polinsky 2015: 33a-b)

    a. *Åœoy-Ã€ neło-qo-r*   *[babiy-Ã€ di*   *∅-egir-si=ƛin]*
        lad-ERG DEM.nI-POSS-LAT father-ERG 1SG.ABS(.I) I-send-PST.WIT-QUOT

        esi-n
        tell-PST.WIT

        (i) 'The youngster told her that the father had sent me'
        (ii) 'The youngster$_i$ told her that the father had sent him$_i$'

    b. *Åœoy-Ã€ neło-qo-r*   *[babiy-Ã€ di*   *∅-egÃ€-ru-łi]*
        lad-ERG DEM.nI-POSS-LAT father-ERG 1SG.ABS(.I) I-send-PST.PTCP-NMLZ

        esi-n
        tell-PST.WIT

        'The youngster told her that the father had sent me.'
        NOT: 'The youngster$_i$ told her that the father had sent him$_i$'

Deal points out that similar alternations are reported in Slave (Rice 1986), Japanese (Sudo 2012, 238), Turkish (Sener and Sener 2011, Özyildiz 2013), Navajo (Schauber 1979), and Korean (p.c. with Yangsook Park). All of the facts follows from the syntactic assumption that the operators that perform indexical shift belong to the finite C system.

Another property of indexical shift, first described in Anand and Nevins (2004), is the Shift Together principle, in which all indexicals in the scope of a shifting operator shift their reference together. Syntactically, if every embedded (finite) clause contains $_{FIN}$SPEAKER (and $_{FIN}$ADDRESSEE) that all have to be controlled by higher operators, then even deeply embedded indexicals can participate in Shift Together. I represent this schematically for the understudied, indexical shift language Magahi (Indo-Aryan; India) below. The bolded element is the controller of all the operators in its scope:

(39) Magahi (Deepak Alok, p.c)

    a. *Banti soch-kai   ki   [hum kah-liai ki   [hum jai-bai]]*
        Banti think-PAST COMP I   say-PAST that I   go-FUT
        'Banti thought that Banti said that Banti will go.'
        'Banti thought that I$_{speaker}$ said that I$_{speaker}$ will go.'

    b. [$_{SA}$SPEAKER **Banti** thought that [$_{FIN}$SPEAKER I said that [$_{FIN}$SPEAKER I will go]]]
        ⤳ 'Banti thought that Banti said that Banti will go.'

c. [$_{SA}$**SPEAKER** Banti thought that [$_{FIN}$SPEAKER I said that [$_{FIN}$SPEAKER I will go]]]

⤳ 'Banti thought that I$_{speaker}$ said that I$_{speaker}$ will go.'

Anand and Nevins (2004) provide a similar example from Zazaki to demonstrate that the Shift Together constraint still holds even when the two items are not in a c-command relationship with each other:

(40) Zazaki (Anand and Nevins 2004: 21)

a. *Hɛsen va kɛ [pyaay kɛ mi-ra hes kene][pyaay kɛ mi-ra*
Hesen said that [people like me.OBL like do][people that me.OBL

hes ne kene] ame zuja
NEG like do] came together

'H. said that people that like me and the people that don't like me met'

'H. said that the people that like AUTHOR(U) and the people that don't like AUTHOR(U) met'

* 'H. said that the people that like me and the people that don't like AUTHOR(U) met'

* 'H. said that the people that like AUTHOR(U) and the people that don't like me met'

Thus, this overall body of facts demonstrates that the predictions (in 32) of the hypothesis of relating finiteness to the presence of controlling (binding) and controllable (bindable) operators inside finite clauses are borne out. I will now propose a syntactic analysis to capture the *naki* facts, using this hypothesis as a foundation.

5   Motivating some crucial assumptions

The behavior of *naki* can be summed up as follows:

(41) a. clause-final *naki* - ✓INFERENTIAL interpretation, *REPORTATIVE interpretation

b. clause medial *naki* - ✓REPORTATIVE interpretation, *INFERENTIAL interpretation

The crucial question here is - how does the syntactic position of the same particle effect a change in interpretation? I argue that *naki* is generated in a same position in both cases and does not move. The apparent differences in syntactic positions and consequent differences in interpretation come about due to the movement of other constituents around *naki* and other independent syntactic principles, such as the binding relations between operators in the Speech Act domain and inside finite clauses.

The proposal is that *naki* is a head that takes a finite clause as a complement, and appears to the left of its complement as shown below:

(42)

*naki*P
- *naki'*
  - *naki* [+EPP]
  - FinP
    - *FIN*SPEAKER
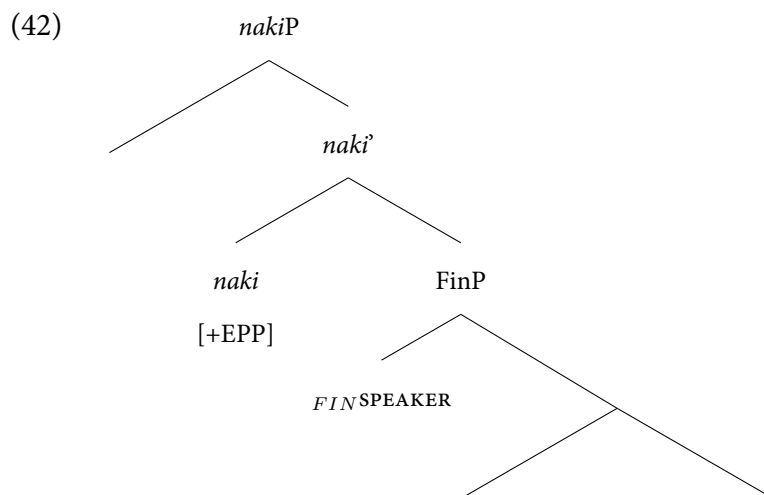
In arguing for this structure, I appeal to the case made in Bayer (1999) with regards to the 'hybrid' nature, i.e. mixed-headedness, of Bangla. Bayer argued that while languages display strong tendencies of being either head-final or head-initial, there are often exceptional projections that differ in their headedness. Numerous other works, Van Riemsdijk (1990); Kayne (1994); Samiian (1994) to name a few, argue for mixed-headedness in languages like Dutch, Hungarian, Persian, English, among others, demonstrating that mixed-headedness is arguably a far more common phenomenon than typological studies tell us.

In their configuration of the high left periphery (see Haegeman and Hill 2013; Hill

2013; Krifka 2013; Wiltschko 2016 for influential alternate conceptions of the speech-act domain), Speas and Tenny (2003) argue for the presence of a sentient individual in the syntactic spine, an individual whose point of view is reflected in the sentence. They term this sentient argument the 'Seat-of-Knowledge', the argument that can evaluate the proposition it takes scope over. Together with the Speaker and Hearer of the speech act (let us call them $_{SA}$SPEAKER and $_{SA}$ADDR to distinguish them from $_{FIN}$SPEAKER and $_{FIN}$ADDR), the Seat of Knowledge (SOK) makes up the Sentience Domain, crucially mapping to participants in the discourse.

(43)   SentienceP
          /   \
      SOK   Sen'
                  /   \
              Sen   Utterance Content
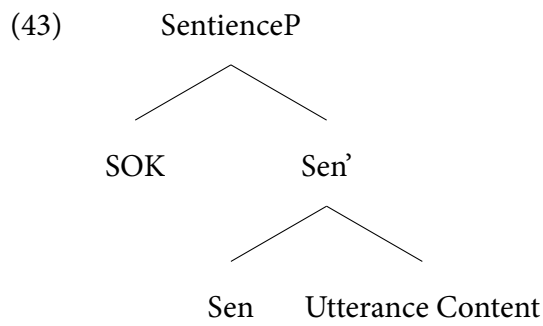
Speas and Tenny argue, following Stirling (1993), that different logophoric roles (Source, Self and Pivot; see Sells 1987) arise due to the various ways in which the SOK argument can be coindexed with other arguments in the structure. The authors assume that the default is SPEAKER$_i$ = SOK$_i$. In a question, the ADDRESSEE is coindexed with the SOK$_i$ (see Miyagawa 2012 for an influential analysis of allocutive agreement and politeness marking in Japanese and Basque, where the ADDRESSEE node is controlled by a probe in a higher position inside the saP). This system crucially treats coindexing to be a sort of control, which requires that the controller c-command the controlee. Apart from the default configuration, another productive pattern attested by Speas and Tenny is where the SOK has a disjoint reference from the other arguments in the Speech Act domain, thus conveying the point of view of someone other than the discourse participants. This notion of disjoint reference will be important in the analysis of *naki* below.

Inspired by Lewis (1979) and Chierchia et al. (1989), several studies (see Lasersohn

2005, Stephenson 2007) on the semantics of attitude predicates, taste predicates and epistemic modals have proposed the existence of a 'judge' parameter which serves as an anchor for perspectival elements in its scope. This sentient 'judge' is whose epistemic or doxastic alternatives are quantified over, and the validity of the utterance content is determined against. I propose that the syntactic representation of this judge argument is the Speas-Tennyian SOK in the left periphery. This connection, which might have been informally implied by Speas and Tenny, needs to be made formally explicit:

(44) The 'judge' of an utterance is syntactically represented as the SOK.

Thus, given the assumptions about the syntactic structure discussed above, there are three crucial components in the left periphery then that play a role in the *naki* paradigm:

(45) All of these elements can be coindexed with each other, and the latter two have to be coindexed with an immediately higher element in order to establish co-reference.

   a. $_{SA}$SPEAKER

   b.   SOK

   c. $_{FIN}$SPEAKER

In the partially schematic representations below, I show that *naki*'s EPP requirement interacts in interesting ways with the co-indexation requirements of the elements above to yield the attested grammaticality patterns. Specifically, the closest EPP-goal for *naki* is always FinP. The question arises then - why do we not always get the order 'FinP *naki*' (the clause-final order)? I argue that this is because of the interaction of the configuration laid out above with two other factors: (i) there is a higher probe in the structure (a high Topic°), (ii) the controllable elements in the structure have to be controlled by a controller immediately c-commanding them.

In arguing for the presence of the higher Topic probe, I adopt Simpson and Bhattacharya (2003)'s insight. The authors draw evidence from wh/focus and the focus particle/complementizer je's syntactic properties to argue that the subject in Bangla wh-questions regularly occurs in a high clausal topic-like position, and the wh-landing site is located under this topic position. For example, they suggest that in the following wh-question, the subject 'John' is in a topic position that is higher than where the wh-phrase moves to. This is one of the reasons, the authors argue, that although wh-movement happens in Bangla it appears to be wh-in-situ - actual wh-movement is heavily disguised by the movement of other non-wh arguments and adjuncts to higher positions in the clause.

(46)   Simpson and Bhattacharya (2003): (28)

    a. *jon   border-e   kal   [kon   boi-ta]$_i$ kinlo   t$_i$*
       John Borders-LOC yesterday which book-CL   bought
       'Which book did John buy yesterday at Borders?

The authors also draw evidence for this high topic position from the observation that only referentially definite or specific elements occur as subjects preceding wh-phrases in the subject position, i.e. elements that constitute presupposed information as opposed to the new, focused information value of the wh-phrase. For example, in the pair below, the contrast in grammaticality arises when the sequence associated with specificity (cf. Bhattacharya 1999) - [NP [Numeral-Classifier]] appears before the wh-phrase versus when the sequence associated with nonspecificity - [[Numeral-Classifier] NP] - appears before the wh-phrase.[5]

(47)   Simpson and Bhattacharya 2003: (34)

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[5]In particular, Bhattacharya (1999) argues for a Quantifier Phrase (QP), to the specifier of which the whole NP moves, yielding the order in (47a). The Numeral-Classifier sequence is argued to be base-generated in the Q head.

a. *chele du-to [kon boi-ta]$_i$ porlo t$_i$ specific/definite subj
    boy two-CL which book-CL read
    'Which books did the two boys read?'

b. *du-to chele [kon boi-ta]$_i$ porlo t$_i$ non-specific subj
    two-CL boy which book-CL read

This line of reasoning is further supported by the fact that quantified subjects, which the authors argue frequently resist topicalization (48), can only appear to the right of the wh-phrase (49) and not to the left (50).

(48) *As for no one/everyone/only Mary, which book did he/they/she buy?

(49) Simpson and Bhattacharya (2003): (35)

a. *ka-ke kew/sudhu meri vot dey-ni*
    who-DAT anyone/only Mary vote gave-NEG
    'Who did no one vote for?'

b. *ka-ke sudhu meri vot dey-ni*
    who-DAT only Mary vote gave-NEG
    'Who did only Mary not vote for?'

(50) a. *kew ka-ke vot dey-ni*
    anyone who-DAT vote gave-NEG

b. *sudhu meri ka-ke vote dey-ni*
    only Mary who-DAT vote gave-NEG

Based on this body of facts, I take the high Topic position that Simpson and Bhattacharya (2003) propose for Bangla wh-questions to be generally available in the language, including in *naki*-constructions. Although the authors do not provide an exact syntactic representation of this Topic projection, I propose the following configuration:

(51)

```
                        TopP
                       /    \
                            Top'
                           /    \
                       SenP      Top
                      /    \     [+TOP]
                   SOK      Sen'
                           /    \
                       nakiP      Sen
                      /    \
                         naki'
                        /    \
                    naki      FinP
                   [+EPP]     /    \
                          FIN SPEAKER   ...
```
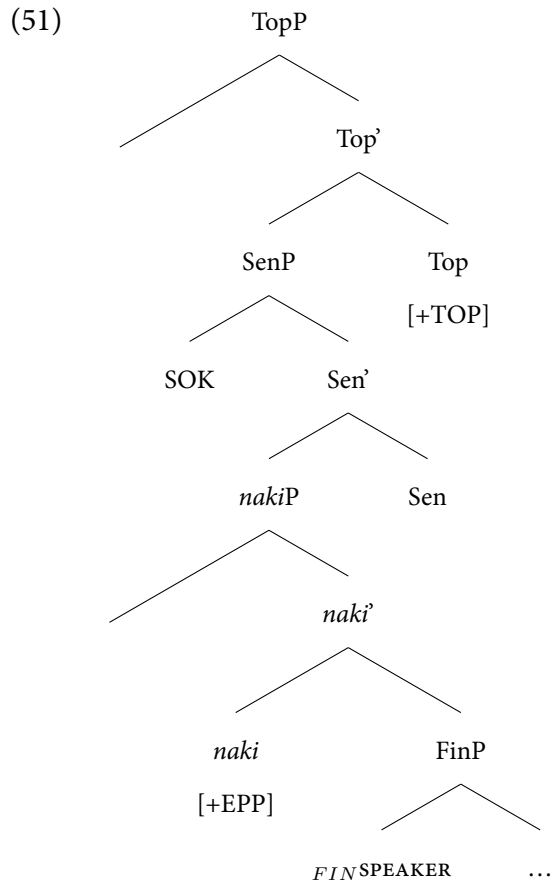
Another pertinent assumption that I make in this dissertation is Fox (1999)'s framework of reconstruction. Fox argues for a copy theory of movement, in which reconstruction is achieved via the (unrecoverable) deletion of the head of the chain and interpretation of the tail alone. This is schematically shown as follows:

(52)   Fox (1999): (82)

    a. QP_2 … $pronoun_1$ …QP_2 … $pronoun_1$ … QP_2

Following Fox, I adopt the idea that an element can be deleted only under identity with a copy. This means that in the event that the head of the chain is non-identical to the chain, unrecoverable deletion of the offending copies is blocked, preventing reconstruction from taking place (Fox 1999: p. 189). This captures the observation that A-bar movement, under the copy theory of movement can, affect Condition C only

if the R-expression is inside an adjunct (53a), and only if this adjunct is inserted after movement (53c). Fox illustrates this schematically in the following manner:

(53) Fox (1999): (80-81)

    a. *[QP ...[$_{complement}$ ...R-expression$_1$ ...] ...]$_2$

       ...pronoun$_1$ ...[$_{QP}$ ...[$_{complement}$ ...R-expression$_1$ ...] ...]$_2$

    b. *[QP ...[$_{adjunct}$ ...R-expression$_1$ ...]...]$_2$

       ...pronoun$_1$ ...[$_{QP}$ ...[$_{adjunct}$ ...R-expression$_1$ ...] ...]$_2$

       (adjunct inserted before movement)

    c. [QP ...[$_{adjunct}$ ...R-expression$_1$ ...] ...]$_2$

       ...pronoun$_1$ ...[$_{QP}$ ...]$_2$

       (adjunct inserted after movement)

Early (before movement) insertion of the adjunct results in the head and tail of the chain being identical, and thus reconstruction proceeds smoothly. This makes certain predictions about the ability of A-bar movement to bleed Condition C. Fox convincingly shows these predictions are not borne out. I refer the reader to the original work for the full details.

Crucially, however, as (53c) shows, if the adjunct is inserted after movement, then reconstruction (i.e. unrecoverable deletion of the adjunct) gets blocked because the head and tail of the chain are not identical anymore, preventing the adjunct from getting interpreted. Thus, Fox argues for late insertion of R-expression containing adjuncts (following Lebeaux 1988). The idea that members of chains can be deleted only under identity with a copy and reconstruction rests on this identity relation holding between the two ends of a syntactic chain will be important in our analysis of *naki*.

6 Putting the pieces together

In this section, I show how the crucial assumptions made about several parts of the structure can lead us to a unified syntactic analysis of the Bangla evidential *naki*. The binding facts can be spelled out as given in Table 2.

SOK controlled by $_{SA}$SPEAKER :-	SOK = $_{SA}$SPEAKER
SOK not controlled by $_{SA}$SPEAKER :-	SOK = third party; i.e. some REPORTER

Table 1.1: Indexation patterns of the SOK

The semantics of *naki* as formulated in the next chapter will argue that *naki* is a function that takes a judge restriction as one of its arguments. This proposal is fleshed out compositionally, where the SOK node supplies this argument for the *naki* function. The epistemic or doxastic alternatives of this judge are then quantified over. I refer the reader to next chapter for the complete semantic-pragmatic proposal.

As described above, the $_{FIN}$SPEAKER needs an immediate controller. The analysis presented below demonstrates how the co-indexation or contra-indexation of the $_{SA}$SPEAKER and the SOK has important consequences for the anchoring of the $_{FIN}$SPEAKER, given independent syntactic principles.

6.1 When $_{SA}$SPEAKER and SOK are contra-indexed

In the following configurations, the $_{SA}$SPEAKER and SOK are contra-indexed, which will result in the REPORTATIVE interpretation. I start with the derivation that gives us the correct structure, and then discuss how other possible derivations would crash.

In (54), an XP (which could belong to any syntactic category) is scrambled from within the FinP and adjoined to it. This makes the XP the closest goal for *naki*'s EPP

probe. After TOP is merged, (assuming that it attracts +TOP elements) it attracts some topical YP to its specifier. This results in the order $_{SA}$SPEAKER$_i$ YP SOK$_j$ XP *naki* FinP $_{FIN}$SPEAKER$_j$. The semantic module reads off this string and essentially gives us the REPORTATIVE interpretation (given that the SOK $\neq$ $_{SA}$SPEAKER) eventually but with the correct word order.

(54)

SAP

$_{SA}$**SPEAKER**$_i$ SA'

TopP   SA

Top'

SenP   Top

SOK$_j$ Sen'

*naki*P   Sen

XP   *naki'*

EPP-driven

naki

+EPP

FinP

topicalization

$_{FIN}$**SPEAKER**$_j$ ...

base copy   ...

scrambled

YP

+TOP
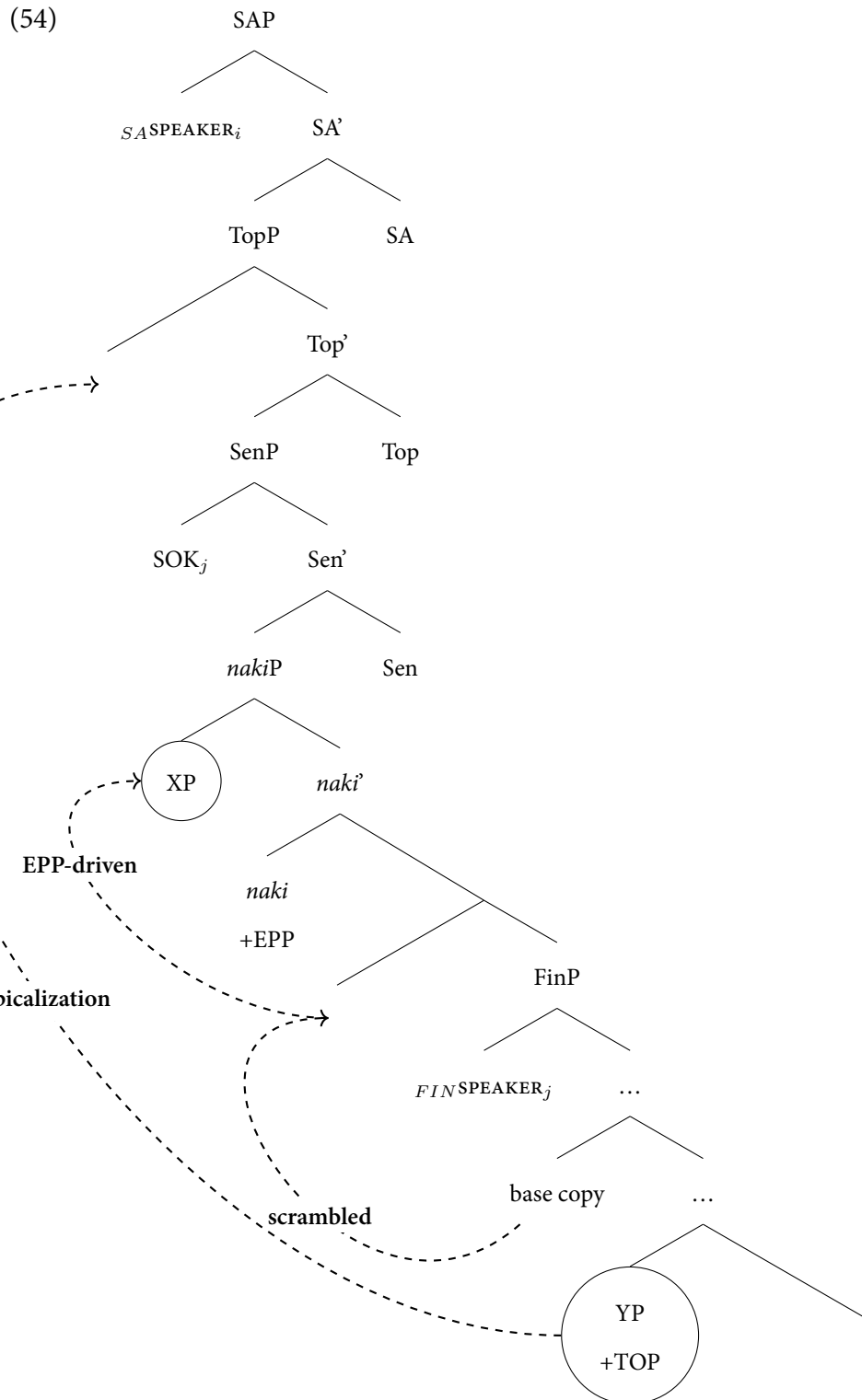
As the data above has shown us, multiple constituents can precede *naki*. I would claim that the configuration is just the same; TOP just attracts multiple constituents

to its specifier. *Naki* still just attracts the closest element and its EPP is satisfied. This derivation in (54) is not meant to imply that there has to be two phrases preceding *naki*, but rather that the XP may or may not be the [+TOP] element. If the XP is indeed [+TOP], then it would undergo topicalization, resulting in a structure where only the XP would be preceding *naki*, which is perfectly grammatical.

We should talk about other logical possibilities, given this setup. For example, what happens if the FinP itself is [+TOP]? I show the two possible structures below and discuss each in turn.

(55)

```
                              SAP
                      ╱              ╲
              SA SPEAKER_i          SA'
                              ╱            ╲
                          TopP            SA
                      ╱          ╲
            FinP (copy2)         Top'
            ╱        ╲          ╱      ╲
    FIN SPEAKER_i    …      SenP       Top
                          ╱      ╲
                      SOK_j        Sen'
                              ╱        ╲
                          nakiP         Sen
                      ╱          ╲
                    XP            naki'
                              ╱         ╲
                          naki           FinP
                          +EPP           +TOP
                                      ╱        ╲
                              FIN SPEAKER_j     …
                                              ╱    ╲
                                        base copy    …
```

topicalization

EPP-driven
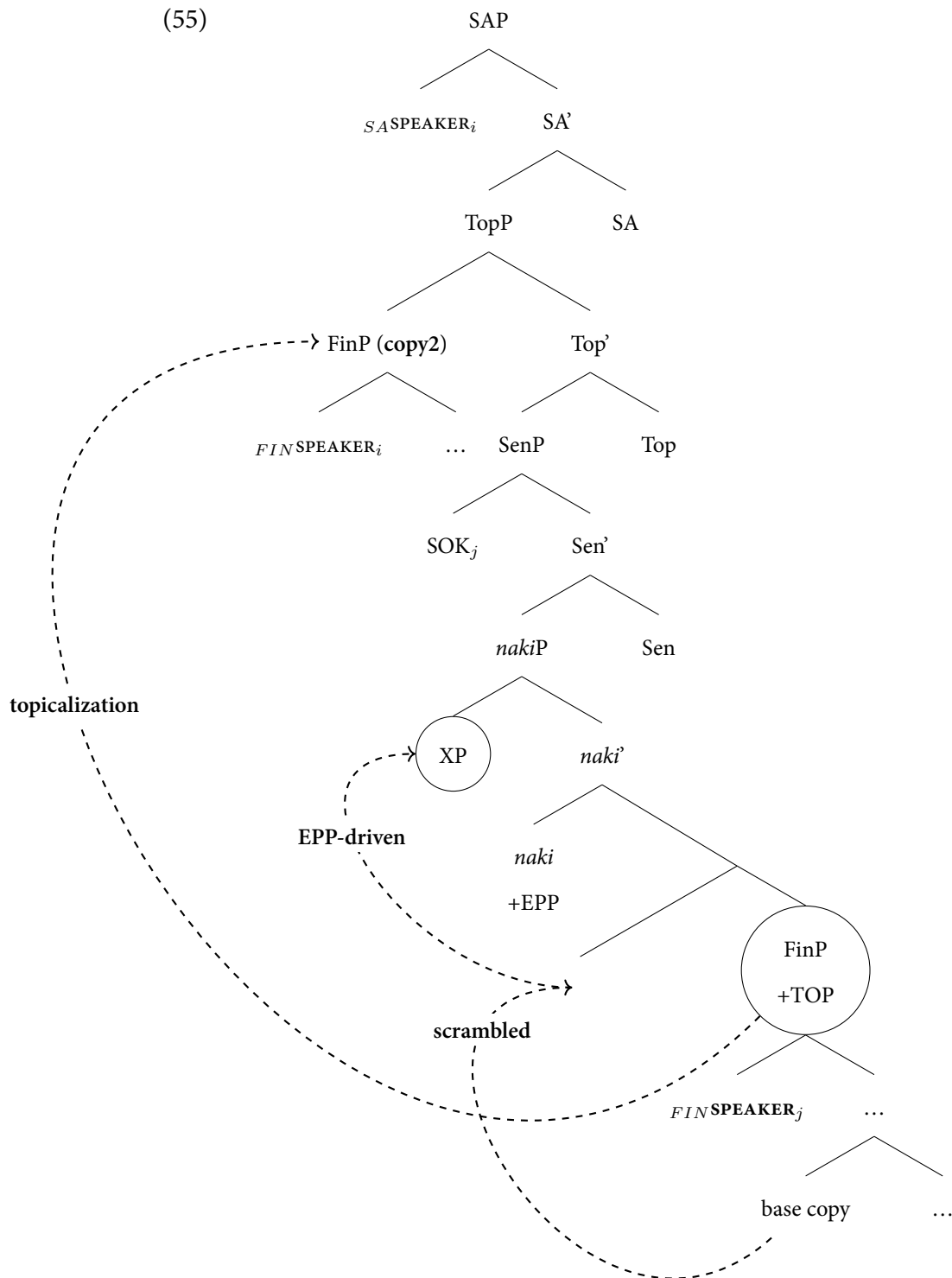
scrambled

In this configuration, an XP is scrambled from within the FinP and adjoined to it. This makes the XP the closest goal for *naki*'s EPP probe. Here, FinP is [+TOP]. After TOP

is merged, it attracts the FinP. This results in multiple copies of FinP in the structure. The higher copy of $_{FIN}$SPEAKER is controlled by $_{SA}$SPEAKER$_i$, and the base copy by the contra-indexed SOK$_j$. Thus, the head and tail of the chain have different indices here. This results in reconstruction being blocked: unrecoverable deletion of the offending copies of FinP is blocked (adopting Fox 1999 as described above). The different indices on $_{FIN}$SPEAKER are enough to block deletion, and the result is incoherent.

(56)

SAP
- $_{SA}$SPEAKER$_i$
- SA'
  - TopP
    - FinP (**copy3**)
      - $_{FIN}$SPEAKER$_i$
      - ...
      - SenP
        - SOK$_j$
        - Sen'
          - *naki*P
            - **copy2**$_j$
            - *naki*'
              - *naki* +EPP
              - FinP +TOP
                - $_{FIN}$SPEAKER$_j$
                - ...
          - Sen
    - Top'
      - Top
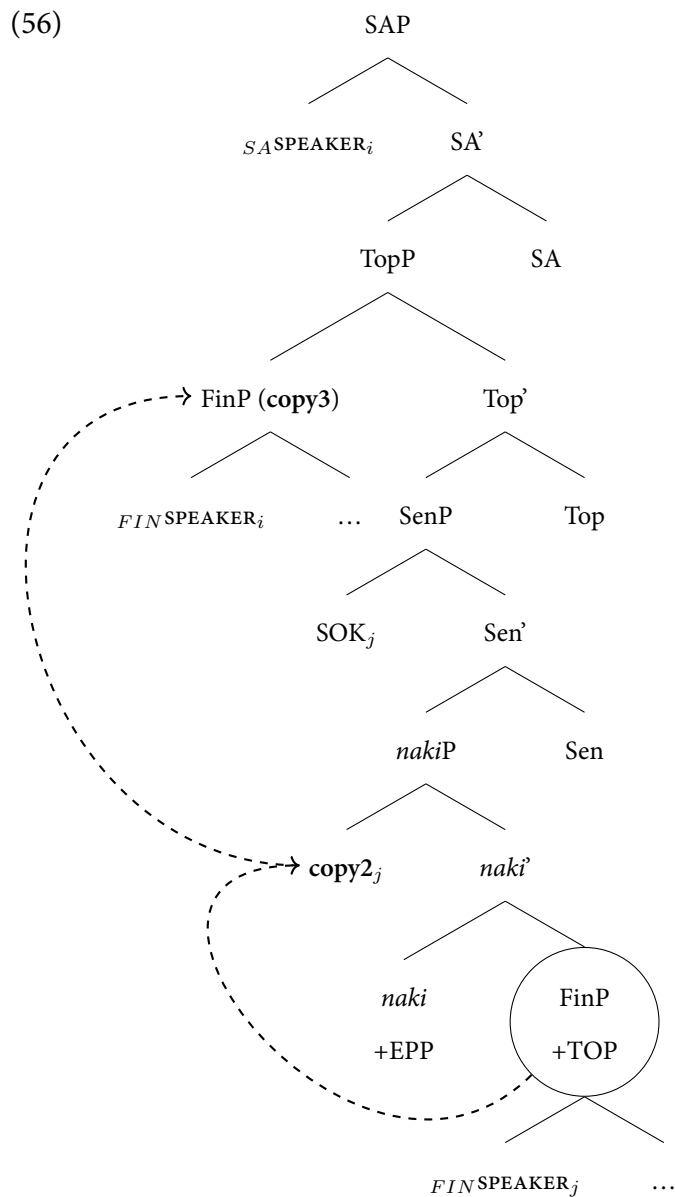
In this configuration too, the exact same problem arises as in the previous case. FinP

is [+TOP] and moves to [Spec, TopP] resulting in multiple copies of FinP in the structure. The head and tail of the chain have different indexes. Copy 3 (the head of the chain) of $_{FIN}$SPEAKER is controlled by $_{SA}$SPEAKER$_i$, while the base copy (the tail) by the contra-indexed SOK$_j$. Again, given this non-identity, unrecoverable deletion and consequently, reconstruction, are blocked, resulting in an uninterpretable derivation.

Thus, the only possible licit structure for a contra-indexed SOK is (54). This makes 'clause-medial' *naki* the only position of *naki* that can be associated with its REPORTATIVE interpretation. The utterance content would be evaluated against the epistemic domain of the REPORTER, as dictated by the meaning of *naki*. We have thus derived the second part of the *Naki* Positional Generalization as formulated in (20).

6.2 When $_{SA}$SPEAKER and SOK are co-indexed

The question that naturally arises at this juncture is - what forces *naki* to be clause-final when the $_{SA}$SPEAKER and SOK are co-indexed? This question can be reframed in the following manner - why does *naki* appear clause-finally only in the co-indexed configuration, and not in the contra-indexed configuration? To answer this question, I draw an important insight from the work of Bhatt and Dayal (2017) on the Hindi (a very close linguistic relative of Bangla) polar Q particle *kyaa*.

One of the main pervasive claims of the current study is that the indexation patterns of the relevant heads does not affect topicalization or other movements, but it affects reconstruction of moved elements. The co-indexed configuration is the only one that allows smooth reconstruction of perspectival chunks of structure, and hence gives rise in clause-final *naki*.

6.2.1 Whole clause topicalization

Bhatt and Dayal (2017) argue that *kyaa* is base-generated in the clause-initial position (inside ForceP), and other positions that the particle appears in (clause-medial,

clause-final) are derived via topicalization of constituents from inside IP to above *kyaa*. This is illustrated in the following manner by Bhatt and Dayal (27, 36):

(57) Distribution of Hindi polar *kyaa*

    a. *(kyaa) anu-ne   (kyaa) uma-ko   (kyaa) kitaab   (%kyaa) [dii]↑*

       Q_{YN} Anu-ERG Q_{YN} Uma-ACC Q_{YN} book.FEM Q_{YN} give.PFV.FEM

       'Did Anu give a/the book to Uma?'

    b. Subject *kyaa* Object Verb

       ← [Subject$_i$ [ForceP *kyaa* [CP$_1$ ___C° [Y/N][IP t$_i$ …]]]]

    c. Subject Object *kyaa* Verb

       ← [Subject$_i$ Object$_j$ [ForceP *kyaa* [CP$_1$ __C° [Y/N][IP t$_i$ t$_j$ …]]]]

    d. Subject Object Verb

       ← [ForceP TP$_i$ *kyaa* [CP [Y/N] t$_i$]]

The authors provide two diagnostics for testing the validity of this proposal: (i) favored continuations in gapping, and (ii) Y/N question congruence.

Bhatt and Dayal assume that if any material precedes *kyaa*, that material is presupposed while material following *kyaa* is open for confirmation. Based on this assumption, it follows that pre-*kyaa* material cannot be contrasted. The authors test this hypothesis for all positions of *kyaa*; below, I provide only one of their examples: the clause-medial *kyaa*. In this example, it is presupposed that it is Ram who gave something to someone. Apart from the subject (58b), other constituents such as the IO (58c) or DO (58d) can be questioned/confirmed.

(58) *kyaa* follows the subject:

    a. *[ram-ne$_i$ [kya [t$_i$ Sita-ko kitaab dii]]]*
       ram-ERG $Q_{Y/N}$ Sita-ACC book   gave
       'Did Ram give Sita the/a book?'

b. # *yaa Mina-ne*
   or   Mina-ERG
   'or did Mina?'

c. *yaa Vina-ko*
   or   Vina-DAT
   'or to Vina?'

d. *yaa magazine*
   or   magazine
   'or did he give Sita a magazine?'

The other diagnostic for the topicalization account presented in Bhatt and Dayal (2017) are Y/N question congruence facts. This test predicts that, since only non-presupposed material may be negated/rejected, only material following *kyaa* should be able to be negated. Again, I provide only their clause-medial *kyaa* paradigm below; I refer the reader to the original work for the exhaustive list of tests.

(59) [S [*kyaa* [IO DO V]]]

a. *[ram-ne$_i$ [kya [t$_i$ anu-ko kitaab dii]]]*
   ram-ERG Q$_{Y/N}$ anu-ACC book gave
   'Did Ram give Anu the/a book?'

b. **nahĩ:, Shyam-ne dii*   Subject negated
   NEG   Shyam-ERG gave
   'No, it was Shyam.'

c. *nahĩ:, Uma-ko dii*   IO negated
   NEG   Uma-DAT gave
   'No, it was Uma (to whom Ram gave the book).'

d. *nahĩ:, magazine dii*   DO negated
   NEG   magazine gave
   'No, it was a magazine (that Ram gave to Anu).'

6.2.2 Topicalized FinP

I argue that this analysis can be extended to the clause-final instantiations of both the Bangla counterpart of Hindi *kyaa* - i.e. *ki*, as well as *naki*. Evidence for this

approach being on the right track comes from the fact that applying Bhatt and Dayal's diagnostics to clause-final *naki* and *ki* constructions lead to expected results. The results are demonstrated below for clause-final *naki*. For each of the diagnostics discussed above, I first provide Bhatt and Dayal's test for clause-final *kyaa*, followed by a similar test on clause-final *naki*.

(60) Clause-final *kyaa* (Bhatt and Dayal 2017: 35)

a. *Anu-ne   Uma-ko   kitaab   dii   kyaa?*
   Anu-ERG Uma-DAT book.FEM give.PFV.FEM Q$_{YN}$
   'Did Anu give a/the book to Uma?'

(61) **Gapping continuation diagnostic**: pre-*kyaa* (Bhatt and Dayal 2017: 37) and pre-*naki* material cannot be contrasted.

a. **Anu-ne   Uma-ko   kitaab   dii   kyaa yaa Mona-ne* Hindi *kyaa*
   Anu-ERG Uma-DAT book.FEM give.PFV.FEM Q$_{YN}$ or Mona-ERG
   Intended: 'Did Anu give a/the book to Uma or was it Mona who gave a/the book to Uma?'

b. **Anu Uma-ke   boi-ta   diye-che   naki na   Mona?*   Bangla *naki*
   Anu Uma-DAT book-CL   give-PFV.3P   NAKI NEG Mona
   Intended: '(I infer) Anu give a/the book to Uma or it was Mona who gave a/the book to Uma, (is it true)?'

(62) **Y/N congruence diagnostic**: pre-*kyaa* (Bhatt and Dayal 2017: 38) and pre-*naki* material cannot be 'corrected' (i.e. denied/negated) in a Y/N question configuration. In response to (60) (and an indentical question with *naki* in Bangla), the following cannot be felicitous answers.

a. #*nahĩ:, Mina-ERG dii*

   NEG   Mina-ERG give.PFV.FEM

   'No, it was Mina who gave a/the book to Uma.'

b. #*Na, Mina diye-che*

    NEG Mina give-PERF.3P

    'No, it was Mina who gave the book to Uma.'

Thus, we can defend the claim that *naki* surfaces clause-finally because its whole complement clause is topicalized.

Adapting this idea of whole clause topicalization to the analysis offered in this chapter would amount to the claim that the whole finite clause complement of *naki* undergoes movement to the high TopP. We have already seen the consequences of such movement, in the contra-indexed $_{SA}$SPEAKER and SOK cases above (55, 56). Those derivations crashed because the topicalized FinPs could not be reconstructed, given the contra-indexation of the perspectival heads in the structure. What happens when the relevant perspectival heads are co-indexed? We predict that in this is the only configuration in which the movement of FinP to [Spec, TopP] can be successful, i.e. can be reconstructed and interpreted. This is possible because the head and tail of the chain ends up with the same indexes, as shown in the derivation below. The higher copy of $_{FIN}$SPEAKER is controlled by $_{SA}$SPEAKER$_i$, and the lower one by the co-indexed SOK$_i$. Reconstruction proceeds, with the pronunciation of the head of the chain and the interpretation of the base copy.

(63)

```
                              SAP
                         ╱          ╲
              SA SPEAKERᵢ           SA'
                                 ╱       ╲
                             TopP          SA
                          ╱        ╲
          ⤏ FinP (copy3)            Top'
         ╱        ╲               ╱      ╲
  FIN SPEAKERᵢ    …  SenP       Top
                  ╱      ╲
              SOKᵢ        Sen'
                       ╱      ╲
                   nakiP        Sen
                  ╱      ╲
            ⤏ copy2ᵢ      naki'
                        ╱      ╲
                    naki        FinP
                    +EPP        +TOP
                             ╱      ╲
                      FIN SPEAKERᵢ    …
```
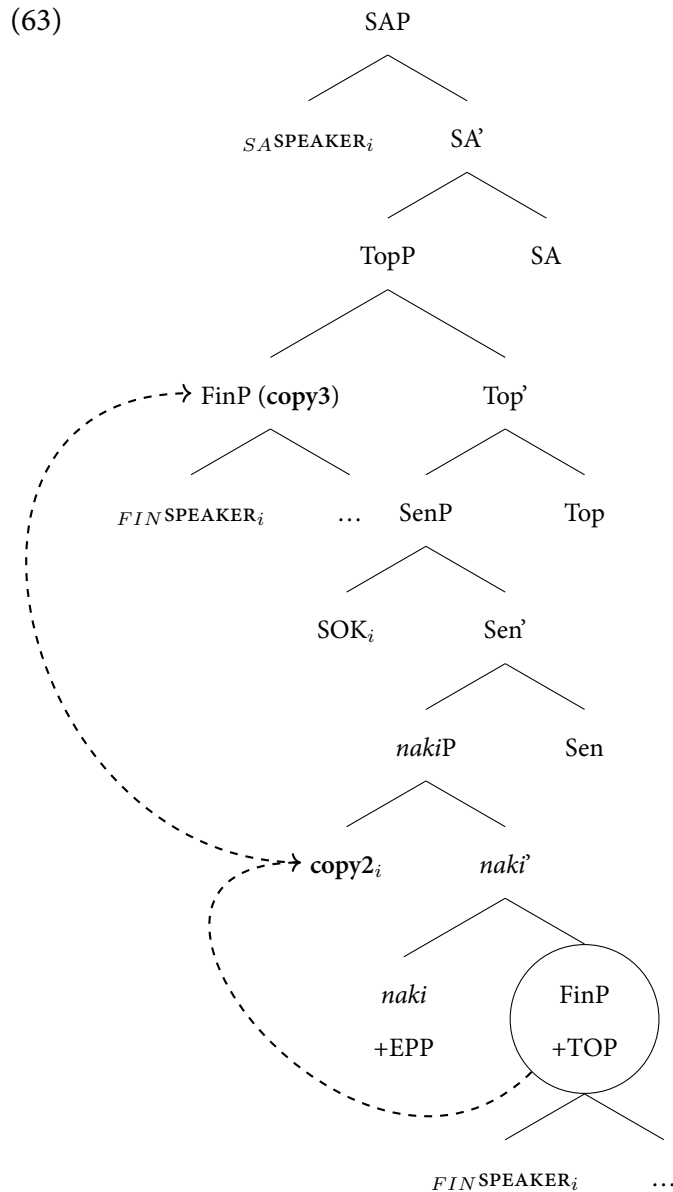
The semantic module reads off the structure in (63). The 'judge' (SOK) is co-indexed with the $_{SA}$SPEAKER, resulting in the perspective being anchored to the $_{SA}$SPEAKER. In the semantics, such an orientation translates to quantification over the epistemic alternatives of the $_{SA}$SPEAKER. The outcome is the INFERENTIAL interpretation but with the correct word order.

In (63), the FinP is the closest goal for *naki* and thus moves to [Spec, *naki*P] first. Note that in principle, in this $_{SA}$SPEAKER$_i$ = SOK$_i$ configuration, there is nothing

preventing a scrambled XP (that adjoins to FinP) from being the closest goal for *naki*, as we saw in (54) and (55). This XP would move to [Spec, *naki*P] while the remnant FinP would move to [Spec, TopP] as expected. This is shown in the schematic representation of (64a) in (64b). The grammaticality of (64a) tells us that this approach is on the right track.

(64) a.   *[Boi-ta   t_i phel-e   eshe-cho]   [[bajaar-e_i] naki]?*
           book-CL   leave-IMPV come-PERF.2P market-LOC NAKI
           '(I infer) you left the book at the market, (is it true)?'

      b. $[_{TopP} [_{FinP}$ boita t_i phele eshecho $]_k$ TOP ...$[_{nakiP}$ bajaare_i naki t_k $]]$

7   Conclusion

This chapter defended a unified analysis of the Bangla evidential *naki* which changes its evidential flavor based on its syntactic position relative to other phrases. The particle *naki* was argued to be generated in one single base position; the apparent surface differences in the syntactic distribution of the two evidential flavors were shown to fall out from independent syntactic principles relating to c-command and control, binding, locality and reconstruction. In particular, the discussion in this chapter attempted to provide an understanding of how the syntactic representation of perspective interacts with evidentiality, by demonstrating that evidentials always take finite clauses as complements. Finite clauses were crucially argued to always be syntactically perspective-sensitive, i.e. the left periphery of finite clauses were shown to contain elements susceptible to control by speech act heads. The evidence for this claim was drawn from the literature on indexical shift and complementizer agreement - realms which have not been connected with evidentiality before. In addition, different patterns of indexation among several speech-act-related operators were demonstrated to be inherently linked with resultant word orders, a result that would otherwise appear

surprising. This chapter, thus, attempted to present a view of the syntactic foundations on which the (primarily semantic) category of evidentiality rests in human language.

Chapter 2

Naki: A Semantic-Pragmatic Profile

1   Introduction

I will argue that there are two components to the meaning of *naki* - a hardwired semantic component and a crucial pragmatic component. Both of these modules work as a team to yield the patterns we saw in the previous chapter. I will discuss each in turn.

The main claims that this chapter will defend are the following:

(65)   a.   *Naki* existentially quantifies over the epistemic alternatives of a judge.

b.   This judge argument is compositionally satisfied by the SOK node in the left periphery.

This judge argument (Lasersohn 2005, Stephenson 2007) is the argument encoding the perspective that *naki* is anchored to. Given specific syntactic configurations as we saw in the previous chapter, the SOK can be co-indexed or contra-indexed with the speaker. Depending on whether the SOK is co-indexed with the speaker or a third party agent, for instance, the reporter, the judge is either the speaker or this third party source. This difference in the 'judgehood' of *naki* has important consequences for both its meaning and its discourse contributions.

1.1 Hardwired meaning

Following Lewis (1979) and Chierchia et al. (1989), Stephenson (2007) 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.

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

For epistemic modals, she introduces the notion of *epistemic alternatives*. 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.

(67) $\text{Epist}_{w,t,x} = \{ \langle w', t', y \rangle$: it is compatible with what x **knows** in w at t that he/she/it 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 - $\langle w,t,x \rangle$ - itself.

I propose the following meaning for *naki*, an expression of type <<<<s<i,et>>e>s>t>:

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

This definition claims that *naki* a function that requires a proposition and a judge argument and returns a statement saying that there is atleast one alternative in the judge's epistemic domain in which the proposition holds.

I show two compositional trees below ((70) - INFERENTIAL interpretation, (71) - REPORTATIVE interpretation) with the schematic representations of only the relevant nodes. I make the following assumptions:

(69) a. Interpretation happens after reconstruction, i.e. all moved elements are interpreted in their base positions.

b. All the null elements present in the syntactic structure that are not represented here are identity functions and do not affect the interpretation.

c. Propositions are of type $<s<i, et>>$, i.e. they are relativized to a world, time and judge parameter. Crucially, the perspectivization of propositions is a natural consequence of the connections between finiteness and the presence of operators such as SPEAKER/ADDRESSEE made in the syntax discussion above. The judge inside the proposition is the $_{FIN}$SPEAKER which needs to be co-indexed with a higher perspectival head.

(70)

SenP
$\lambda w \exists <w',t',x> \in \text{Epist}_{w,t,SA-SPEAKER}$: it's raining at w',t'

SOK$_i$
$=_{SA}$SPEAKER

nakiP
$\lambda z \lambda w \exists <w',t',x> \in \text{Epist}_{w,t,z}$: it's raining at w',t'

$\lambda z \lambda w \exists <w',t',x> \in \text{Epist}_{w,t,z}:[\lambda w'' [\lambda t'' [\lambda j'' [\![\text{it's raining}]\!]^{c,w'',t'',j''}]]](w')(t')(x)$
$\Rightarrow \lambda z \lambda w \exists <w',t',x> \in \text{Epist}_{w,t,z}$: it's raining at w',t'

naki
$\lambda p \lambda z \lambda w \exists <w',t',x> \in \text{Epist}_{w,t,z}: p(w')(t')(x)$

FinP
$[\lambda w'' [\lambda t'' [\lambda j'' [\![\text{its raining}]\!]^{c,w'',t'',j''}]]]$

(71)

SenP
$\lambda w \exists <w',t',x> \in \text{Epist}_{w,t,REPORTER}$: it's raining at w',t'

SOK$_j$
$=$REPORTER$_j$
$\neq_{SA}$SPEAKER$_i$

nakiP
$\lambda z \lambda w \exists <w',t',x> \in \text{Epist}_{w,t,z}$: it's raining at w',t'

$\lambda z \lambda w \exists <w',t',x> \in \text{Epist}_{w,t,z}:[\lambda w'' [\lambda t'' [\lambda j'' [\![\text{it's raining}]\!]^{c,w'',t'',j''}]]](w')(t')(x)$
$\Rightarrow \lambda z \lambda w \exists <w',t',x> \in \text{Epist}_{w,t,z}$: it's raining at w',t'

naki
$\lambda p \lambda z \lambda w \exists <w',t',x> \in \text{Epist}_{w,t,z}: p(w')(t')(x)$

FinP
$[\lambda w'' [\lambda t'' [\lambda j'' [\![\text{its raining}]\!]^{c,w'',t'',j''}]]]$

The crucial difference between the two derivations lies in the valuation of the judge parameter. The structure in (70) claims that the proposition in the scope of *naki* exists in the epistemic alternatives of the Speaker of the speech act, who is also the SOK (given the binding relationship established in the syntax). This quantification over the Speaker's epistemic alternatives results in an INFERENTIAL interpretation. In (71), 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 is manifest in the SOK being contra-indexed with the Speaker of the speech act. 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, a difference in the valuation of the judge parameter and the (reconstructed) interpretation of the FinP under the co- or contra-indexed SOK results in a *naki* statement being interpreted with a REPORTATIVE or INFERENTIAL flavor. Crucially, this analysis assumes one single lexical entry for the evidential *naki*, and its different flavors and corresponding word orders fall out from independent syntactic and semantic principles.

Keeping these syntactic and semantic proposals in mind, I will discuss *naki*'s discourse contributions in the following sections. First, the key pragmatic notions of commitment and sourcehood will be first introduced, following which a dynamic pragmatic account will be proposed.

2   Commitment and Sourcehood

In this section, I will discuss two notions that are integral to any study of evidentiality - commitment and sourcehood. The speech act of *rising declaratives* have been argued to interact with both these notions. I will argue that although *naki*-questions appear

to resemble rising declaratives, they cannot be branded as such for several reasons. In particular, I will argue for a refinement of the formulation of rising declaratives, as well as novel distinctions in the formulation of the notion of sourcehood, keeping in mind the behavior of different types of evidentials.

2.1 Rising Declaratives

Several studies have focused on the *interrogative nature of declaratives with a rising intonation* (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). These speech-acts are called either rising declaratives or declarative questions. Consider the exchange below, where (a), (b) and (c) are different discourse moves by Max:

(72)　*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? declarative question/rising declarative

　　c.　You got a haircut. falling declarative

(Gunlogson 2008: 8-9)

(117b) is a simple polar interrogative in English, marked by Subject-Aux inversion as well as a rising intonation - both characteristics of a simple interrogative. (72c) 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 (72b) combines one characteristic each from the other two - it has an assertive syntax like (72c) but also

has rising intonation like (117b)[1]. Thus, a rising declarative (henceforth, RD) has the following form, where the ↑ denotes the final rise in intonation:

(73)   RD = assertion↑

RDs have been studied in English and related languages for their special discourse function - signaling a *tentative commitment* on the part of the speaker. Gunlogson (2008) calls this 'contingent' commitment, while Farkas and Roelofsen (2015) call it 'conditional' commitment. I will use Gunlogson's term throughout this dissertation. The birth of the commitment itself is 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.

Northrup 2014 provides an exchange that helps make the important 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 crucially, he cannot deny or take back the commitment expressed by his RD locution.

(74)   *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)

---

[1]Note that RDs are to be kept separate from CQs (*Conjectural Questions*), which also have the sentential force of a declarative, but which Littell et al. (2010) define as being close to Rhetorical Questions in often not requiring an answer. CQs are also infelicitous in contexts where the addressee can be assumed to know the answer - a clear difference from RDs.

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.

(75) 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.

(Northrup 2014: 19)

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):

(76) 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

(Gunlogson 2008: 26)

In (76a), 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 (76b) 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:

(77) 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 him/her for sourcehood status. Additionally, the truth or falsity of the claims made by a participant are orthogonal to the definition of sourcehood provided here. The linguistically-relevant notion of source only takes into account the relationship of a participant to an utterance, and not if the utterance reflects reality. 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. For example, if someone you trust gives you a piece of information, you may believe it unquestioningly. In that scenario, you are not the source for ϕ but you do have a dependent commitment towards ϕ when you express your belief in what you heard. Gunlogson provides the following definition for dependent commitment:

(78)   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 we saw in (76a), 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, we can modify our depiction of the RD structure from (73) to the following:

(79)   assertion↑ = dependent commitment to ϕ + awaiting confirmation of ϕ

Given this characteristic of seeking confirmation, Poschmann (2008) uses the term *confirmative questions* to denote RDs. The idea is the same - RDs embody the speaker's contingent commitment that awaits becoming an actual commitment following the addressee's ratification of ϕ.

Farkas and Roelofsen (2015) 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 2002a, Simons 2005b, Alonso-Ovalle 2006a, Aloni 2007), this sentence radical holds a special place. A polar question 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 *no*. *Yes* confirms the highlighted alternative, *no* denies the highlighted alternative. Using this terminology, Farkas and Roelofsen 2015 argue that RDs express a bias towards the highlighted alternative.

In the extensive body of literature pertaining to the study of RDs, there is a consensus that RDs have two properties: (i) they signal a commitment (not full) 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. In the next section, I show that both of these properties fail to hold in Indo-Aryan languages, where RDs can function as completely neutral, commitment-less, simple polar interrogatives.

2.2 Polar questions in 'intonational' languages

What I call 'intonational' languages for the purposes of this dissertation are solely languages that can form polar questions with the syntax of an assertion combined with a final rise in intonation.[2]

Intonational languages do not require any overt syntactic cues in order to form polar questions, unlike Germanic languages. The assertive syntax coupled with rising intonation is sufficient in indicating interrogative status. Consider the following paradigms from Bangla and Hindi, showing that declaratives and interrogatives have identical surface forms. Bangla and Hindi share this property with numerous other languages in the South Asian region, including Gujarati, Punjabi, etc. The ↑ symbol represents rising (question) intonation:

(80) Bangla

    a. *Anu khe-ye niye-che.*   Declarative
       Anu eat-IMPV take-3P.PERF
       'Anu has eaten.'

    b. *Anu khe-ye niye-che*↑   Interrogative
       Anu eat-IMPV take-3P.PERF
       'Has Anu eaten?'

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

(81) Hindi

    a. *Anu-ne   khana kha   liya.*   Declarative
       Anu-ERG food   eat-IMPV take-3P.PERF
       'Anu has eaten.'

    b. *Anu-ne   khana kha   liya↑*   Interrogative
       Anu-ERG khana eat-IMPV take-3P.PERF
       'Has Anu eaten?'

The reader might have noticed at this point that both (80b) and (81b) look like the English RDs that were discussed in the previous section - declarative syntax and final rising intonation. There is, however, a fundamental difference between English RDs and (80b) and (81b). For English, garden-variety polar questions have a different syntactic form from declaratives, as a result of which the use of RDs in discourse convey speaker bias towards ϕ. In intonational languages like Bangla and Hindi, (80b) and (81b) are garden-variety polar questions, which are uttered without any expression of speaker bias. This method of forming polar questions is arguably the most productive in such languages. Crucially then, the characterization of the RD form as inherently biased needs to be rethought, as the empirical patterns in several non-Germanic languages show that the RD form can also serve as a simple, canonical polar interrogative in natural language.

This discussion of polar questions in South Asian languages leads to a departure from Gunlogson (2004),Gunlogson (2008), Poschmann (2008), Farkas and Bruce (2009), Krifka (2014b), Northrup (2014), Farkas and Roelofsen (2015), Malamud and Stephenson (2015) - all of whom assume that RDs are fundamentally non-neutral locutions that signal a bias on the part of the speaker. This assumption is demonstratably indefensible in numerous South Asian languages, especially within the Indo-Aryan family. A typological generalization can be made about the occurrence of RDs, supported by the cross-linguistic empirical contrasts we have observed so far:

(82)   RD Neutrality Generalization

> In languages that form polar questions via syntactic means such as Subj-Aux inversion or the obligatory presence of polar question particles, RDs are consistently non-neutral locutions.

This generalization thus also makes the claim that in all languages that do not use special syntactic means to form polar questions, RDs can be used as neutral polar questions productively.[3]

One way to account for the bias present in *naki*-questions would be to claim that all *naki* interrogatives are actually canonical RDs, where the assertive form coupled with rising intonation leads to bias. However, given the fact that Bangla is an intonational language with RDs functioning productively as neutral polar interrogatives, the claim that *naki*-questions are biased because they are RDs cannot be defended. Then where does the bias in *naki*-questions come from? Using the notions of sourcehood, commitments and their interactions with evidentiality, I provide a discourse-oriented analysis of bias in Section 6.

2.3   Sourcehood vis-à-vis Evidentiality

We saw above that there exists a strong correlation of speech acts to the types of commitments expressed and corresponding sourcehood distinctions. In this section, I will argue for the dependent-independent sourcehood distinction to also be related to evidentiality. The DIRECT vs. INDIRECT distinction in evidentiality goes back to Willett (1988). While the former encompasses all senses of perception, the latter includes every form of evidence that is not solely perceptually gathered, i.e. inference, reasoning, hearsay (myths, folktales, third-party reports). The rich systems of evidentiality across

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[3]RDs in intonational languages can be made to sound non-neutral with special intonational devices, which I do not discuss here.

the world that have been studied extensively have been argued to respect this difference in terms of morphological and syntactic manifestations of evidence types (Aikhenvald 2004). Crucially then, 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).

Distinctions in commitment strength as stemming from the evidence type have also been argued to exist even within Willett's INDIRECT evidence side. 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), as reported in Krawczyk (2012):

(83) 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.'

(Krawczyk 2012: 24 and 50)

The data shows that the continuation of an reportative evidential statement with a contradiction is felicitous, while the same with an inferential evidential statement is infelicitous. Northrup (2014) remarks that this strongly suggests that the inferentially-marked utterance commits the speaker to the matrix content, while reportative-marked utterance does not. Reportative *naki* also has the same property:

(84) *Gorment   naki briddhashrom-e   onek taka   dhal-be,   kintu amar*
      government REP old age home-LOC lot   money pour-FUT.3P, but   I-GEN
          mone hoy-na   sheta konodin ho-be   bole
          mind 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.'

Other examples of how abductive inferential or conjectural evidentials cannot be followed by contradictory contradictions are reported in AnderBois (2014):

(85) # Cheyenne
E-hotaheva-Ø   Floyd naa oha   e-saa-hotaheva-he-Ø
3-win-DIR.3SG Floyd and CNTR 3-NEG-win-MOD-DIR
'Floyd won, I'm sure, but I am certain that he didn't.'

(Murray 2010a: 54)

(86) # Cuzco Quechua
Llave-qa muchila-y-pi=cha ka-sha-n   ichaqa mana-n aqhay-pi-chu
key-TOP bag-1-LOC-CONJ be-PROG-3 but   not-DIR there-LOC-NEG
'The keys maybe/are possibly/probably in my backpack, but they are not there.'

(Faller 2002: 163)

Let us ponder for a moment on what it means to make a 'pure' reportative statement, like in (84). In a statement like (84), with the use of *naki* the speaker is signaling that he heard the proposition in the scope of *naki* from a third-party. In this scenario, if we recall Gunlogson (2008)'s definition of a *source* (given in (77) above), who can be said to be the source of the proposition - 'The government will pour a lot of money into old age homes'? Given the first clause of Gunlogson's definition, being a source for ϕ entails being committed to ϕ. The continuation in (84) clearly shows that this is not true for a reportative *naki* statement. 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 discourse surrounding the utterance of (84), the speaker does not depend on another agent's testimony about ϕ, and is thus considered an independent source for ϕ. Thus, reportative evidentials of the *naki* kind, that allow contradictory continuations (Japanese reportative evidentials *soo-da, rashii* (McCready and Ogata 2007), the Cheyenne reportative *seste* (Murray

2010b), the Cuzco Quechua reportative *si* (Faller 2002), Chol *-bi*, Estonian *-vat*, Finnish *kuulemma* (all reported in AnderBois 2014), Tagalog *daw* (Schwager 2010)), 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.

I propose, therefore, that we call Gunlogson's notion of source 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 argue for a new category - an uninvolved source, which differs from an involved source in only one respect - the agent is not committed to ϕ.

(87) **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$_{INF}$*	*apparently, evidently, naki*$_{REP}$, 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 make commitments via falling declaratives, or utterances qualified with both direct perception as well as with indirect processes such as inference, personal assumptions, conjecture - all methods via which the speaker personally engages in some degree or other with the validity of ϕ, and is 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.[4] This space is crucially where a reportative evidential and its relatives reside.

I have likened involvement with the presence of commitment. Crucially note that direct as well as indirect evidentials are subsumed under this umbrella. In contrast, the uncertain nature of third-party reports[5] makes the speaker using a reportative evidential an uninvolved source, as evidenced by the contradictory continuations above. All utterances marked with independent sourcehood is by default involved independent sourcehood unless explicitly marked otherwise. Here are a few examples of such explicit uninvolvement markers from English:

(88)   a.   **Apparently** Trump believes climate change is real, but I don't think that he really does.

       b.   **Evidently** Ram has not arrived at this party yet, but I thought I saw his coat when I came in.

       c.   It **seems** like she left but she actually hasn't.

Dependent sources can also be involved or uninvolved. Recall that the hallmark of Gunlogson's notion of a dependent source is the following - according to the discourse context d, α is not a source for ϕ in d. We can assume that this alludes to the fact that the speaker has not acquired the piece of information in ϕ himself. In that case, 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 neutral, canonical polar questions reside. I

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[4]There is a not-at-issue commitment about the evidential though - the speaker is committed to having *heard* the proposition. I do not mean this meta-commitment when I discuss uninvolved sources.

[5]If the third-party source is very trustworthy, such as a famous newspaper or news channel, the speaker might be committed to ϕ even while using the reportative. In that case, the speaker becomes an involved source (cf. Krawczyk (2012)'s Evidence Promotion).

argue in Section 5 that questions that undergo Interrogative Flip, given the presence of evidentials, also reside in the same space, so this table anticipates that discussion.

(89) **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 like the Ben-Amy kind	simple polar questions, evidentials in questions with interrogative flip

Armed with these fine distinctions of sourcehood and commitment and their interaction with different types of evidentials in different speech acts, we can embark on our mission to provide an analysis of *naki*, in a dynamic pragmatics framework.

3 A dynamic discourse analysis of *naki*

Several studies in the recent past have dealt with the issue of bias in interrogatives (starting with Ladd 1981, followed by Buring and Gunlogson 2000, Romero and Han 2002, Sudo 2013, Van Rooy and Šafářová 2003, Asher and Reese 2005). In particular, the bias associated with RDs have been observed and analysed in Roberts (1996), Gunlogson (2004), Gunlogson (2008), Farkas and Bruce (2009), Krifka (2014a), Northrup (2014), Farkas and Roelofsen (2015) and Malamud and Stephenson (2015). In this section, I adopt Malamud and Stephenson (2015)'s, [henceforth, M & S], model of the conversational scoreboard, which builds on prior work in the semantics and pragmatics of dialogue, taste predicates and vague scalar predicates. I first provide a description of the model, and then locate the contribution of *naki*-locutions within the framework, while introducing some crucial modifications along the way.

3.1 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:

(90) 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 (private beliefs do not count here)).

b. **the Table**: stack of issues to be resolved (the top issue first), where issues are represented as sets of propositions (where only unresolved issues (i.e. those that have not yet found a place in the Common Ground (cf. Ginzburg 2012) can remain on the Table)).

c. **Common Ground** (CG): the set of propositions that all speakers have publicly committed to (i.e. the intersection of the DCs of all participants, cf. Stalnaker (1978)).

d. **Projected CGs**[6]: a set of potential CGs that give possible resolution(s) of the top issue on the Table in the expected next stage of the conversation, which can be reached in the next few moves.

e. **Projected Commitments** (DC_{X*}): sets of *tentative* commitments of the speaker and 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.

Projected sets are always sets of sets of propositions. What M & S call 'projected commitments', Gunlogson (2008) calls 'contingent commitment'. One important

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

characteristic sets the two analyses apart - in the current framework, it is possible to anticipate the hearer's discourse stance too, because of the presence of the hearer's projected commitment set - a mechanism that is not present in Gunlogson (2008). This is the reason I adopt M & S's model in this dissertation, and we will see that a technical method to map the guessing of other participants' possible discourse commitments aids us to a great degree in understanding *naki*'s contribution.

At the background of the framework employed here is the assumption (following Farkas and Bruce 2009) that all conversations are driven by a two-pronged aim: a need to keep the Table empty (i.e. in a stable state) and to continuously increase the common ground. The latter enables the placing of issues on the Table and the former drives the necessary steps to resolve those issues following cooperative principles of communication (cf. Grice 1975). In this regard, it is pertinent to mention Gunlogson 2008's notion of a *joint commitment* - where, after an issue (proposition) has been placed on the Table and resolved, if both parties agree on it, the proposition becomes a joint commitment. If a joint commitment cannot be made, however, issues can be taken off the Table with the result being a mutual decision to agree to disagree.

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.

(91)   (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:

(92) 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)

Crucially, any notion of 'discourse commitments' of an agent χ are taken to mean propositions that the agent has publicly committed to during the course of a conversation. However, 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. These propositions can just be presented as a report of a third party's viewpoint that the speaker lays no claim

to but is just committing to having heard. A proposition ϕ can be felicitously presented without any conviction in ϕ or even possibly ϕ. This distinction plays a major role in the defining uninvolved source sets below.

Given the novel categorial classifications proposed in the previous section, instead of one, I add two new source sets to the scoreboard. I will show that adding these two (instead of four) new sets will get us all the distinctions we need for the problem at hand. Following Farkas and Bruce (2009)'s and M & S's formulation of $DC\chi$s and in tandem with the scoreboard proposed in (90), I formulate each source set as a set of propositions instead of the Gunlogson-style set of worlds.

(93)   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}

Crucially note that the differences revolve between commitments versus presented propositions (playing into my claim of treating active involvement as the presence of commitment) and the dependence on another agent(s)' testimony in the same discourse. 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 exchanges of the Ben-Amy kind above.

Before we can begin a full discussion of what *naki*-locutions contribute, we need to understand better what the role of intonation is. In essence, the REPORTATIVE interpretation of *naki* can appear with both falling and rising intonation, while the INFERENTIAL interpretation can only appear with rising intonation. In the next section, I argue, following Davis (2009), that $\uparrow$ and $\downarrow$ are actual morphemes with real semantic denotations. I claim that *naki*-locutions are the result of teamwork - the particle itself

and the intonation morphemes that it licenses work jointly in updating two sets on the scoreboard simultaneously. I first discuss the semantics of the intonational morphemes and then *naki*-locutions as a whole.

3.2   ↑ and ↓ are morphemes

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:

(94)   *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-tcneg yo↓/ #yo↑
        '(No), he did not die.'

In this dialogue, the use of *yo*↓ signals B's disbelief of A's assertion, and his consequent rebuttal of it. For such a use, *yo*↑ would be infelicitous. This strong denial/rebuttal meaning associated with *yo*↓ makes it infelicitous in neutral, non-confrontational contexts.

(95)   *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.'

In this dialogue, B is not challenging any of A's commitments, and thus the use of *yo*↑ is felicitous here[7].

Crucially, Davis argues that the rising and falling intonations seen above that *yo* appears with are actual morphemes that contribute to the update semantics of the sentence. The differences in the use of *yo*↓ and *yo*↑ are then argued to be rooted in the semantic contributions of these morphemes, which he formalizes as given below. Essentially, these morphemes are argued to attached to the force head ASSERT and return a function of the same type, from propositions to *context change potentials*. PBχ(C) stands for the *public beliefs* of agent χ in context C.

(96)   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. $[\![\text{ASSERT}]\!] = \lambda p \lambda C.\ \text{PB}_{spkr}(C) + p$

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

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

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

Without going into a full exposure of this account (I refer the reader to the original work for the details), I will adopt the the idea that ↑ and ↓ are morphemes that contribute to semantic interpretation. Given below is the structure Davis provides to show how the compositional details would work out. Although the structure looks compositional, it is not immediately clear what kind of syntactic assumptions allow the proposition ψ to merge above the Force head. I will not delve into this question further here.

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[7]The fact that *yo*↓ is also felicitous here is argued to be indicative of an objection to something in A's question.

(98)

$$S'_{<C,C>}$$

$$S_{<C,C>} \quad yo_{<<C,C>,<C,C>>}$$

$$\psi_{<s,t>} \quad FORCE'_{<<s,t>,<C,C>>}$$

$$FORCE_{<<s,t>,<C,C>>} \quad \uparrow/\downarrow_{<<<s,t>,<C,C>>,<<s,t>,<C,C>>>}$$
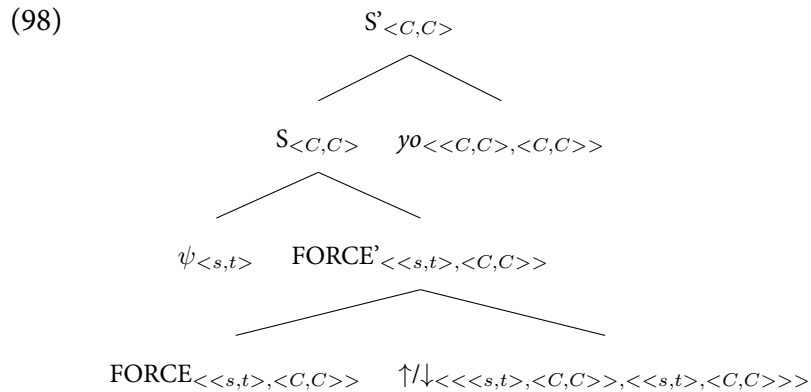
(Davis 2009: 39)

In the analysis proposed by Davis, one of the crucial properties of the ↑ and ↓ is their ability to directly add propositions to an interlocutor's PB set. That is, the speaker can directly add to the addressee's set of discourse commitments without any negotiation. Speaking to this point, I adopt an important insight from Malamud and Stephenson (2015). The authors argue that a conversational move, given the principles underlying accepted human communicative behavior, can add *projected* (i.e. tentative) commitments to either the speaker or the hearer, whereas it can only add present/actual commitments to the speaker but not to the hearer. In other words, adding actual commitments to the hearer would amount to 'putting words in someone's mouth' - which is an undesirable and unhelpful enterprise. This point of criticism, which the authors level against Farkas and Bruce 2009, can also be leveled against Davis (2009). We need a way to model speaker's guesses regarding hearer commitments, because as Malamud and Stephenson (2015) point out - a speaker can only add propositions to full/actual commitments of the hearer when the speaker is somehow authorized to 'speak for' the hearer (for e.g. in a spokesperson or messenger or lawyer kind of scenario).

Thus, to solve this issue, Malamud and Stephenson (2015) crucially argue for *projected commitment sets* to be added to the Farkas and Bruce scoreboard, i.e. sets of *tentative* commitments of the speaker and 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, as seen above in (90).

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

(99) a. ↑ and ↓ are not adverbial modifiers of Force°.

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

The main idea is the following - given the status of ↑ as always a response-elicitor (cf. Pruitt and Roelofsen 2013) or tentative-commitment marker, ↑ crucially functions to update some individual χ's projected commitment set - $DC_{\chi*}$; whereas, ↓ functions to update some individual's actual commitment set.

(100) a. $[\![↑]\!] = \lambda q\ \lambda C\ (DC_{SPKR*}(C) + q)$ type:$<<s,t>,<C,C>>$

  b. $[\![↓]\!] = \lambda q\ \lambda C\ (DC_{SPKR}(C) + q)$ type:$<<s,t>,<C,C>>$

I show below that this analysis is fully compositional by providing sample derivations. Before that, I describe what the contributions of a *naki* statement would look like.

Based on the distinctions of commitment and sourcehood postulated above, an INFERENTIAL evidential uttered by an agent A would always contribute an update to the IIss$_A$ (Independent Involved source set - the agent acquired the information themselves and are involved, i.e. committed to it). Crucially, if the addressee ratifies p, p enters the Common Ground as a joint commitment. An example of the scoreboard is given below:

(101) *p naki-*INFERENTIAL

	Previously	After A's assertion	After B responds with confirmation
DC$_A$	{}	{}	{p}
DC$_{A*}$	{{}}	{{p}}	{{}}
DC$_B$	{}	{}	{p}
IIss$_A$	{}	{p}	{p}
Table	< >	< {p} >	< >
CG	{q}	{q}	{q, p}
CG*	{{q}}	{{q, p}}	{{q, p}}

On the other hand, a REPORTATIVE evidential uttered by an agent A, as discussed above, always updates IUss$_A$ (Independent Uninvolved source set - the agent acquired the information themselves and are just presenting it, i.e. are not committed to it). Crucially, if the addressee ratifies p, p does not become a joint commitment of A and B, but enters the Common Ground as an actual commitment of only the addressee. An example of the scoreboard is given below:

(102)   *naki*-REPORTATIVE p

	Previously	After A's assertion	After B responds with confirmation
DC$_B$	{}	{}	{p}
DC$_{B*}$	{{}}	{{p}}	{{}}
IUss$_A$	{}	{p}	{p}
Table	< >	< {p} >	< >
CG	{q}	{q}	{q, p}
CG*	{{q}}	{{q, p}}	{{q, p}}

Summing up, the INFERENTIAL interpretation of *naki* (i.e. when the judge is the $_{SA}$SPEAKER, as argued above) updates the Independent Involved source set, while the

REPORTATIVE interpretation (i.e. when the judge is the REPORTER, as argued above) updates the Independent Uninvolved source set.

Let us now put the other piece of *naki*-locutions together - the intonational morphemes as defined in (100a) and (100b). A compositional tree for *naki* and an intonational morpheme would look like the following:

(103)

λq [λC [DC$_{SPKR*}$(C) + q]]($\lambda w \exists <w',t',x> \in$ Epist$_{w,t,SA-SPEAKER}$: it's raining at w',t')
$\Rightarrow \lambda C$ [**DC$_{SPKR*}$(C) + $\lambda w \exists <w',t',x> \in$ Epist$_{w,t,SA-SPEAKER}$: it's raining at w',t'**]

SenP
$\lambda w \exists <w',t',x> \in$ Epist$_{w,t,SA-SPEAKER}$: it's raining at w',t'

$\uparrow$
$\lambda q_{<st>} \lambda C_{<C,C>}$ (DC$_{SPKR*}$(C) + q)
(**updates DC$_{SPKR*}$**)

SOK$_i$
=$_{SA}$SPEAKER

*naki*P
$\lambda z \lambda w \exists <w',t',x> \in$ Epist$_{w,t,z}$: it's raining at w',t'
(**updates IIss$_{SPKR}$**)

$\lambda z \lambda w \exists <w',t',x> \in$ Epist$_{w,t,z}$:[$\lambda w''$ [$\lambda t''$ [$\lambda j''$ [[it's raining]]$^{c,w'',t'',j''}$]]](w')(t')(x)

naki
$\lambda p \lambda z \lambda w \exists <w',t',x> \in$ Epist$_{w,t,z}$: $p(w')(t')(x)$

FinP
[$\lambda w''$ [$\lambda t''$ [$\lambda j''$ [[its raining]]$^{c,w'',t'',j''}$]]]
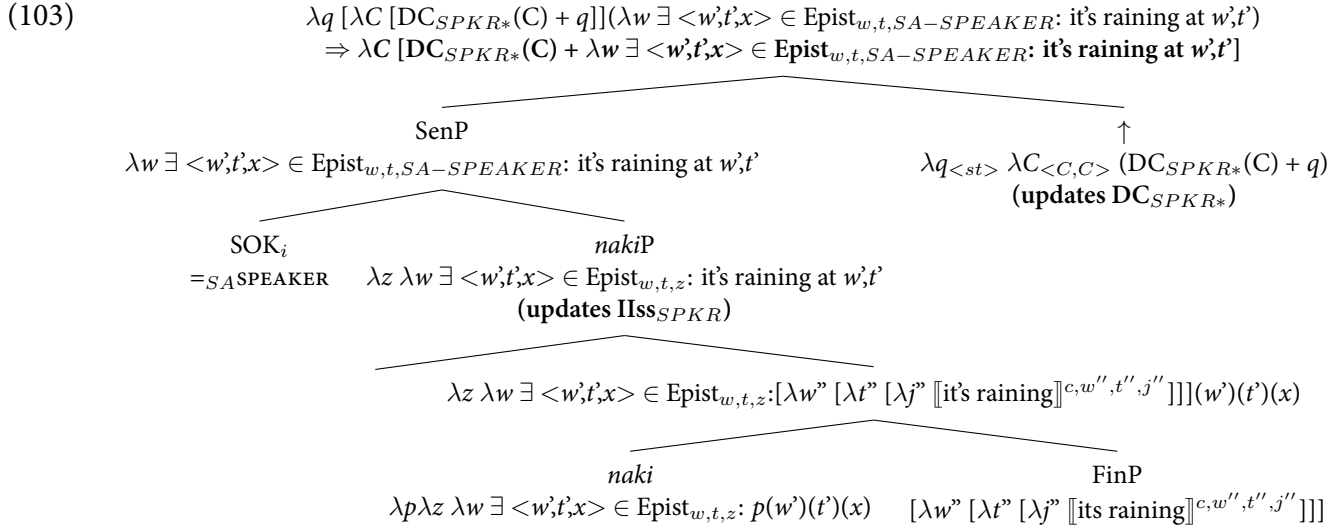
What this update entails is the following:

(104)   The speaker is making a tentative public claim that there is atleast one alternative in her epistemic domain where it is raining.

In the case of the REPORTATIVE interpretation with $\uparrow$, 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:

(105)   The speaker is making a tentative public claim that there is atleast one alternative in the epistemic domain of the reporter where it is raining.

In the case of $\downarrow$, the difference lies in the fact that it signals actual commitment, and not tentative commitment. Thus, a derivation would look like the following:

(106) $\llbracket \downarrow (\text{SenP}) \rrbracket$

$\Rightarrow \lambda q \, [\lambda C \, [\text{DC}_{SPKR}(\text{C}) + q]](\lambda w \, \exists <w',t',x> \in \text{Epist}_{w,t,REPORTER}$: it's raining at w',t')

$\Rightarrow \lambda C \, [\text{DC}_{SPKR}(\text{C}) + \lambda w \, \exists <w',t',x> \in \textbf{Epist}_{w,t,REPORTER}$: **it's raining at w',t'**]

This update states the following:

(107) The speaker is making an actual public commitment that there is atleast one alternative in the epistemic domain of the reporter where it is raining.

3.3   Why can't INFERENTIAL *naki* be asserted?

The paradigm analyzed in the previous section has one link missing - we saw INFERENTIAL *naki* with only ↑, but REPORTATIVE *naki* with both ↑ and ↓. The crucial question that arises here relates back to the mysterious unavailability of (5), repeated below in (108) - why can INFERENTIAL *naki* not occur in a regular assertion? The distributional anomaly is shown in (109).

(108) */# *Mina amerika chole   jacche   **naki**.*   INFERENTIAL
       mina America go.IMPV go.3P.PRES.PROG. INFE
       Intended: 'Mina is going away to America (I inferred).'

(109)

	Polar Declarative (i.e. interrogative)	Declarative
REPORTATIVE	✓	✓
INFERENTIAL	✓	*

We want to be able to account for the cell with the * : Why is the INFERENTIAL interpretation unavailable in declaratives? I argue that it is because of a very simple clash:

(110) INFERENTIAL *naki* updates the IIss$_{SPKR}$ while an assertion unambiguously updates DC$_{SPKR}$. There is a clash of indirectness vs. directness of information with the same judge.

Recall that in the discussion of sourcehood and evidentiality in Section 2.3, we explicitly clubbed direct and indirect evidentials under Independent Involved sourcehood. However, the grammar retains a method of tracking the presence of indirectness - the indirectness associated with the process of arriving at an inference[8] crucially distinguishes it from direct assertive force. The speaker cannot both be making a claim of inference (in which he is the judge) with the evidential and at the same time be using the assertive form which signals direct commitment on the part of the judge. This explanation predicts that other INFERENTIAL evidentials in Bangla should also behave the same way, i.e. not be assertable. This prediction is borne out, as shown below with the other particle in the language that signals that a process of inference has taken place - *bujhi*.

(111) *Ram knows that Sita is very conscientious about saving energy. Ram and I are driving past Sita's house now and we see her lights on. Ram says to me:*

    a. */# *Sita ekhon barite   ache bujhi.*   ↓
        Sita now home-LOC be-3P INFE
        Intended: 'Sita is at home now, (I infer).'

    b.   *Sita ekhon barite   ache bujhi?*   ↑
        Sita now home-LOC be-3P INFE
        '(I infer) Sita is at home now (is it true)?'

Thus this clash between indirect evidentials and direct assertive force (manifested with ↓), with the speaker as the judge in both cases, is systematic in Bangla. This explains why *bujhi* and INFERENTIAL *naki* are compatible with ↑ only, which is a function that

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[8]See von Fintel and Gillies 2010 for an extensive discussion of indirectness vis-à-vis weakness of epistemic *must*

updates a projected commitment set with the evidentialized claim, and not an actual commitment set.

With the reportative interpretation, on the other hand, the source of knowledge (i.e. the judge) is not the speaker himself, and given the analysis presented above, he is merely *presenting p* without any commitment. That is compatible with the assertive form which demands full commitment from only the judge.

(112)   REPORTATIVE *naki* updates the IUss$_{SPKR}$ while an assertion unambiguously updates DC$_{SPKR}$. There is no clash of indirectness vs. directness of information with the same judge.

Given that the Uninvolved source set is updated by *naki* in this case, the judge of the utterance being the REPORTER, $\downarrow$ just adds the claim about the REPORTER's epistemic alternatives to the speaker's public DC (as demonstrated in 106). There is no resulting clash between two qualifications by the same judge, as in the INFERENTIAL case above. This explains why REPORTATIVE *naki* is compatible with both $\downarrow$ as well as $\uparrow$ (see 105 above).

4   Interaction with the Polar-Q particle *ki*

4.1   Polar Questions are singleton sets

The traditional view (Hamblin 1973) of polar questions (henceforth, PolQs) claims that PolQs denote a set of alternative propositions with the cardinality of two (see Dayal 2016 for a comprehensive overview of the literature). One of them corresponds to the prejacent or the question nucleus, and the other its negation. As Biezma and Rawlins (2012) point out, on a compositional Hamblinian account, there is no disjunction or *wh*-item to introduce alternatives, and thus a specialized PolQ operator is stipulated to generate the two-proposition set:

(113)   Hamblin (1973): (52)

    a. $[\![\mathbf{Q} \ [\mathbf{POL}] \ \alpha]\!] = \{\lambda w.A(w), \lambda w. \ \neg A(w)\}$

    b.   where $[\![\alpha]\!] = \{A\}$ (the prejacent proposition)

Bolinger (1978) argues against this account, pointing out a number of differences with polar alternative questions. He proposes that a polar question denotes a singleton set containing only the nucleus proposition. This view, as Dayal (2016) notes, has been recently revived by Gawron (2001), Van Rooy and Šafářová (2003), Farkas and Bruce (2009), Roelofsen and Farkas (2015), Biezma (2009), Biezma and Rawlins (2012), among others. I will adopt this singleton set approach to polar questions. The analysis is sketched below.

Drawing evidence from *doubt*-type predicates which embed questions, disjoined polar questions, and propositional anaphora such as the answer particles *yes* and *no*, Biezma and Rawlins (2012) argue that each polar interrogative clause denotes a singleton set[9]. The only requirement on this set is that the proposition in it has to be one of the alternatives that is salient in the context. This singleton set is then handed to the question operator, which the authors define as follows:

(114)   **Question operator** (Biezma and Rawlins 2012: 53)

    $[\![[_{[Q]}\alpha]]\!]^c = [\![\alpha]\!]^c$ defined only if

    a. $[\![\alpha]\!]^c \subseteq \text{SalientAlts}(c)$ or if $\text{SalientAlts}(c) = \emptyset$ and

    b. $|[\![\alpha]\!]^c \cup \text{SalientAlts}(c)| > 1.$

                                     (Biezma and Rawlins 2012:48)

(115)   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.

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[9]In the case of embedded polar questions, there is a pragmatic principle available to coerce this singleton set into a 2-alternative denotation.

The answerer of a polar question 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 a full exposition of alternative questions).

4.2 $ki \neq \uparrow$

We can assume uncontroversially that the particle *ki* in Bangla is the overt manifestation of the Q operator:

(116) $[\![ki[\alpha]]\!]^c = [\![\alpha]\!]^c$

    defined only if

    a. $[\![\alpha]\!]^c \subseteq \text{SalientAlts}(c)$ or if $\text{SalientAlts}(c) = \emptyset$ and

    b. $|[\![\alpha]\!]^c \cup \text{SalientAlts}(c)| > 1$.

However, given our discussion in preceding sections, we know that Bangla is an intonational language that uses rising intonation productively to signal interrogation, i.e. in the absence of an overt Q-particle like *ki*. The question then arises - what is the contribution of this rising intonation and whether it is the same as $\uparrow$ defined above.

In his study of Japanese sentence final particles, Davis (in Davis 2009 and Davis 2011) makes a strong case for keeping different instantiations of rising intonation separate. Essentially, he argues against the Pierrehumbert and Hirschberg (1990) approach to intonational meaning in which there is a one-to-one mapping between intonational phonemes and meaning in English. Davis makes a distinction between rising intonation in bare declaratives (which yields an polar

interrogative interpretation), and actual morphemes such as ↑ (which contribute (addressee-oriented) update semantics). Crucially, he argues that the latter (as well as ↓) are licensed by the presence of *yo*, and not all occurrences of rising and falling intonation should be equated with the presence of ↑ and ↓.

I will adopt this approach of making a cognitive difference between the presence of the actual morpheme - ↑ - and the rising intonation present in garden variety polar interrogatives. In essence, I will argue that the latter is the intonational counterpart of the question operator Q defined in (114) (i.e that it would have the exact same denotation as *ki* in 116); while in contrast, ↑ has the the very different denotation defined in (100a). The result of each operator applied to a proposition is schematically represented below:

(117) Let us assume that *p* is the proposition in (a) below and apply the consequent operators to it:

   a. *Mary amerika chol-e   ge-che*
       Mary America go-IMPV go-PERF.3P
       'Mary has left for America.'

   b. [Mary amerika chol-e ge-che] **Q**
       = {Mary amerika chol-e ge-che}
       ⇒ Did Mary leave for America?

   c. [Mary amerika chol-e ge-che] ↑
       = $DC_{SPEAKER*}$ + Mary has left for America
       ⇒ Mary has left for America?

Having made this distinction, let us now look at the *ki-naki* interaction in Bangla.

To remind the reader, the paradigm of interaction between *ki* and *naki* is repeated below:

(118) 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)?'

(119) 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 of interaction between 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 data from Telugu below, notice that the exact same pattern holds. Note that grammatical interrogatives containing evidentials are all biased, exactly like interrogatives with *naki* (I will come back to this point in Section 6).

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

a. *Ram roojuu taagutaaDu-**aa**?*   simple polar q with Q-operator
    Ram everyday drinks-POLQ
    'Does Ram drink everyday?'

b. *Ram roojuu taagutaaDu **eemiti** ↑*   INFERENTIAL with ↑ = ✓
    Ram everyday drinks   INFE
    '(I infer) Ram drinks everyday, (is that true)?'

c. *Ram roojuu taagutaaDu **anTa** ↑*   REPORTATIVE with ↑ = ✓
    Ram everyday drinks   REP
    '(I heard) Ram drinks everyday, (is that true)?'

d. *Ram roojuu taagutaaDu-**aa eemiti?***   INFERENTIAL with Q = ✓
   Ram everyday drinks-POLQ   INFE
   'Does Ram drink everyday (as I infer)?'

e. ⋆*Ram roojuu taagutaaDu-**aa anTa?***   REPORTATIVE with Q = ⋆
   Ram everyday drinks-POLQ   REP
   'Does Ram drink everyday (as I heard)?'

This striking similarity 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 the following discussion, I claim that this pattern arises out the interaction of what the INFERENTIAL evidential contributes and what the PolQ marker contributes.

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), inspite of surface differences, have the same question operator. This is the operator that we are already familiar with, which was defined in (114). 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, polar questions lack both the presence of disjunction as well as such a closure operator. Thus, polar questions introduce a non-exhaustive set (typically of size 1) of alternatives. Biezma and Rawlins (2012) emphasize that in uttering a polar question, 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, I argue that there is preference concord:

(121)   The PolQ operator presents the prejacent proposition as the speaker's preferred alternative, and INFERENTIAL *naki* functions to update the IIss$_{SPKR}$. Both of these operators signal preference towards the alternative expressed in the question nucleus over other salient alternatives in SalientAlts(c).

This preference concord of sorts also straightforwardly leads to an explanation of the cross-linguistic discord between the PolQ particle and REPORTATIVE evidentials. The REPORTATIVE interpretation of *naki*, for instance, functions to update the speaker's IUss set, which crucially distances him 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. We can imagine that preferring an alternative over others entails the opposite of distancing oneself from that alternative.

(122)   The PolQ operator presents the prejacent proposition as the speaker's preferred alternative, and REPORTATIVE *naki* functions to update the IUss$_{SPKR}$. One of these operators signals preference towards the alternative expressed in the question nucleus over other salient alternatives in SalientAlts(c), while the other updates an Uninvolved set that denotes non-commitment.

This crucially leads to the clash between reportative evidentials and the PolQ particle that we saw in Bangla and Telugu above.

Given this analysis, it would be useful to explicate what happens in a configuration such as (119a) and (120d) - the only configuration where both PolQ and the evidential are present and compatible. The configuration is schematically represented below:

(123)   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 (103). After that, *ki* operates on it and produces a singleton set with that complex (not a bare proposition anymore) claim:

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

    a.   *naki* + ↑ (ψ)

       = λC [DC$_{SPKR*}$(C) + λw ∃ $<w',t',x>$ ∈ Epist$_{w,t,SA-SPEAKER}$: it's raining

       at w',t']

    b.   *ki* (i.e. Q) (λC [DC$_{SPKR*}$(C) + λw ∃ $<w',t',x>$ ∈ Epist$_{w,t,SA-SPEAKER}$: it's

       raining at w',t'])

       = {λC [DC$_{SPKR*}$(C) + λw ∃ $<w',t',x>$ ∈ Epist$_{w,t,SA-SPEAKER}$: it's raining

       at w',t']}

I assume the Telugu counterpart (120d) would work in exactly the same way. The resultant meaning that we get in (124b) says, according to the semantics defined for the Q-operator, 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 the claim that in atleast one of my epistemic alternatives, it is raining?' Although slightly 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.

5   Interrogative Flip

5.1   What is Interrogative Flip?

When evidentials occur in assertions, by virtue of being uttered by the speaker are always anchored to the speaker. An anchor of an element refers to the locus of perspective - whose point of view is the element representing. The locus of perspective of an evidential is the discourse participant who has the type of evidence in question - thus, the anchor of an INFERENTIAL evidential is the person who made the inference, same for a report, and so forth.

    In interrogatives, evidentials have been shown cross-linguistically to shift their

anchor from the speaker to the addressee. This process has been called *origo shift* (Garrett 2001), *interrogative flip* (Tenny 2006, among others). It has been attested in Garrett (2001) – for Tibetan; Faller (2002) - for Cuzco Quechua; Speas and Tenny (2003) - for English; Murray (2010a) - for Cheyenne; Lim (2011), Lim and Lee (2012) - for Korean, Tenny (2006) - for Japanese. Below are some examples from Cheyenne and Korean:

(125)   Cheyenne (Murray 2010a: 7-8)

    a.   *É-némene-sėste Floyd*　　　　　　　　　　speaker-oriented
        3-sing-REP-3SG Floyd
        'Floyd sang, (**I hear**).'

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

(126)   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 phenomenon of interrogative flip has been argued to be robustly present in most languages that allow evidentials to occur in questions. However, San Roque et al. (2015) provides a list of languages that purportedly do not shift their evidentials in interrogatives: Eastern Pomo (McLendon 2003), Yukaghir (Maslova 2003), Sochiapam Chinantec (Foris 1993), Macedonian (Friedman 2004), Bora Aikhenvald 2004, Shipibo-Konibo Valenzuela 2003, Jarawara (Dixon 2004). Two examples from these languages are given below:

(127)   When seeing bead drill and grinding stone out:

    a.   *t'a=ma*   *dawí-**ne?***   Eastern Pomo
          inter=2SG.AGENT drill.beads-**infer**
          'Are you drilling beads (given what **I** infer)?'

(McLendon 2003: 55)

(128)   *Mi-n-**mein**-ki*   *a-ti*   *iki?*   Shipibo-Konibo
        2-ERG-SPECL-INT do.TR-INF COP
        'Would you perhaps do it (the **speaker** is speculating)?'

(Valenzuela 2003: 32)

Let us call such interrogatives with evidentials which do not have interrogative flip *non-flip interrogatives* [NFIs]. *Naki* joins the latter list of languages in that it does not shift its anchor in questions. In *naki* 'questions' (declaratives with the ↑ operator), the locus of the evidence lies with the speaker, just like in a falling declarative with *naki*. Thus *naki* questions are always NFIs, as is also the case with *bujhi* questions as seen above. In the following discussion, I argue that what is at the heart of [NFIs] is independent sourcehood and the absence of the Q operator. In the consequent section, I will argue for a crucial connection between independent sourcehood status, NFIs and speaker bias in questions.

5.2   Defining the typological space

I will argue that there are two major differences between an IF construction and an NFI construction:

(129)   a.   the presence or absence of the Q operator

        b.   the source set that the evidential updates

Before we get into the details and the implications of this claim, a description of the **typological space** of strategies for forming structures resembling polar questions is in

order.

	Languages with Subj-Aux inversion	Languages w/o Subj-Aux inversion
(130)	-Subj-Aux inversion - ↑ operator (RDs)	- overt Q particle - rising intonation - ↑ operator

Non-intonational languages, i.e. those that use the syntactic strategy of subject-auxiliary inversion (for example, English) do not have have overt Q-particles for polar question formation. This may immediately remind the reader of the influential Clause Typing hypothesis made in Cheng (1997), which argued that languages employ *either* Q particles *or* syntactic *wh*-movement to type a clause as a *wh*-question. Subject-Aux inversion language can also form rising declaratives (RDs) as we saw above. I argue that in RDs - which have a declarative syntax in these languages with a 'rising intonation' - the rising intonation is actually the instantiation of the ↑ operator.

In intonational languages (languages without Subj-Aux inversion), an overt Q-particle and rising intonation (Q-operator) are the main strategies for forming polar interrogatives. However, I argue that, the ↑, although crucially an operator for updating projected commitment sets (as defined in 100a), still appears like a request for confirmation given the rising contour. Thus, ↑ is included as a legitimate request for information (i.e. to ratify the speaker's tentative commitment) in the table above.

I take Cheyenne (the evidential system in this language has been studied in detail in Murray 2010a) as a representative of an IF language, and Bangla as a representative NFI language, i.e. a representative of languages with NFIs. In Cheyenne, an evidential that is anchored to the speaker in declaratives obligatorily shifts to the addressee in questions, while the Bangla counterparts remain anchored to the speaker. I discuss each type of language in turn.

5.3 IF languages vs. NFI languages

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. (125b)). 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 polar questions, and modeled the Q-operator along the lines proposed by Biezma and Rawlins (2012) (see 114). The authors argue that what is involved in asking a polar question is a call to the addressee to choose between the mentioned alternative (the element in the singleton set), and some salient alternatives, i.e. members of the set SalientAlts(c), that are inferable from the context. A number of other works (Gunlogson 2004, Farkas and Bruce 2009, Roelofsen and van Gool 2010, Pruitt and Roelofsen 2013) - propound this basic idea that the 'answer' to a polar question is actually accepting or denying the alternative in question prejacent (hence its representation as a singleton set).

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

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

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

      b.   Whereas, as we saw above, the ↑ adds the proposition to the **tentative commitment set** of the **speaker** - DC_{SPKR*}.

The speaker is thus a dependent source in any configuration where the Q-operator is present, because it is the addressee's knowledge base that is called upon. Thus, the presence of the Q operator immediately signals the speaker's dependent sourcehood.

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, as discussed above). 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. I argue 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.

(133) In an IF construction,

  a. an INFERENTIAL evidential updates **IIss**$_{ADDR*}$

  b. a REPORTATIVE evidential updates **IUss**$_{ADDR*}$

  c. As always, the Q-operator updates **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 an important observation that Murray (2010a) makes - when an addressee responds to a question formed with the interrogative clitic *mó=* 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. For example, (134b) is a felicitous answer to the question below, while (134c) is not.

(134) Murray (2010a): (6.2)

  a. Q: *Mó=é-némene-sèste Floyd?*
      y/n=3-sing-REP-3SG Floyd
      '(**Given what you heard**), did Floyd sing?'

  b. *Héehe'e é-némene-sèste*
      yes   3-sing-REP-3SG
      'Yes, he sang, I hear.'

c. # *Héehe'e é-némene-∅*
   yes   3-sing-REP-DIR
   'Yes, he sang, I'm sure.'

In my 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 Q-operator is absent. What is present instead is the ↑ operator. 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 set IUss$_{SPKR}$ (given that (134a) has a reportative evidential), and the ↑ wants to update the DC$_{SPKR*}$, so the relevant updates are to the speaker's sets and consequently, there is no interrogative flip in this configuration.

(135)   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 makes the claim that NFI structures are crucially those that are syntactically declaratives (i.e. no Q operator is present), accompanied by the ↑ operator. As such, the prediction then is that whenever the Q-operator is present, there should be a flip, while perspectival elements that do not appear to flip should be incompatible with

the Q-operator. I present further empirical evidence below to show that this prediction is borne out.

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

(136)   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 polar questions. As a result, the epistemic modals in these polar questions 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 particle *ki*, signaling that the final rising intonation in the absence of *ki* cannot be an instantiation of Q, but of ↑:

(137)   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**$_{speaker}$ ↑*
               Ram house-LOC is   probably/must ↑
               Ram probably at home↑

    d.   *Ram bari-te   ache **bodhoy**$_{speaker}$.*
        Ram house-LOC is   possibly
        'Ram is possibly at home.'

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

    f.   *Ram bari-te   ache **bodhoy**$_{speaker}$ ↑*
        Ram house-LOC is   possibly   ↑
        'Ram possibly at home↑'

My claim would be that the rising intonation in these cases is the by now very familiar ↑ operator, that adds the modalized claims to the tentative commitment set of the speaker. And crucially, there is no IF in these constructions - the Bangla modals, unlike the English modals above, remain anchored to the speaker.

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

6   Biased Questions

6.1   What is bias?

In discourse, not all interrogative structures are equivalent in their contribution (see Dayal 2016 for discussion on numerous forms of canonical as well as non-canonical questions). For example, consider the following minimal pair:

(138)   a.   Does John drink?

      b.   Doesn't John drink?

While (138a) can be uttered in a completely neutral context where the speaker does not know or believe anything about John, (138b) 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 (138b) necessarily contribute an implicature that 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 *epistemic bias*. Romero and Han (2002) insightfully argue that although the previous literature has considered this epistemic bias as just an 'implicature', it is actually a strong, non-cancellable effect.

Certain kinds of tag questions have also been argued to convey bias. Asher and Reese (2007), following the insights in Ladd (1981) and Huddleston et al. (2002) about the intonational patterns associated with tags, classify biased tag questions based on two characteristics - *confirmation* and *acknowledgement*. For examples, consider the reverse polarity tag questions (where the anchor and the tag have different polarities) in the dialogues below:

(139) a. A: [Julie]$_{CF}$ wouldn't do it that way.   *Acknowledgement*
       b. B: Well, Julie isn't here, / is she.

(140) a. A: Can Julie do it for us?   *Confirmation*
       b. B: Julie isn't here, / is she?

(141) a. We need to find somebody who has done this before.   Neutral
       b. B: Julie isn't here = is she?

(Asher and Reese 2007: 1,2,3)

The authors argue that the first two interpretations convey bias, while the third one does not. In (139), B's utterance does not express any doubt regarding the truth of the anchor ('Julie isn't here') but the tag is used to get A to acknowledge that Julie isn't present. In (153), B conveys a belief in the anchor but there is some measure of doubt or uncertainty.

The tag is used to request for confirmation from the anchor, and is open to the addressee providing evidence to the contrary. Asher and Reese treat biased tag questions as the grammatical manifestations of a complex speech act ASSERTION ● QUESTION, and argue that (139) and (153) are biased because the anchor is asserted. Citing phonological arguments from Ladd (1981) that (141) is fundamentally different from the other two with regard to intonation in that it contains a single intonational phrase (as opposed to two intonational/intermediate phrases in the other cases) and a boundary tone, the authors argue that (141) has one speech act, which leads to a neutral interpretation of the tag question.

Sudo (2013) makes a distinction between what he calls *epistemic bias* and *evidential bias*. Evidential bias is about contextual information that has just become available all conversational participants, and hence is inherently public. Au contraire, epistemic bias is rooted in a private belief on the speaker's part which the other conversational participants might not share or have access to. I will not classify the discussion on different biases below on these terms because there isn't a clear cut distinction between the two in Bangla, for e.g., inferences can be made based on both private belief as well as contextual evidence. Sudo compares Japanese polar questions with the particles *-no* and *-desho* with English polar questions as well as Japanese polar questions without any particles. He concluded that although Japanese uses question particles to encode biases (unlike English), yet the flavors of the polar question biases in these languages can be characterized by the combination of the same two parameters, evidential and epistemic biases.

6.2 *Naki*-questions are biased

All questions with *naki* are obligatorily biased. The speaker expects the proposition in the question nucleus to be more likely to be true over its complement. As a consequence *naki*-questions cannot be employed felicitously in neutral situations where the speaker

has no evidence for the prejacent. For example, consider the exchanges below:

(142) *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 in *naki* interrogatives always matches the polarity of the prejacent. For example, consider the scenario below, in which the speaker can express a negative or a positive bias by manipulating the polarity of the prejacent in the scope of *naki*:

(143) *Ram and Sita live together, and as they are going out for a movie, Ram asks Sita to leave their house-keys with the neighbor, and NOT the caretaker. When they 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)?'

Over the last couple of decades, there have been numerous studies of bias in natural language, and several different approaches have been proposed as attempts to accurately describe the phenomenon. These include:

(144)   a.   The formulation of bias as a **pragmatic presupposition** (Rohde 2006, Caponigro and Sprouse 2007) : Question bias arises not from the semantics of questions per se, but from what the discourse participants assume or

believe is in the common ground when the question is uttered, yielding a pragmatic presupposition in the sense of Stalnaker 1974.

b. The formulation of bias as a **semantic presupposition** (Guerzoni 2003, 2004): In her study of a different genre of biased questions - one containing strong NPIs - Guerzoni derives bias from the scopal ambiguities in questions and the interactions between strong NPIs and corresponding scalar alternatives.

c. The formulation of bias as **compelling evidence** (Ladd 1981, Buring and Gunlogson (2000)): Classifying polar questions as Positive Polar Questions, Inner Negation Polar Questions and Outer Negation Polar Questions, these authors show that (compelling) contextual evidence, i.e. evidence that has just become mutually available to the participants in the current discourse situation, plays a fundamental role in licensing bias in questions.

d. The formulation of bias as a **conversational implicature** (Krifka 1995, Van Rooy 2003, Romero and Han 2004): Question bias is the speaker conveying that she has a belief $p/\neg p$ and wants to confirm/double-check it with the addressee. This epistemic implicature is implicitly expressed.

e. The formulation of bias as an **assertion** (Reese 2007, Asher and Reese 2005, Asher and Reese 2007): Bias is an indirect assertion that is inferable from the literal meaning of the question, world knowledge and the assumption that one's interlocutors are rational and cooperative. The proposition that is asserted by a biased question is semantically an actual answer to the question.

Since one of the main focuses of this dissertation is questions with evidentials, none of the above approaches are perfectly suited to capture all the nuanced distinctions that are present in the interaction of evidentials and interrogatives. I argue that to correctly

characterize evidential bias in questions, one should focus on the link between the lack of interrogative flip and the presence of bias, as mediated by the notion of independent sourcehood.

The notion of independent sourcehood with respect to a proposition defended in this dissertation corresponds to the agent's own acquisition of grounds for an utterance that he makes in a discourse. Although the 4-way distinction within the independent-dependent distinction has been couched in terms of evidentiality above, it is uncontroversial that for any propositional utterance (even those not marked with any evidential) in a discourse, the speaker is either an independent or dependent source, and is further either involved or uninvolved. Being able to demarcate and classify one's own and well as other discourse participants' grounds for utterances is an unique human cognitive ability. Thus, sourcehood, as conceived in Gunlogson (2008) and as further elaborated here, is a fundamental property of human communication.

I define bias in the following manner:

(145)   Bias in interrogatives is a not-at-issue proclamation of an agent's independent sourcehood status with regard to the question nucleus.

Note that this analysis sounds similar to the Reese and Asher camp above who model bias in assertoric terms too. However, their analysis is fundamentally different in that the assertion they propose underlies bias is one of the answers to the question, i.e. an at-issue proposition in the denotation of the question itself. According to them, biased questions are complex speech acts whereby 'they assert a proposition and request additional information related to the status of that proposition' (Reese 2007, p. 184).

My analysis places the locus of bias on independent sourcehood. The main claim is that the presence of ↑ in the structures in question explicitly add the proposition to the speaker's tentative commitment set, which naturally signals that the speaker considers

that proposition to be more likely to be true than its counterpart. In essence, this claim makes two predictions:

(146) a. Structures with interrogative flip, 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 overt Q-particles presented here (from Bangla and Telugu, at the minimum) can be argued to be biased. In the Telugu data presented in (120), in both the instances where each of the evidentials appear with ↑, the resulting 'interrogative' is biased, while the simple polar question with the Q-operator is not.

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

(147)

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

Thus, 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. In both of the latter cases, the speaker is dependent on the addressee, and neither can be interpreted as having a speaker-oriented epistemic bias. In other words, as soon as there is no evidence

for ϕ that is anchored to the speaker, the possibility of speaker bias is eliminated. Thus, crucially, the formulation of bias (145) entails that the possession of evidence is what is at the heart of the possession of bias towards a certain claim. It forges a pivotal link between evidentiality and bias.

The 'not-at-issue' clause in the definition of bias in (145) underlies the fact that the expression of bias in an interrogative cannot be directly accessed, challenged, denied or negotiated - all well-studied hallmark diagnostics of not-at-issue content (cf. Tonhauser 2012, Simons et al. 2011, Murray 2009, AnderBois et al. 2015). For example, in the exchange below, B cannot challenge the intrinsic proclamation that A somewhat believes in the proposition since he inferred it himself which makes him an independent involved source:

(148) a. *Ram   e   maash-e   or chakri chere di-cche   naki* ↑
           Ram   this month-LOC his job   leave give-PROG.3P INFE
           '(I inferred) Ram is leaving his job this month, (is it true)?'

       b. #*Na, tui eta bishyash kor-ish-na!*
           No,   you this belief   do--NON.HON-NEG
           Intended: 'No, you do not believe in this!'

This formulation of bias as an assertion of independent sourcehood can also accurately describe the biased reverse polarity tag questions and preposed negation questions discussed above. Repeated here from above, I discuss Asher and Reese's examples:

(149) B's utterance does not express any doubt regarding the truth of the anchor ('Julie isn't here') but the tag is used to get A to acknowledge that Julie isn't present.

       a. A: [Julie]$_{CF}$ wouldn't do it that way.   Acknowledgement

       b. B: Well, Julie isn't here, / is she.

- B is independently aware of the fact that Julie is not present. The inherent bias in the question is actually a statement of Independent Involved sourcehood.

(150) B conveys a belief in the anchor but there is some measure of doubt or uncertainty. The tag is used to request for confirmation.

    a. A: Can Julie do it for us?   Confirmation

    b. B: Julie isn't here, / is she?

- B is tentatively committed to the proposition in the anchor. This confirmation tag question updates both the Independent Involved source set as well as the projected commitment set of the speaker (arguably due to the presence of the ↑ operator).

(151) Doesn't John drink?

- The speaker crucially has/had evidence that John does drink, and is thus making a not-at-issue statement of Independent sourcehood with regard to the proposition 'John drinks'. This statement is interpreted as the speaker being biased towards the positive proposition by the hearer.

Thus, defining bias as an assertion of the sourcehood status of the speaker with respect to the proposition expressed helps us achieve an unified analysis of *naki*-locutions as well as other kinds of biased questions. It puts evidentiality (which might be overtly expressed with evidential markers or covertly as in the cases of tag questions and negative polar questions) at the center of speaker bias. It also forges a link between (the lack of) Interrogative Flip and the presence of bias - speaker-orientation in interrogatives are correlated with independent sourcehood which translates directly into epistemic bias.

7 Conclusion

The analysis laid out in this chapter looked at the semantic and pragmatic paradigms surrounding utterances with *naki* in Bangla. An unified approach towards the two instantiations of *naki* was proposed. The major claims made about *naki*-locutions are listed below. Most of the proposals in this chapter were built on the syntactic foundations laid down in the previous chapter, and thus the main claims are intertwined and connected, articulated keeping the sytnax-semantics-pragmatics interfaces in mind.

(152) a. The particle *naki* in Bangla has a single lexical denotation, with no underlying ambiguity. This unified analysis is a complete departure from previous accounts which claim there are two separate lexical entries (solely based on the syntax) in spite of the overwhelming semantic and pragmatic similarities between the two instantiations (for example, Mukherjee 2008, Xu 2017).

b. Depending on the binding of the judge argument represented syntactically and independent syntactic principles, the two configurations (with varying word orders and interpretations) are achieved.

c. All utterances with *naki* are syntactically declaratives.

d. *Naki* licenses the morphemes ↑ and ↓ in the derivation (like Japanese *yo*), of which the former makes the utterance sound like an interrogative.

e. ↑ and regular polar interrogative intonation have very different definitions.

f. Thus a *naki* 'interrogative' is actually a declarative + operator ↑.

g. The presence of this operator blocks *naki* from participating in Interrogative Flip and naturally leads to bias in *naki* 'interrogatives'. This claim has cross-linguistic potential, as shown with evidentials from the (structurally very different) Dravidian language Telugu.

Thus, this unit offered a cohesive profile of the evidential *naki* at the interfaces. The cross-linguistic ramifications of the claims presented here were also brought into focus, by crucial comparisons with similar phenomena in a diverse set of languages, to help us arrive at a holistic understanding of evidentiality in natural languages.

Part II

Alternative Questions and Disjunction

This part of the dissertation is dedicated to achieving a holistic understanding of Alternative Questions and disjunction in Bangla. One of the focal points of the discussion is the claim that *whether* and interrogative disjunction are underlying the same element in Bangla: a Q-Disj complex head. Various strains of syntactic and semantic evidence are provided to bolster the claim. The discussion is also centered around accounting for the interrogative-boolean divide within the disjunction space - an area that is very understudied in the world's languages. A comparative study is undertaken with Mandarin Chinese, in order to bring to light both the universal as well as language-specific properties of the relevant issues.

Chapter 3

Alternative Questions: A Syntactic Profile

1 Introduction

1.1 Inceptum

Consider the following three constructions in English:

(153)   a.   I wonder whether John wants to go to Delhi.

   b.   I wonder whether or not John wants to go to Delhi.

   c.   I wonder whether John wants to go to Delhi, or Bombay.

(153a) is an embedded *polar question* (henceforth, PolQ) whereby what is being wondered is if John wants to go to Delhi or not. (153b) has an overt occurrence of the phrase *or not* but has an almost identical meaning as (153a), as first argued in Karttunen (1977), followed by Larson (1985b). (153c) is an embedded *alternative question* (henceforth, AltQ). AltQs have been argued to have a different structure, in that the *whether* is regarded as the scope marker of the embedded disjunctive phrase [Delhi or Bombay]. We will explore this claim in detail in later sections. For now, note that all three of these constructions in English have *whether* and some form of the disjunctive

connective *or* (I will argue that 153a has a covert *or*). This paradigm speaks of possibly deep connections between the three types of structures involving disjunction scope and alternatives.

Investigating similar paradigms in other languages helps us to explore the extent to which such connections are hardwired in Universal Grammar. In this chapter, I will investigate the analogous paradigm in Bangla, and will demonstrate that the language is an instantiation of a deep relationship between interrogative disjunction and clausal alternatives-encoding expressions like *whether*.

Consider the Bangla counterpart of the paradigm in (153).

(154)   a.   *Ma jaan-te   chai-che   Ram Dilli je-te   cha-y   **kina**.*
             ma know-IMPV want-PRES.3P Ram Delhi go-IMPV want-HAB KINA
             'Ma wants to know/is wondering **whether** Ram wants to go to Delhi.'

        b.   *Ma jaan-te   chai-che   Ram Dilli jete   chay   **ki na**.*
             ma know-IMPV want-PRES.3P Ram Delhi go-IMPV want-HAB KINA
             'Ma wants to know/is wondering **whether or not** Ram wants to go to Delhi.'

        c.   *Ma jaan-te   chai-che   Ram **ki** Dilli **na** Bombay je-te*
             ma know-IMPV want-PRES.3P Ram KI Delhi NA Bombay go-IMPV
                cha-y.
                want-HAB
             'Ma wants to know/is wondering whether John wants to go to Delhi, or Bombay. '

The interesting thing to note in this pattern is the presence of the two morphemes *ki* and *na*. When concatenated together, they appear to form the word for 'whether': *kina*; when written orthographically with a space between them (cf. Dasgupta 1980) and uttered with a very slight pause between them, they appear to stand for the phrase *or not*; and when they appear at a distance from each other, they mark disjunction in an embedded AltQ. It is striking that this language uses the very same morphemes in all three constructions.

In this chapter I will argue that **underlyingly, in all these constructions, what is present in each case is *kina* ('whether')**. The other surface forms: *ki na* and *ki…na*

are derived by either ellipsis or movement. To my knowledge, such a claim unifying these various instantiations of *ki* and *na* has not been made in the literature surrounding Bangla syntax and semantics.

In particular, one of the main claims this chapter pursues is :

(155)   What looks like the clausal alternative-encoding expression 'whether' (*kina*) is itself actually the concatenation of a disjunction connective (*na*) and its scope marker (*ki*).

The scope marker may overtly move to mark the scope of disjunction, resulting in a discontinuous instantiation resembling *ki…na*. There is no overt movement when there is no disjunction embedded under *kina*, or when the second disjunct is fully elided. In the ensuing sections, I present several strains of evidence in support of these claims. For easy reference, let us call the claim in (155) the **concatenation claim**. Before we begin, some remarks regarding the status of both the morphemes in Bangla are in order.

1.2   Q-morphemes and disjunction

Both *ki* and *na* have independent statuses in the language. *Na* usually marks post-verbal negation, as shown in (156).[1] *Ki* is homophonous between being the Q particle in PolQs, and a thematic *wh* word with the meaning 'what'.[2] In this dissertation, the focus will be on polar *ki*.

(156)   *Ami baaje chele-ta-r   sathe kotha bol-bo   na.*
         I   bad   boy-CL-GEN with talk talk-FUT.1P NEG
         'I will not talk to the bad boy.'

---

[1]I am abstracting away from finer facts here; see Ramchand (2004) for a detailed analysis of the two types of negation in Bangla, which interact with tense and aspect in non-trivial ways.

[2]Bhatt and Dayal (2014, 2017) make the same distinctions for Hindi *kyaa*; I follow their nomenclature here.

(157) a. *Tumi aajke dilli   cho-le   ja-ccho   ki?*   Polar *ki*
          you today Delhi go-IMPV go-PROG.2P KI
          'Are you going to Delhi today?

     b. *Tumi kaal   ki   khe-ye-chile?*   Thematic *ki*
          you   yesterday what eat-IMPV-PAST.2P
          'What did you eat yesterday?'

One important question is, why would a Polar Question (Q) particle like *ki* be involved in signifying disjunction in a language? Looking at other languages suggests that this is not a coincidence. The link between Q-particles and disjunction has been robustly attested cross-linguistically. In numerous languages, quoting Jayaseelan (2008), "with a regularity that is far greater than by chance", the Q-particle is also the disjunction marker. Bailey (2010) cites several studies that demonstrate this connection in the languages in question, including Van Klinken (1999) for the Austronesian language Tetun, Jayaseelan (2008) for the Dravidian language Malayalam, Amritavalli (2003) for the Dravidian language Kannada, Aldridge (2011) for Chinese. The paradigm for Malayalam is given below:

(158) a. *John-oo   Bill-oo   Peter-oo   wannu*
          John-DISJ Bill-DISJ Peter-DISJ came
          'John or Bill or Peter came.'

     b. *Mary wannu-oo?*
          Mary came-Q
          'Did Mary come?'

(Jayaseelan 2008: 3)

In addition to these languages, Jayaseelan also cites empirical evidence of the same connection between the disjunctive connective and the Q-particle in Sinhala (cf. Hagstrom 1998) and Japanese (cf. Kuroda 1965, Nishigauchi 1990). The Japanese examples are provided below:

(159)   a.   *John-**ka**   Bill-(**ka**)-ga   hon-o   katta*   (Kuroda 1965)
John-DISJ   Bill-DISJ-NOM   books-ACC   bought
'John or Bill bought books.'

   b.   *Dare-ga   kimasu-**ka**?*   (Nishigauchi 1990: 18)
who-NOM   come-Q
'Who's coming?'

Thus, there appears to be a well-attested link between Q-particles and disjunction. Jayaseelan (2001, 2008) presents convincing arguments for the claim that in languages like Malayalam, Sinhala and Japanese, the question particle is the lexical realization of the disjunction operator itself. Adopting Baker (1970)'s insight, he argues for the following 3-way identification, within which he suggests that the correlation in the box is universal:

(160)   **question particle =** | **question operator = disjunction operator** |

As to exactly why this underlying equivalence exists, Jayaseelan (2008) proffers an intuitive solution: questions involve 'partitions' within the space of answers, and thus inherently invoke disjunction. It is the disjunction operator then that arguably implements the partition. Thus, under Jayaseelan's conceptualization, it is the disjunction operator that is overtly present in the Force projection of questions, and is responsible for the question semantics. The structure he alludes to in Jayaseelan (2001) would look like the following, adopting Rizzi (1997)'s vision of the left periphery:

(161)
```
        ForceP
         /\
        /  \
       Force'
       /\
      /  \
   TopP    Force
        Disjunction/Q Operator
```

This ForceP is what is selected by question-embedding rogative predicates, in this analysis. There is no separate question operator; the disjunction operator is the question

operator and the question operator is the disjunction operator.

In Bangla, the patterns we have seen so far seem to bear an uncanny resemblance to some of the cross-linguistic facts described above. The question operator-disjunction operator equivalence can be straightforwardly maintained. It is based on this equivalence as well as its function as 'whether' that I term *kina* as a *disjunctive complementizer* in the next section. Bangla appears to epitomize the relationship forged by Jayaseelan in (160) in a robust manner, whereby the Q-particle forms part of the complex that functions as both interrogative disjunction as well as *whether*.

The chapter is organized as follows: Section 2 provides a brief overview of Bangla's position in the typological space; Section 3 explores a operator movement approach to interrogative disjunction and discusses its problems; Section 4 offers an alternative proposal that accounts for crucial locality facts; Section 5 derives clause-final *kina* (*whether*); Section 6 explores how Split Questions can host disjunctive subjects in Bangla; Section 7 concludes.

2   Bangla and the world

The literature on the syntax of AltQs lacks a consensus on two important questions:

(162)   a.   **The scope of disjunction**: does the AltQ contain a *wh*-like operator that is base-generated at the edge of the disjunction phrase and moves to the left periphery to mark the scope of the disjunction?

   b.   **The size of the disjuncts**: are the disjuncts in an AltQ small (i.e. no covert structure apart from what is visible on the surface) or big (underlyingly there is a lot more structure than what is visible).

Within the typological space arising from these aspects, I will argue that Bangla falls in with languages that have an element moving to provide scope to the disjunction,

and those that have big, i.e. clausal disjuncts. See Uegaki (2014) and Gračanin-Yuksek (2016) for arguments in favor of one side or the other.

The main claims this chapter defends are the following.

Interrogative disjunction in Bangla is always denoted by *kina*. *kina* is a left-headed disjunctive complementizer[3] comprised of two elements: the Q-particle *ki* and *na* (which is homophonous with one form of negation in the language). This composition fits in well with the discussion in Section 1.2 of a deep connection between Q-particles and disjunction in Bangla (similar to ones in Japanese, Sinhala, Malayalam, etc). In addition, this disjunctive complementizer is always Merged to the left in the predominantly head-final language. In this property, *kina* is not alone. Bangla is famous for another left-headed complementizer - *je* (Bayer (1999), Bhattacharya 2000, Dasgupta 2007, **?**) whose complement clause appears to the right of it (as opposed to the right-headed complementizer *bole*). This fits in with the growing body of work in Bangla (enumerated in the chapter on the syntax of *naki*) that acknowledges its characteristic of mixed-headedness. The disjunctive complementizer *kina* also always disjoins full clauses (similar to what has been claimed for the closely related language Hindi in Han and Romero 2004b). Cases of disjuncts appearing to be smaller than clauses on the surface (nominal constituents, VPs, etc.) are derived via (backward) gapping and ellipsis.

The following are the structures for nominal, verbal and clausal disjunction with *kina*, with the strikethrough representing parts of the structure that are elided under identity:

---

[3]I am borrowing this term from Bayer (2004) who presents arguments for Dutch complementizers *of* and *dat* being specified for the features <C,disj>.

(163) a. *[Ram maach ~~khe-te~~ ~~bhalobaash-e]~~ **kina** [~~Ram~~ maangsho khe-te*
           Ram fish eat-IMPV love-HAB KINA Ram meat eat-IMPV
           bhalobaash-e]?
           love-HAB
           'Does Ram like to eat meat or fish?'

       b. *[Ram maach khete ~~bhalobaashe]~~ **kina** [~~Ram~~ ~~maach~~ kinte*
           Ram fish eat-IMPV love-HAB KINA Ram fish buy-IMPV
           bhalobaashe]?
           love-HAB
           'Does Ram like to eat or buy fish?'

       c. *[Ram maach khete bhalobaashe] **kina** [Laxman maangsho khete*
           Ram fish eat-IMPV love-HAB KINA Laxman meat eat-IMPV
           bhalobaashe]?
           love-HAB
           'Does Ram like to eat fish or Laxman like to eat meat?

Uegaki (2014) argues for similar patterns of deletion for Japanese AltQs. There is backward gapping in the first disjunct and (forward) ellipsis of the subject in the second disjunct, like in Bangla.

(164) Uegaki (2014): (15)
       [Taro-ga   koohii-o   ~~non-da-ka]~~   (soretomo) [~~Taro-ga~~   ocha-o
        Taro-NOM coffee-ACC drink-PAST-KA Disj   Taro-NOM tea-ACC
       non-da-ka]
       drink-PAST-Q
       'Which of these is true: Taro drank coffee or Taro drank tea.'

The underlying form of interrogative disjunction in Bangla is *kina*, as (163). However, as we have seen, the surface form of interrogative disjunction in Bangla AltQs is with the negation marker *na*. I will argue that this surface form is the result of *ki* moving out of the *kina* complex, in a Larsonian spirit (Larson 1985b) (but with crucial differences), leaving *na* behind as the surface disjunction connective. This is illustrated with a previous example:

(165)   **ki**$_i$ [Ram maach ~~khete bhalobaashe~~] **t**$_i$-na [~~Ram~~ maangsho khete bhalobaashe]?

ki, in this analysis, undergoes head-movement out of the disjunction head. Note that this movement is fundamentally different from the Larsonian treatment of English, in which it is an operator that moves from the edge of the disjunction and is spelt out as *whether*. In Bangla, the moved head is optionally spelt out in its landing site. I will argue below that *ki* moves from the disjunction head to the Force head, i.e. this construction has movement of one head into another head position, and not phrasal/operator movement of any sort. Thus, while the Larsonian spirit of movement for scope is retained in this analysis, the nature and implementation of the actual phenomenon is significantly different.

The head movement analysis will be motivated by demonstrating that (i) *ki*'s movement obeys the *Head Movement Constraint* (Travis 1984); (ii) the movement is not successive cyclic, but extremely local.

In addition, it will be argued that a curious puzzle in Bangla - disjunctive subjects being impossible in AltQs - can only be explained by this movement analysis. *kina* is, thus, the concatenation of the Q operator and the disjunction connective (this is the 'concatenation claim' that is going to be defended throughout this chapter). Jayaseelan (2008) makes a distinction between the two terms. As an example, he provides the sentence: '(Or) John or Bill or Peter came', with the argument that visibly, there are three disjunction markers/connectives but presumably only one disjunction operator. He assumes that the latter is generated in the head of a Force projection, as shown in the tree above in (161).

Whether in Bangla is also denoted by *kina*. In the current analysis, *whether* will be characterized as a complex head Q-Disj(unction):

(166)   whether = *kina* = *ki* (Q) + *na* ('or')

This equivalence embodies the claim that in languages like Bangla, unlike in languages like English, the item performing the function of *whether* is a concatenation of two heads: a Q particle and a disjunction marker. Thus, the disjunction is one of the constituent parts of the Q-Disj complex head, and not a phrasal/operator-like element as is assumed in many languages in which the *whether* and disjunction are separate entities. In addition, I will argue that Bangla does not make any difference whatsoever between *whether* and *whether or not* : what is present in both cases is the Q-Disj complex. Orthographically, the former is written with a gap in the Bangla script, but, as just stated above, I am going to defend the stronger claim of their unification, i.e. the 'concatenation' claim, based on their identical underlying structures.[4] Thus, overall, the unifying thread of this chapter will be the claim that for all these structures, it is not accidental homophony but the presence of the exact same element (Q-Disj) in each case.

If the Q-Disj complex head *kina* both marks interrogative disjunction in AltQs as well as *whether*, what then are the structural differences that marks the two constructions as different? In the following sections, I take this question up. I will demonstrate how, keeping the concatenation claim in mind, we can derive both interrogative disjunction in AltQs and clause-final *whether* with the same item: *kina*.

3 Interrogative Disjunction: *ki…na*

3.1 Interrogative vs. non-interrogative disjunction

Consider the question:

(167) *John ki maach **na** mangsho khete   bhalobaash-e?*
       Ram KI fish   NA meat   eat-IMPV love-HAB
       'Does Ram like to eat meat or fish?'

---

[4]See Dasgupta (1980) for a suggestion that the morphemes *na* and *ki* are allomorphs of an "interrogative Complementizer-Conjunction morpheme", and hence *ki na* written with an orthographic gap and its gapless counterpart should be treated differently.

As mentioned above, this can only have an AltQ interpretation. Note that the only way to get interrogative disjunction in Bangla is with *na* appearing as the disjoining connective on the surface. As soon as we replace *na* with *ba*, the non-interrogative disjunction marker, the question can have only a PolQ interpretation.

(168) *John ki maach **ba** maangsho khe-te   bhalobaash-e?*
       John KI fish   or meat   eat-IMPV love-HAB
       'Does John like to eat fish or meat?

One important point to note here in (269) is the presence of a *ki*. This *ki*, I argue is just the PolQ marker/Y-N Q-particle mentioned in Section 1. The morpheme *ki* in Bangla was shown in Section 1 to be homophonous with thematic *ki*, just like in Hindi (see Bhatt and Dayal 2014, 2017). It is important to mention that what the *ki* in (269) is not is a marker of disjunction scope. In fact, I will go as far as to claim that the presence of *ki* has no relationship to the scope of disjunction.

To make this claim concrete, let us consider one of Rooth and Partee (1982)'s famous examples demonstrating that *or* has the properties of a scope-bearing element.

(169) Mary is looking for a maid or a cook.

This sentence is three ways ambiguous. I enumerate the readings below, adopting some of Larson (1985b)'s schematic representations.

(170) a. **narrow scope de dicto**: Mary is looking for ((a maid) or (a cook)).

       b. **intermediate scope de re**: For some *x*, a maid or a cook, Mary is looking for *x*.

       c. **wide scope de dicto**: Mary is looking for a maid or Mary is looking for a cook.

A similar sentence with *ba* in Bangla has at least the narrow and wide scope de dicto readings. The de re reading is greatly facilitated by accusative case marking on the disjunction phrase.

(171)   a.   *Mary ek-ta   radhuni ba kath-er   mistiri kh*narrow & wide de dicto
             Mary one-CL cook   or wood-GEN worker search-PRES.3P
             ' Mary is looking for ((a maid) or (a carpenter)).'
             'Mary is looking for a maid or Mary is looking for a carpenter.'

        b.   *Mary ek-ta   [radhuni ba kath-er   mistiri]-ke   khuj-che.*   de re
             Mary one-CL cook   or wood-GEN worker-ACC search-PRES.3P
             'For some *x*, a maid or a carpenter, Mary is looking for *x*.'

Thus, it can be established that *ba* by itself has wide and narrow scope-bearing properties. *Ba* can then be likened to English *or*, which Rooth and Partee (1982) argued to have wide-scope bearing properties. The authors argued for a type-promotion analysis in which constituents with higher or lower types can combine with disjunction to yield the scopal patterns we saw above. Such an analysis can be straightforwardly applied to Bangla *ba*, given the similarities with English *or*. Thus, crucially, I am not arguing for a clausal restriction on the size of *ba*'s disjuncts, unlike for *kina*. The fact that *ba* exhibits both narrow and wide scope bearing properties is a definitive indication of the lack of such a restriction. In essence then, interrogative and non-interrogative disjunction differ in this respect in Bangla - the former disjoins only clauses, while the latter can disjoin both clauses and sub-clausal constituents.

Returning to PolQs containing a disjunction phrase headed by *ba*, we see that the scope properties of *ba* are not affected at all by the position of *ki* in the clause: both the questions below have both the wide and narrow de dicto readings available.

(172)   a.   Mary **ki** ekta [radhuni ba kather mistiri] khujche?

        b.   Mary ekta [radhuni ba kather mistiri] khujche **ki**?
             'Mary is looking for ((a maid) or (a carpenter)).'
             'Mary is looking for a maid or Mary is looking for a carpenter.'

What is *ki* doing in these sentences then? I argue that this *ki* is just the PolQ operator: it turns a declarative sentence like in (171a) into a polar question[5] like the ones in (172).

This section defended the claim that the appearance of *ki* in sentences with the logical disjunction connective *ba* does not mark the scope or have anything to do with the disjunctive phrase whatsoever. In the next few sections, I argue for and defend the other side of this claim: interrogative disjunction (like in 167) has everything to do with *ki*, and specifically, the head movement of *ki*.

3.2 AltQs require movement

One of the main claims that this chapter aims to defend is as follows:

(173) Interrogative disjunction and *whether* are underlyingly identical in Bangla: the underlying element is a concatenated complex of the Q-particle *ki* and the disjunction connective *na*.

Henceforth, I will call this Q+'or' element the Q-Disj complex. The fundamental claim is that it is this Q-Disj complex that is present in all of the different structures that will be discussed in this chapter. The surface differences are derived via prolific syntactic processes. The derivation of interrogative disjunction, i.e. *ki…na* will be argued to involve movement, in this section. In contrast, the derivation of clause-final *kina* (*whether* in Bangla) will be argued to involve pure ellipsis, in the following sections.

Let us consider a matrix AltQ such as (167), repeated below:

(174) *John ki maach **na** mangsho khete   bhalobaash-e?*
      Ram KI fish   NA meat   eat-IMPV love-HAB
      'Does Ram like to eat meat or fish?'

---

[5]Most South Asian languages permit just rising intonation to mark a question (as discussed at length in the previous chapter) but the *ki* really helps in parsing these *ba*-disjunction cases as questions.

The underlying structure of this AltQ is provided below. The claim is that the disjunctive complementizer Q-Disj takes two clausal disjuncts as arguments. The Q-particle moves to a higher position, Force°, to mark the scope of the disjunction. This movement results in *na* being the surface disjunction connective. Deletion of material in both disjuncts follows - the subject in the second disjunct and the verbal complex in the first disjunct are elided.

(175)
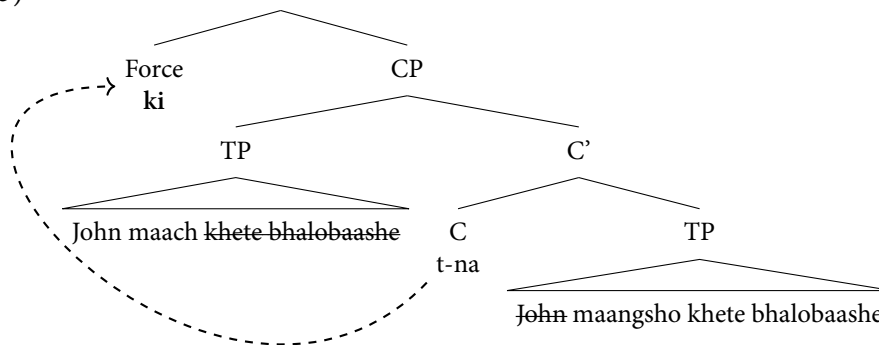
The structure above is Larsonian in spirit in that there is movement for the purposes of marking the scope of disjunction. The actual implementation, however, has significant differences. In the following section, I briefly present the core analysis in Larson (1985b). Following that, I discuss in detail how my proposal, while being Larsonian in spirit, differs from Larson in crucial ways. Consequently, I discuss how my proposal is able to account for critical empirical facts that Larson's account makes incorrect predictions for.

Further support for the concatenation claim comes from investigations into embedded interrogative disjunction, i.e. embedded AltQs. The structure is exactly the same as that of the matrix AltQ in (190) above, with the embedding predicate added:

(176)   **Embedded interrogative disjunction**

```
                     VP
                    /  \
                   V   ForceP
                         \
                        Force'
                        /  \
                     ki_i   CP
                           /  \
                         TP    C'
                        /|    /  \
                 Disjunct 1  C    TP
                       |  t_i-na  /\
                     overt      Disjunct 2
```
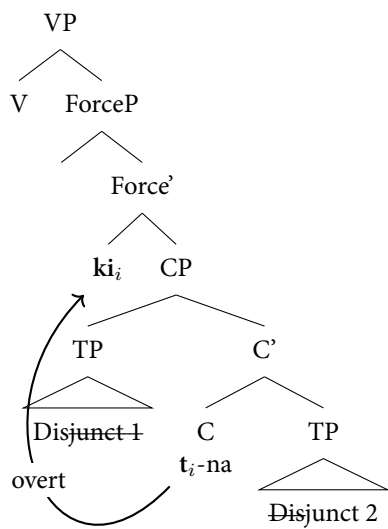
Just like in a matrix AltQ structure, *ki* moves to a higher position, Force°, leaving *na* behind as the surface disjunction connective.[6] In addition, backward gapping takes place in the first disjunct, as well as ellipsis of the subject in the second disjunct. A sample illustration is provided below:

(177)   *Ma   jiggesh kor-chilo   **ki**_i [Bill-er   John-ke   podotyaag kor-te   bola*

    Mom   ask   do-PAST.3P KI Bill-GEN John-ACC resign   do-IMPV say

    *uchit]   **t**_i-na [Bill-er   John-ke   retayar kor-te   bola uchit]*

    should NA   Bill-GEN John-ACC retire   do-IMPV say should

    'Mom was asking whether Bill should ask John to resign or retire.'

3.3   Larson (1985b)

In Larson's account, both *whether* and *either* are scope indicators of disjunction. Both elements move from a position adjoined to the disjunction phrase to a higher position

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[6]In all sentences with overt *ki*, it needs to be the case that *ki* is preceded by at least one constituent, because of its EPP feature. See Section 5.2 and the syntax chapter on *naki* for more details.

which determines the point of interpretation of the disjunction. The crucial difference between *whether* and *either* in Larson's system lies in their featural specification: *whether* is [+WH] and thus the landing site of its movement is [Spec,CP]; *either* is [-WH] and hence adjoins to either IP or VP. This difference in landing sites is able to predict the ability of *whether* to designate the scope of disjunction in broader domains.

I concentrate on the *whether* constructions, given their direct relevance to the focus of this chapter. Consider an example and a sample derivation in Larson's system.

(178) a.   I know whether you want [coffee or tea].

      b.   *whether*/Q you want [__ coffee *or* tea]

Thus, Larson proposed that *whether* or a null operator is base-generated on the left edge of the disjunction phrase and moves to [Spec, CP] in order to mark the scope of the disjunction. The most crucial piece of evidence for Larson's claim comes from island-effects: questions with the associated disjunction phrase contained inside an island lack the AltQ reading.

In the constructions below, the disjunction phrase is inside a complex NP island (179), and inside a *wh*-island in (180) (Larson 1985b: 42, 44). In each case, the AltQ parse of the question is *unavailable*. Only a PolQ parse is available (I come to the reasons for that in a moment). I provide below Erlewine and Kotek (2014)'s schematic representation of Larson's data:

(179)   The decision [whether to believe [$_{ComplexNPisland}$ the claim that Bill resigned or retired]] is completely up to you.

      a.   <u>Polar question parse:</u>

          the decision *whether*

          to believe [$_{island}$ the claim that Bill resigned or retired], **or**

          to not believe [$_{island}$ the claim that Bill resigned or retired]

b.   <u>* Alternative question parse</u>

the decision *whether*

to believe [$_{island}$ the claim that Bill resigned], **or**

to believe [$_{island}$ the claim that Bill retired]

(180)   I know [whether Bill wonders [$_{wh-island}$ who resigned or retired]].

a.   <u>Polar question parse:</u>

I know *whether*

Bill wonders [who resigned or retired], **or**

Bill does not wonder [who resigned or retired]

b.   <u>* Alternative question parse</u>

I know *whether*

Bill wonders [who resigned], **or**

Bill wonders [who retired]

The island-sensitivity of just the AltQ reading provides evidence for the claim that an operator-like element (*whether* or null *Q*) must be attempting to move out of the island. Larson argues that this movement is for delineating the scope of the disjunction. The reason why only the PolQ parse is not sensitive to islands is because, according to Larson, the *whether*/*Q* operator originates in a different position in this case.

(181)   Did John drink coffee or tea?

a.   Op$_i$ (t$_i$ **or not**) [did John drink [Op$_j$ coffee or tea]]   Polar Question

{John drank coffee or tea, John didn't drink coffee or tea}

In such a Y/N configuration, Larson argues, the *whether*/*Q* is generated as an adjunct to an overt or covert *or not* phrase and moves to [Spec, CP] from there. The disjunction lower in the structure has an operator of its own to mark the scope locally. This is the

crux of the reason why a PolQ parse is not sensitive to islands, and is available where the AltQ reading is not.

In unembedded AltQs such as *Did John drink tea or coffee?*, there is no overt *whether* phrase; yet, the AltQ reading is derived via the movement of something. Larson claims that this something is the null operator *Q*. In questions with associated disjunction but no overt *whether*, this null operator *Q* fulfills the same function as an overt *whether*. Han and Romero (2004b) schematically represent this analysis as follows, with 'Op' standing for *Q*.

(182) Did John drink coffee or tea?

    a. Op$_i$ [did John drink [t$_i$ coffee or tea]]   Alternative Question

        {John drank coffee, John drank tea}

This account works for the English paradigms that Larson investigates. It is pertinent to note here that Han and Romero (2004b) argue for a similar Larsonian operator movement treatment of the Hindi polar Q-particle *kyaa* vis-a-vis AltQs. They provide arguments for the claim that disjunction in Hindi AltQs is given scope by the movement of the operator *kyaa* to a higher position.

(183) *Jaun **kyaa** sochtaa hai*   *[$_{CP}$ Q ki*   *[Chandra-ne **coffee** pii*
        John what think   be-PRES   Q that Chandra-ERG coffee drink-PFV
        *thii] yaa [~~Chandra-ne~~ **chao** ~~pii~~*   *~~thii~~]]?*
        PAST or   Chandra-ERG tea   drink-PFV PAST
        'Which does John think: that Chandra drank coffee or that Chandra drank tea?'

Removing the *kyaa* from this sentence, the authors argue, obliterates the AltQ reading and only a Y/N question reading is retained (*Is it the case that John thinks this: that Chandra drank coffee or tea?*). In addition, the movement of *kyaa* from its base-position (adjoined to the disjunction phrase Larson-style, I am assuming; the authors do not make that explicit) is shown to be subject to island-constraints, as

expected.

To marshal further support for Han and Romero's claim, I provide some data from Bhatt and Dayal (2017)'s work showing that *kyaa* always has to precede the disjunction phrase in order for the AltQ reading to obtain.

(184)   Bhatt and Dayal (2017): (43b, 44b)

    a.   *tum caai yaa coffee pi-yoge   kyaa?*
        you tea or   coffee drink-FUT.2MPL Q$_{Y/N}$
        'Will you drink coffee or tea?'
        Reading 1: Y/N question, prosody: tea-or-coffee
        Reading 2: **Alternative Question: unavailable**

    b.   *Ram aaj   yaa Ravi kal   [gaae-gaa]   kyaa?*
        Ram today or   Ravi tomorrow sing-FUT.3MSG Q$_{Y/N}$
        'Will Ram sing today or will Ravi sing tomorrow?'
        Reading 1: Y/N question
        Reading 2: **Alternative Question: unavailable**

If the clause-final *kyaa*-s are replaced with clause-initial *kyaa*-s, the AltQ readings become available in both examples (Bhatt and Dayal 2017: 43a, 44a).

An operator movement analysis thus appears to work for both the English and Hindi facts. In the next section, I discuss how such an approach is untenable for Bangla. Adopting a phrasal/operator view of disjunction makes incorrect predictions.

3.4   Problems for a Larsonian approach

Adopting Larson's analysis gives rise to two crucially inaccurate empirical predictions.

One of the primary domains of Larson's inquiry are AltQs embedded under *whether*:

(185)   I wonder whether John likes [tea or coffee].

This construction is ungrammatical in Bangla. AltQs are systematically ungrammatical when embedded with *whether*.[7] Without the *whether*, embedded AltQs are perfectly

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[7]Following the tradition in the literature, I denote an intonational pause between the two disjuncts

grammatical. The paradigm below demonstrates this grammaticality contrast.

(186) a. *Amy jaan-te   chai-che   John cha, na coffee pochondo kor-e
          Amy know-IMPV want-PRES.3P John tea NA coffee like   do-HAB
          kina.
          KINA
          'Amy is wondering whether John likes coffee, or tea.'

       b. *Amy jaan-te   chai-che   John cha, na coffee pochondo kor-e.*
          Amy know-IMPV want-PRES.3P John tea NA coffee like   do-HAB
          'Amy is wondering whether John likes coffee, or tea.'

(187) a. *Ami jani   o   cha, na coffee pochondo kor-e   kina.*
          I   know he tea, NA coffee like   do-HAB KINA
          'I know whether he likes tea, or coffee.'

       b. *Ami jani   o   cha, na coffee pochondo kore.*
          I   know he tea, NA coffee like   do-HAB
          'I know whether he likes tea, or coffee.'

Larson's analysis, where *whether* or null *Q* moves from the left edge of the embedded disjunction to a higher position, cannot explain why *kina* and the disjunction phrase [*cha na coffee*] cannot co-occur. For AltQs to be embedded under rogative predicates with *kina*, the structure would conceivably have to be able to accommodate two disjunctive complementizers under the same projection, leading to both a syntactic as well as a semantic crash.

The second incorrect prediction that adopting Larson's analysis for Bangla would lead to is with respect to the free adjunction of the phrase *or not*. The status of the *or not* phrase is that of an adjunct. Given its adjunct status, Larson assumes that its characteristic property is free attachment at any point in the derivation. This property explains the ambiguity of sentences like the one in (212), which Larson represents as follows.

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with a comma, for the English data. In Bangla, given that alternative questions have a different marker of disjunction from non-interrogative disjunction, the comma intonation is optional.

(188) I know whether John claimed that Bill left or not.

    a. $[_S [_{COMP} \text{whether}_i] \text{ e}_i [_S \text{John claimed [that Bill left]]} \textbf{ or not}]$

    b. $[_S [_{COMP} \text{whether}_i] [_S \text{John claimed [t}_i [\text{e}_i \text{ Bill left } \textbf{or not}]]]]$

In (212a), *or not* is adjoined to the higher clause, and *whether* is adjoined to it, from where it moves to its higher scope position. The resulting disjunction is in the higher clause: John claimed that Bill left or John didn't claim that Bill left. In (212b), the adjunct *or not* is adjoined to the lower clause, and *whether* originates adjoined to it, and moves to the C domain. As a result, the disjunction is in the lower clause: John claimed that Bill left or John claimed that Bill didn't leave.

This kind of ambiguity is unavailable in Bangla. The Bangla counterpart of (212) ('claim' is replaced by the rogative predicate 'want to know/wonder' since we are dealing with interrogative disjunction here) is not ambiguous between the two readings represented in (b-c).

(189) a. *Ami jani Bill jaan-te   chai-chilo   Mary cho-le ge-che   kina.*
             I   know Bill know-IMPV want-PAST.3P Mary go-IMPV go-PERF KINA

    b. I know Bill was wondering if Mary left or Mary did not leave.
    c. *I know Bill was wondering if Mary left or Bill was not wondering if Mary left.

Larson's analysis would therefore overgenerate in Bangla. If we treated *kina* as an adjunct phrase, the lack of ambiguity and the unavailability of (215c) would remain unaccounted for.

I take up these issues in detail in later sections. Essentially, the claim is that an operator movement analysis cannot provide a complete coverage of the whole array of empirical facts. I will put forward a head movement analysis and demonstrate that it is able to achieve unification across the three constructions and make several accurate predictions as well.

4 Proposal: Interrogative disjunction involves Head Movement

Earlier sections of this chapter proffered the claim that *kina* is a disjunctive complementizer that solely disjoins clausal constituents. Abstractly represented, I propose that the structure of a matrix AltQ would look like the following:

(190) **Matrix interrogative disjunction**
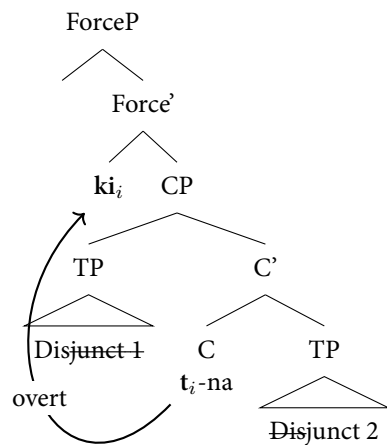
The element *kina* is generated as a disjunction head as a complex of *ki* and *na*. The Q-particle *ki* moves out of this complex and undergoes head movement to the Force head, leaving *na* behind as the surface connective. This is in line with previous proposals (Jayaseelan 2001, 2008, Bhatt and Dayal 2014, 2017) that locate such Q-particles in the Force projection. In addition to the movement of *ki*, there is backward gapping in the first disjunct, and ellipsis of the subject in the second disjunct.[8] The partial strikethroughs in the tree are supposed to represent these deletions. Note that I am assuming that focussed constituents in each disjunct survive ellipsis (cf. the *Focus Deletion Constraint* discussed at length in the next chapter). A sample illustration is provided below:

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[8]I am assuming *ki*'s EPP feature is satisfied after its movement; the former is not shown for most of the examples. Refer to Chapter 2 for extended discussion of *ki*'s EPP.

(191) *ki_i [John maach ~~khe-te~~ ~~bhalobaash-e]~~* t_i*-na [~~John~~ maangsho khe-te*
      KI John fish   eat-IMPV love-HAB   NA   John   meat   eat-IMPV

      bhalobaash-e]?
      love-HAB
      'Does John like to eat fish or meat?'

The deletion is optional in both the disjuncts, permitting structures where all of the material are pronounced. That does lend some redundancy to the discourse, but it is not ungrammatical per se.

Hence, there are already two crucial departures from an operator movement analysis- (i) I am not assuming that *ki* is generated at the left edge of the disjunction phrase, but within it, and (ii) it is head-movement and not phrasal movement to Force° that results in a disjunctive configuration.

Given the link between Q-particles and disjunction explored above, it is not surprising that in the *ki* + *na* complex, it is the *ki* that moves to mark scope, and not *na*. Its [+Q] quality allows it to undergo the head movement for scope. At the PF interface, the Force head can be optionally spelt out as *ki* or left unpronounced, without affecting the grammaticality of the AltQ:

(192) *[John (ki) maach ~~khete~~ ~~bhalobaash-e]~~ **na** [~~John~~ mangsho khete*
      John KI fish   eat-IMPV love-HAB   t_{OP}-NA John meat   eat-IMPV

      bhalobaash-e?
      love-HAB
      'Does Ram like to eat meat or fish?'

4.1   Locality

Larson's operator analysis has an important prediction. Since *whether* is a *wh*-phrase, it should be able to move successive cyclically, expanding the scope of disjunction. Larson shows that this prediction is borne out: even if the disjunction phrase is embedded

under multiple complement clauses, the embedded AltQ parse is still available. This gives us two possible readings for the following fragment:

(193)   The decision whether to believe that Bill resigned or retired …

    a.   [whether to believe Bill resigned or retired] or [whether not to believe Bill resigned or retired]

    b.   whether to [believe Bill resigned] or [believe Bill retired]

If we adopt Larson's analysis for Bangla, we predict that operator movement should yield ambiguity with a similar fragment. However, this prediction is not borne out. Below are two examples where the disjunction is embedded under a rogative predicate, and in both, only the reading corresponding to the disjunction of the lowest clause is available. The higher clause disjunction reading is unavailable.

(194)   *Ami jani   Bill jaan-te   chai-che   je [John podotyaag kore-che]*
     I   know Bill know-IMPV want-PRES.3P that John resign   do-PERF.3P
     na [~~John~~ ritayar kore-che]?
     NA John retire   do-PERF.3P
     'I know that Bill is wondering did John resign or retire?
     * 'I know whether or not Bill is wondering if John will resign or retire' (wide scope disjunction)

    This availability of only the lower clause interpretation can be accounted for by the head movement analysis. A cross-linguistically attested feature of head movement is its strictly local nature, usually characterized by the lack of successive cyclicity. *Ki* moves only to the closest possible Force head - the lower clause one (as represented by the arrow). The impossibility of *ki* moving to the higher Force head by skipping over the lower one results in the impossibility of the higher clause disjunction reading. Thus, the head movement analysis, and and not an operator movement analysis, correctly predicts that an AltQ in Bangla with an embedded disjunction cannot ever have the wide scope alternative reading.

The locality constraint on head movement at play here is one familiar from the literature:

(195)   **Head Movement Constraint** (Travis 1984)

An X° may only move into the Y° which properly governs it.

In modern syntactic terms, this amounts to a structural head-adjacency configuration. I follow Harizanov and Gribanova (2016) in assuming that:

(196)   Two heads are structurally adjacent if one of them heads the complement of the other.

The disjunctive complementizer *kina* is structurally adjacent to the lower Force head, under this definition.   Obeying the HMC then, *ki*'s movement is restricted to the structurally adjacent head.

The operator analysis proposed in Larson is provided support by the sensitivity of the AltQ reading in English to the presence of island boundaries. A constraint like the HMC is certainly a much stronger constraint in that it imposes a structural adjacency restriction on the movement of heads. The current proposal of head movement thus automatically predicts that Bangla AltQs should also be sensitive to island boundaries, given the compliance with the stronger HMC.

In the next section, I show that prediction is borne out: *ki*'s movement from the disjunctive complementizer head to Force° cannot occur when structural adjacency is interrupted by island material, as is evidenced by the absence of the AltQ parse when the disjunction is contained inside an island.

4.1.1   Island Sensitivity

This section presents several pieces of empirical evidence to show that when the disjunction phrase is inside an island in Bangla, otherwise available AltQ readings become unavailable.

(197) *Wh*-island (Larson 1985b)

    a. *Ami jani Bill jaan-te chai-che [ke podotyaag ~~kore-che~~]
       I know Bill know-IMPV want-PRES.3P who resign do-PERF.3P

       na [~~ke~~ ritayar kore-che]
       NA who retire do-PERF.3P

       Intended: 'I know Bill wonders who resigned or who retired.'

(198) Complex NP island (Larson 1985b)

    a. *Ami [Bill podotyaag ~~kore-che~~] na [~~Bill~~ ritayar kore-che] ei
       I Bill resign do-PERF.3P NA Bill retire do-PERF.3P this

       dabi-ta] bishyash kora-r sidhyanto-ta tomar upor chere dil-am
       claim-CL believe do-GEN decision-CL your on leave give-1P

       Intended: ...to believe the claim that Bill resigned or to believe the claim that Bill retired...

(199) Relative Clause island (Beck and Kim 2006)

    a. *Mira ki ekta train khuj-che [$_{island}$ jeta Burdwan ~~jay~~ na
       Mira KI one train search-PRES.3P which Burdwan goes NA

       ~~jeta~~ Malda jay]?
       which Malda goes

       Intended: 'Is Mira looking for a train which goes to Burdwan or to Malda?'

(200) Adjunct island

    a. *Anu party chere cho-le gelo [karon [Mina eshe-che] na [Sita
       Anu party leave go-IMPV went because Mina come-3P.PRES NA Sita

       esheche]]?
       come-3P.PRES

       Intended: 'Did Anu leave the party because Mina came, or Sita came?'

Beck and Kim (2006) argue that, with respect to relative clause/complex NP islands, the effect is actually a sensitivity to definite DPs, and not being inside all DPs in general. The authors back their claim with the following contrast:

(201) Indefinite vs. definite relative clause island

    a.   Do you need **a person** who speaks Dutch or German?   ✓AltQ

    b.   Do you need **the employee** who speaks Dutch or German?   ??AltQ

(202) Indefinite vs. definite complex NP island

    a.   It all depends on whether we put out a story that Bill retired or resigned. ✓AltQ

    b. *It all depends on whether the general public believes the claim that   *AltQ
       Bill retired or resigned.

In Bangla, however, the above contrast does not exist. AltQs with the disjunction embedded inside both an indefinite relative clause/complex NP island and a definite one result in complete crashes.

(203) Bangla indefinite vs. definite relative clause island

    a. *_Tomar ek-jon-ke   laag-be   [je   Hindi bole] na [je̶   Tamil_
       your   one-CL-ACC need-FUT.3P who Hindi speaks NA who Tamil
         bole]]?
         speaks?
       'Do you need a person who speaks Hindi or Tamil?

    b. *_Tomar oi   kormochari-ta laag-be   [je   Hindi bole] na [je̶_
       your   that employee-CL need-FUT.3P who Hindi speaks NA who
         Tamil bole]]?
         Tamil speaks?
       'Do you need the employee who speaks Hindi or Tamil?

This systematic display of island effects in Bangla: (i) provides evidence for the claim that the relevant movement occurs in the narrow syntax, and (ii) is compatible with the existence of a stricter locality constraint that subsumes island boundaries. I conclude that AltQs in Bangla involve movement of _ki_ to Force in the narrow syntax leaving _na_ behind in the disjunction phrase.

At this juncture, it is imperative to discuss the theoretical underpinnings of the phenomenon of head movement. There is a vast literature that treats phenomena related to both word order (verb-initiality, verb-second, etc.) and word formation (affixation, compounding, etc.) as both belonging under the umbrella term of 'head movement'. In addition, numerous studies have disagreed on whether head movement is part of the narrow syntax (Matushansky 2006) or a post-syntactic operation (Chomsky 2000, 2001, Harley 2004, among others) or plain phrasal movement (Koopman and Szabolcsi 2000). Harizanov and Gribanova (2016) argue that all these studies have shown that head movement is characterized by diverse properties and should be categorized into two camps:

(204) **Two types of head movement** (Harizanov and Gribanova 2016)

    a.   **Purely syntactic head movement** (Internal merge in syntax)

      - does not form words

      - can 'skip' heads

      - can have interpretive effects affecting scope, NPI licensing, etc.

    b.   **Post-syntactic amalgamation** (Morphological Merger in post-syntax)

      - forms words

      - affects structurally adjacent heads

      - does not have interpretive effects

The authors cite examples from numerous cross-linguistically attested empirical paradigms in support of their argument that syntactic head movement is not accompanied by the formation of a more complex morphological word, as is traditionally believed. They provide the raising of finite verb to C in German, English subject-auxiliary inversion, embedded subject-aux inversion in Irish English (McCloskey 2006) as representative examples.

With regards to *ki*'s movement, we see that it shares properties from both of Harizanov and Gribanova (2016)'s camps. I have argued that *ki*'s island-sensitivity is a reflection of the occurrence of the movement in the narrow syntax. In addition, its function is not to form words; and it most definitely has interpretive effects, i.e. affecting disjunction scope. Thus, it shares some crucial properties with the pure syntactic movement camp under head movement.

However, it cannot 'skip heads' as we saw, and thus inherently obeys the HMC. In this characteristic, it falls in the 'amalgamation' camp in Harizanov and Gribanova (2016)'s characterization. In essence, this is the only property of *ki*'s movement that overlaps with this camp, given that *ki* does not form new words via movement and has interpretive effects.

Essentially then, with properties that overlap with both movement in the narrow syntax and compliance with a structural adjacency constraint like the HMC, I propose that *ki*'s movement be termed a 'hybrid' head movement. This characterization helps us understand why successive cyclicity is excluded from the Bangla AltQ configuration, as well as why an AltQ reading is unavailable when the disjunction is contained within an island.

The discussion across the last several sections pointed to an underlying fact: the Q-particles in the two closely-related languages - Hindi and Bangla - function as scope indicators of interrogative disjunction. This similarity strengthens Jayaseelan (2001, 2008)'s claim that Universal Grammar does encode a non-trivial relationship between the two categories.

4.2   Against a base-generation analysis

Apart from a Larsonian explanation, which was shown to make several incorrect predictions for Bangla, another conceivable explanation can be offered along the lines of a base generation analysis. In this alternative, the Q-particle *ki* is base-generated in the

Force projection, and *na* is the disjunction head. The distinction between interrogative (*na*) and non-interrogative disjunction (*ba*) in this approach would lie in the ability to license the Q particle higher up in the structure. Apart from the stipulative nature of the last assumption, there are several other problems with such an approach. Firstly, the locality effects that we saw in Sections 3.4 and 4.1 cannot be explained by this account, since there is no dependency between the disjunction head position and the Force position. For example, the availability of only the lower scope readings in examples (215a) and (194) cannot be accounted for if the scope marker of disjunction (the Q particle) is assumed to be generated in a high position far away from the disjunction site. Secondly, the island effects that Bangla AltQs were shown to exhibit cannot be explained in this approach. The scope of disjunction in this approach would arguably be designated by the Q particle base-generated in Force, making movement of any sort unnecessary. This would make incorrect predictions about the availability of AltQ readings when the disjunction phrase is embedded inside islands. The head movement analysis proposed in this chapter

The base generation analysis also suffers from another major problem. In the paradigm below, observe that an embedded question with *ki* cannot occur with *kina* under a rogative predicate. *ki* and *kina* are in perfect complementary distribution, with the appearance of one blocking the appearance of the other. There is no simple explanation of this striking paradigm under the base generation approach, which would predict the cooccurrence of the Q particle in Force and the disjunction connective *kina* to be grammatical.

(205) a. **Anu jaan-te cha-y tumi ki cha kha-be kina*
Anu know-IMPV want-HAB you KI tea eat-FUT.2P KINA
'Anu is wondering whether you will have tea.'

b. *Anu jaan-te cha-y tumi ki cha kha-be?*
Anu know-IMPV want-HAB you KI tea eat-FUT.2P
'Anu is wondering will you have tea?'

c. *Anu jaan-te   cha-y   tumi cha kha-be   kina*
   Anu know-IMPV want-HAB you   tea eat-FUT.2P KINA
   'Anu is wondering whether you will have tea.'

d. ** Shikhok Anu-ke   jiggesh kor-chilo   or baari-te   ki poisha-r*
   teacher Anu-ACC ask   do-PAST.2P his house-LOC KI money-GEN

   kono oshubidhe ache   kina
   any   trouble   be-PRES KINA
   'The teacher was asking Anu whether he has any financial issues at home.'

e. *Shikhyok Anu-ke   jiggesh korchilo   or baarite   ki poishar*
   teacher Anu-ACC ask   do-PAST.2P his house-LOC KI money-GEN

   kono oshubidhe ache?
   any   trouble   be-PRES
   'The teacher was asking Anu does he have any financial issues at home?'

f. *Shikhyok Anu-ke   jiggesh korchilo   or baarite   poishar   kono*
   teacher Anu-ACC ask   do-PAST.2P his house-LOC money-GEN any

   oshubidhe ache   kina
   trouble   be-PRES KINA
   'The teacher was asking Anu whether he has any financial issues at home.'

This complementary distribution pattern is usually not the case with Q-particles and *whether* in the world's languages. For example, the following Hindi example from Bhatt and Dayal (2017) show that the presence of what they postulate to be the null *whether* operator is compatible with the Q-particle *kyaa*.

(206) *Anu   jaan-naa caah-tii   hai   [ki kya: tum cai piyoge]*
       Anu.F know-INF want-HAB.F be.PRS.SG that $Q_{Y/N}$ you tea drink.FUT.2MPL
       'Anu wants to know whether you will drink tea.'

(Bhatt and Dayal 2017: 14b)

From a cross-linguistic perspective, the Bangla paradigm in (205) would seem surprising. The analysis presented in this chapter, in which *whether* (*kina*) is the concatenated complex Q-Disj from which the Q moves to Force, can straightforwardly account for this cluster of empirical facts. Since the presence of *ki* in Force in an interrogative disjunction structure is assumed to be the result of movement, the

presence of another overt *ki* in its original base position inside the disjunction phrase is automatically made impossible. Thus, the empirical facts discussed in this section provides more support to my central claim that it is the same *ki* that is a Q-particle in the language as well as the *ki* in the *kina* complex that serves to function as the item 'whether'.

5 Clause final *whether* derived via Ellipsis

As we saw in previous sections, the Q-Disj complex can appear clause-finally and denote a clausal disjunction akin to English *whether*. When denoting *whether*, the disjunctive complementizer denotes a disjunction between a full clause and its negative counterpart, where the latter is completely elided under identity with the former. In addition, the negation *na* in the second disjunct is elided under identity with the *na* inside the *kina* complex. This is the situation in which we get clause-final *kina*. Maintaining congruity between this clause-final *kina* and the interrogative disjunction structures above, I argue that the head-movement of the Q-particle *ki* to the Force projection still happens covertly. A sample illustration is provided below:

(207) [*Ma jiggesh kor-chilo* [*Bill-er John-ke podotyaag kor-te bola uchit]*
    Ma ask do-PAST.3P Bill-GEN John-GEN resign do-IMPV say should
    kina [~~*Bill-er John-ke podotyaag korte bola uchit na*~~]
    KINA Bill-GEN John-GEN resign do-IMPV say should NEG
    'Mom was asking whether (or not) Bill should ask John to retire.'

The structure in (207) would be the underlying representation of the Q-Disj complex in both sentences such as (154b) (where it is *whether or not*) and (154a) (where it is *whether*).

This analysis puts the following claim front and center: the phrases *whether* and *whether or not* are identically signified in Bangla (with the Q-Disj complex), with no syntactic or semantic difference whatsoever. This claim had been made for English many

decades ago. Larson (1985b) cites Karttunen (1977) as the first widely popular account within the Montague Grammar framework to claim that the phrase [*whether* α] denotes the set of propositions $\{p: p$ is true $\& [p = q \lor p = \neg q]\}$, where q is the proposition expressed by α. Thus, the semantics of *whether* involves the disjunction of a proposition and its negation.

Larson argues that this semantics is reflected in the syntactic module. For example, he provides the following pairs as 'fully synonymous variants' of each other.

(208)   (Larson 1985b: 11a, 14a)

    a.   I know [**whether** John reads fiction].

    b.   I know [**whether or not** John reads fiction].

(209)   (Larson 1985b: 11b, 14b)

    a.   the decision [**whether** John should read fiction]

    b.   the decision [**whether or not** John should read fiction]

In Bangla, we have a language that morphologically epitomizes this relationship between *whether*, *whether or not* and interrogative disjunction in general. All three functions are denoted by the exact same morphological units.

Three possible analyses are on the market for *whether* phrases with an overt *or not*. One is Larson, and the other two are proposed by Han and Romero (2004b) as both being equally possible. I provide an overview of each of them below.

5.1   *Whether or not*

Larson argues that the *or not* phrase is generated as an adjunct. In PolQs where is there no overt *or* to mark disjunction within a disjunction phrase, where does the covert *whether* get generated? This concern is for sentences such as the following:

(210) I know whether John should read fiction.

In Larson's analysis, the *or not* phrase is always present, overtly or covertly, in PolQs. He argues for the structure below (I provide a modern equivalent of his original structure), where the null *Q* or overt *whether* always gets generated adjoined to the *or not* phrase in a PolQ. Larson notes that he has no explanation as to why the *or not* phrase in optional.

(211)
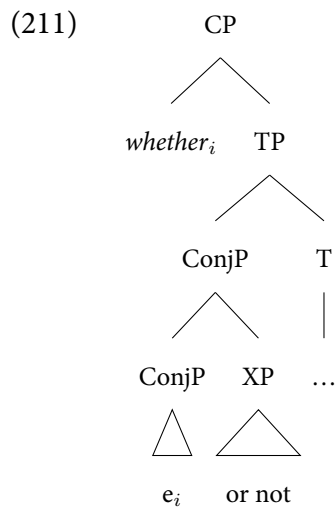
The status of the *or not* phrase in this analysis is that of an adjunct. Given its adjunct status, Larson assumes that its characteristic property is free attachment at any point in the derivation. This property easily explains the ambiguity of sentences like the one in (212), which Larson represents as follows.

(212) I know whether John claimed that Bill left or not.

    a. $[_S [_{COMP}$ whether$_i]$ e$_i$ $[_S$ John claimed [that Bill left]] **or not**]

    b. $[_S [_{COMP}$ whether$_i]$ $[_S$ John claimed [t$_i$ [e$_i$ Bill left **or not**]]]]

In (212a), *or not* is adjoined to the higher clause, and *whether* is adjoined to it, from where it moves to its higher scope position. The resulting disjunction is in the higher clause: John claimed that Bill left or John didn't claim that Bill left. In (212b), the adjunct *or not* is adjoined to the lower clause, and *whether* originates adjoined to it, and moves

to the C domain. As a result, the disjunction is in the lower clause: John claimed that Bill left or John claimed that Bill didn't leave.

This analysis is further supported by island-sensitivity data. Larson notes that in sentences like (213), there is only the higher clause disjunction reading available. The lower clause disjunction reading is ruled out by the fact that *whether* would have to cross the Complex NP island boundary in order to move from the low adjoined position to COMP, as shown in (214).

(213)   I know whether John made the claim that Bill left or not.

(214) $[_S$ $[_{COMP}$ whether$_i]$ $[_S$ John made $[_{NP}$ the claim $[_S$ t$_i$ $[_S$ e$_i$ Bill left or not $]]]]]_*$

This would be a convincing analysis to take with regards to the Bangla puzzle, except that it over-generates in that domain. The Bangla counterpart of (212) ('claim' is replaced by the rogative predicate 'want to know/wonder' since we are dealing with interrogative disjunction here) is not ambiguous between the two readings represented in (b-c).

(215)   a.   *Ami jani   Bill jaan-te   chai-chilo   Mary cho-le   ge-che   kina.*
              I   know Bill know-IMPV want-PAST.3P Mary go-IMPV go-PERF KINA

        b.   I know Bill was wondering if Mary left or Mary did not leave.
        c.   *I know Bill was wondering if Mary left or Bill was not wondering if Mary left.

Disjunction in the higher clause is not possible with *kina* in this structure. If we adopt Larson's analysis and treat *kina* as an adjunct phrase, we will not be able to explain why the reading in (215c) is unavailable.

Let us see if the other two analyses of *whether or not* - both proposed as plausible in Han and Romero (2004b) - fare better at accounting for the Bangla facts. First, let us

review both of the analyses. The authors use (216) (Han and Romero 2004b: (95)) as their model sentence to explain the syntactic behavior of *whether or not*.

(216)   I don't know **whether or not** John finished the paper.

In their first analysis, Han & Romero adopt an analysis of Right Node Raising of the entire clause *John finished the paper* out of both disjuncts, which follows the polarities of both the disjuncts being raised. The authors outline the analysis in the following steps:

(217)   Han and Romero (2004b): (96)

    a.   …whether [$_{IP}$ John finished the paper] or [$_{IP}$ John did not finish the paper]

    b.   whether [$_{IP}$ **POS** [John finished the paper]] or [$_{IP}$ **not** [John finished the paper]]

    c.   whether [POS e_i] or [not e_i] [John finished the paper]$_i$

Their second analysis, which Han & Romero argue is equally plausible, involves ellipsis in the second disjunct containing *or not*. Following this deletion, the remnant moves to a position adjoined to *whether*. The derivation can be outlined as follows:

(218)   Han and Romero (2004b): (97)

    a.   …whether [$_{IP}$ John finished the paper] [or [$_{IP}$ ~~John~~ not ~~finished the paper~~]]

    b.   …whether [or [$_{IP}$ ~~John~~ not ~~finished the paper~~]]$_i$ [$_{IP}$ John finished the paper] t_i

Both of these analyses would conceivably be able to tackle the ambiguity in Larson's example in (212): *I know whether John claimed that Bill left or not*. The authors do not discuss Larson's example, but we can extend it straightforwardly, as I demonstrate below. In the first analysis, the ambiguity would arise from the possibility of locating the

disjunction with *or not* in the higher or in the lower clause. I outline the two possible structures (higher and lower clause disjunction, respectively) below:

(219) Polarity raising + Right Node Raising

    a. …whether [POS e_i] or [not e_i] [John claimed that Bill left]$_i$

    b. …whether John claimed [POS e_i] or [not e_i] [Bill left]$_i$

In the second analysis, again, the disjunction could be located at the higher or lower clause, followed by ellipsis of the relevant chunks, followed by movement of the remnant phrase. It is not clear as to what exactly forces this movement to happen. However, I outline the two possible structures (higher and lower clause disjunction, respectively) below:[9]

(220) Ellipsis + fronting of remnant phrase

    a. …whether [or [$_{IP}$ ~~John~~ not ~~claimed Bill left~~]]$_i$ [$_{IP}$ John claimed Bill left] t_i

    b. …John claimed whether [or [$_{IP}$ ~~Bill~~ not ~~leave~~]]$_i$ [Bill leave] t_i

Larson's ambiguity is thus conceivably accounted for under both of Han & Romero's possible analyses. However, note that both of Han & Romero's analyses crucially fail to reflect the actual word orders in these constructions, and the authors do not undertake the task of deriving the correct word orders via additional operations. This makes these analyses less tenable.

In addition, what about the lack of ambiguity in Bangla? Han & Romero's analyses would also over-generate in that it would predict that the higher clause reading in (215c) is available, given that in their accounts, the *or not* is capable of disjoining clauses at all possible heights. Thus, we cannot employ these analyses in explaining the Bangla facts.

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[9]I am simplifying the structures slightly to account for strict identity conditions on ellipsis.

I argue that my analysis of *kina* as a left-Merging head functioning as the disjunction connective can correctly capture the lack of ambiguity. Recall that only the lower clause disjunction reading is available in (215a). Structurally, deriving the lower clause disjunction would look like the following:

(221) a. *Ami jaani Bill jaan-te   chai-chilo   [Mary cho-le   ge-che]*
           I   know   Bill know-IMPV   want-PAST.3P   Mary   go-IMPV   go-PERF
           kina   [~~Mary~~ NEG ~~cho-le ge-che~~]
           KINA Mary NEG IMPV go-PERF
           'I know Bill was wondering whether or not Mary left.'

       b.
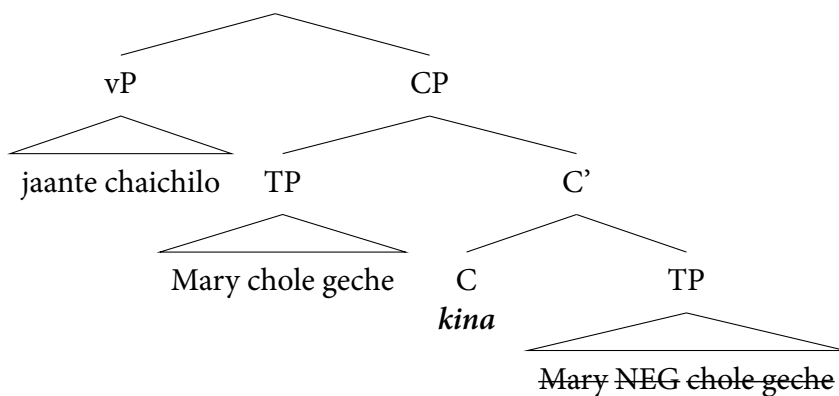
The second disjunct is elided under identity with the first disjunct. The remnant in the elided phrase is the NEG, which gets deleted under identity with the *na* fragment of *kina*.[10]. Thus, we end up with a structure in which the lower clause has been disjoined with *kina* and the second disjunct has ben elided, leaving *kina* in a clause-final position on the surface.

The higher clause disjunction reading is ungrammatical in Bangla. The structure for such a reading would have to look like the following.

---

[10]Bangla negation is little complicated in terms of the surface forms and correlations with tense and aspect (Ramchand 2004) Without going into those details, I assume an abstract negation feature is getting deleted here, also strictly under identity with the morphological negation *na* inside *kina*.

(222) a. * *Ami jaani [Bill jaan-te   chai-chilo   [$_{TP}$ Mary cho-le   geche]]*
           I   know Bill know-IMPV want-PAST.3P   Mary go-IMPV go-PERF

       kina [Bill jaan-te   chai-chilo   na [$_{TP}$ Mary cho-le ge-che]]
       KINA Bill know-IMPV want-PAST.3P NEG   Mary IMPV go-PERF
       'I know whether Bill was wondering or not if Mary left.'

   b.
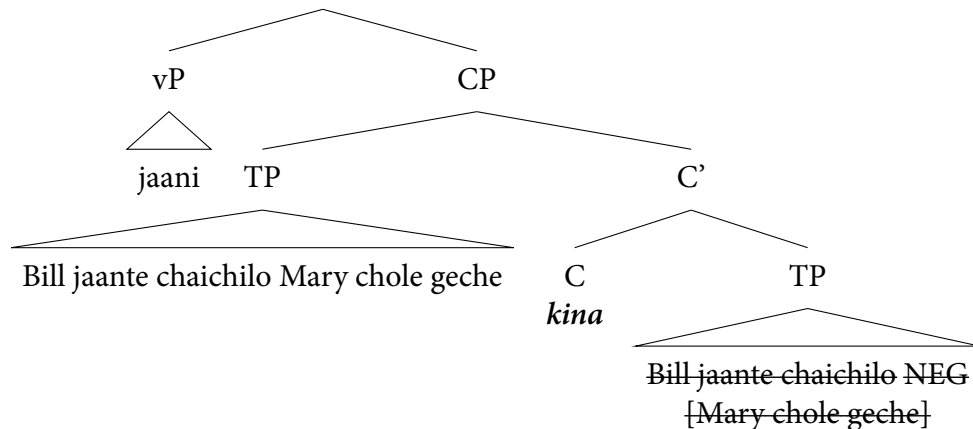
In this case, the crucial problem arises from the fact that ellipsis appears to be happening across a finite clause boundary. The predicate *jaante chaichilo* ('was wondering/wanting to know') has a finite complement 'Mary has left'; in the second disjunct, the ellipsis appears to be occurring across this finite clause.

The ban on ellipsis occurring across finite clause boundaries was noted a long time ago. Kuno (1976) notes that in an embedded infinitival context such as in (223), the matrix as well as the embedded predicate can be elided.

(223) Mary [forced Tom [to go to Cambridge] and [~~forced~~ John [[~~to go~~ to Oxford]]].

Terazu (1975), as cited in Fukui (2006), notes that the matrix predicate and a complement NP can also get deleted under identity:

(224) Ugliness[is one of [the symptoms of disease]], and beauty [~~is one of [the symptoms~~ of health]].

Across a finite clause boundary, however, ellipsis is not possible, as noted by Abe and Hoshi (1997):

(225) *John thinks that Bill will see Susan and Harry [~~thinks~~ ~~[that Bill will see~~ Mary]].

Schwarz (1999), citing Neijt (1979), notes that the exact same constraint applies for gapping in regular as well as in *either…or* constructions.

(226) Schwarz (1999): (61)

    a. *[The first letter says that you should pay tax] and [the second letter ~~says~~ ~~[that you should pay~~ V.A.T]].

    b. ?? Either [Bill said that Mary was drinking] or [~~Bill said [that Mary was~~ playing video games].

In the same vein, Barros (2014) demonstrates that multiple sluicing is impossible when the remnants correspond to correlates that are separated by a finite clause boundary:

(227) *Some students said that Mary will speak to some professors, but I can't remember which students$_i$ ~~t_i~~ ~~said that Mary will speak t_j~~ to which professors$_j$.

Han and Romero (2004b) demonstrate that in Hindi, a close Indo-Aryan relative of Bangla, gapping cannot spread across a finite clause:

(228) *Sue soch-tii hai ki mE Bill-ko pasand kar-taa huN aur*
    Sue think-HAB be-PRES that I Bill-DAT like do-HAB be-1SG and
    Martha Tom-ko
    Martha Tom-DAT
    'Sue thinks that I like Bill and Martha (likes) Tom.'
    * 'Sue thinks that I like Bill and Martha (~~thinks that I like~~) Tom.'

Thus, we see an empirically robust sensitivity of most forms of ellipsis to finite clause boundaries. The situation is no different in Bangla. Replicating (225) in Bangla leads to ungrammaticality as well:

(229) * *John bha-be   [je   Bill Susan-ke   dekh-be]   aar Harry [bha-be*
      John think-FUT.3P that Bill Susan-ACC see-FUT.3P and Harry think-FUT.2P

      [je   Bill] Mary-ke   [dekh-be].
      that Bill   Mary-ACC see-FUT.3P

      'John thinks that Bill will see Susan and Harry (thinks that Bill will see) Mary.'

Given these facts, it is transparent why a structure like the Bangla one in (222a) above leads to a crash. The higher clause disjunction with *kina* in such a multiply embedded structure is ruled out by independent conditions on ellipsis. As it stands, this proposal is the only one that is successful in explaining the lack of ambiguity in Bangla. This further strengthens the claim that the concatenated disjunction connective is actually *kina*, which I argued to be a left-Merged disjunctive complementizer head in the language. When embedded under rogative and other *whether*-embedding predicates, *kina* appears to function like *whether* because, like *whether or not*, it underlyingly disjoins the complement clause of the predicate and its negative counterpart. This is in alignment with how we conceptualize the semantics of *whether* and *whether or not*.

However, one important disclaimer needs to be applied at this point.[11] Consider the following data:

(230)   John [thinks [that Mary has stolen the book]] and Bill does [think [that Mary has stolen the book]] too.

This is a perfectly grammatical example of ellipsis across a finite clause boundary in English. Thus, it seems to be the case that there is no a priori ban on eliding material across a finite clause boundary.

What do we make of all the examples given above, then? Interestingly, we see a striking similarity between all the examples from (223)-(228): in all of these structures, there is a remnant stranded in the ellipsis site. None of the examples involve full ellipsis across a finite clause boundary. In contrast, the example in (230), has full ellipsis of all

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[11]I thank Mark Baker for bringing this data to my attention.

of the material after the auxiliary in the second conjunct, with no stranded element. The presence of a stranded element then might be the crucial reason for the badness of the examples above, and not the finite clause boundary being present per se.

Given this discovery, my proposal that the higher clause disjunction reading is ungrammatical just by virtue of ellipsis occurring across a finite clause boundary (cf. the structure in 222b) appears to be untenable. However, there is still hope.

There is evidence to support my claim that ellipsis across a finite clause boundary in (222b) independently rules out the relevant reading. I demonstrate that it is not the case in Bangla that ungrammaticality results from only leaving an element stranded in an ellipsis site across a finite boundary; regular deletion across such a boundary is disallowed too. The Bangla counterpart of (230) is crashingly bad:

(231) *John [bhaabe [Mary boi-ta   churi kore-che]]   aar Bill [~~bhaabe [Mary~~

     John thinks   Mary book-CL steal do-3P.PRES and Bill thinks   Mary

     ~~boi-ta   churi kore-che~~]]   o.

     book-CL steal do-3P.PRES also

     Intended: 'John thinks that Mary has stolen the book and Bill ~~thinks that Mary has stolen the book~~ too.'

This structure has no stranded element in the ellipsis site, and yet is ill-formed.[12]. This crucially tells us the ban on ellipsis across a finite clause is independently motivated in Bangla. Therefore, we can still defend the structure in (222b), and the claim that the ungrammaticality of (222a) stems from ellipsis across a finite domain.

This section defended an analysis of Bangla *whether* which treats it as being identical

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[12]The only way to get this particular reading is with the resumptive pronoun *tai*

(232)   *John bhaabe Mary boi-ta   churi kore-che   aar Bill-o   **tai** bhaabe.*
        John thinks   Mary book-CL steal do-3P.PRES and Bill-also that thinks
        'John thinks that Mary has stolen the book and Bill thinks that too.'

to *whether or not*, i.e. a clause-disjoiner with whole clause ellipsis in the second disjunct. The disjunction was between a whole clause and its negated counterpart. The previous section explored what happens when two non-identical elements have to be disjoined in an embedded or matrix AltQ. Staying true to my main claim, I argued that such disjunction is also performed by *kina*. The only, and critically important, difference from the interrogative disjunction case discussed in the previous section is that there was overt movement to mark the scope of disjunction. This movement is not required in the cases we saw in this current section because of the identity and consequent ellipsis of (one of) the disjuncts.

5.2 Disjunctive Subjects are impossible in Bangla AltQs

Till now, we have explored cases of clausal disjunction or disjunction inside the verbal domain. If we turn our attention to disjunction in the subject position of a sentence, we see that languages of the world prolifically allow such constructions. Here are a few examples:

(233)   Did [Mary or John] finish the paper?

(Han and Romero 2004b: 88)

(234)   *(shì) [māo] háishi [gôu] tōu le yú (ne)?*   MANDARIN
         SHI   cat   HAISHI dog steal LE fish Q
         'Did the cat or the dog steal the fish?'

(Erlewine 2014: 30)

(235)   *[Ali mi] [(yoksa) [Ayse mi]] kahve içti?*   TURKISH
         Ali Q   not-if   Ayse Q   coffee drank
         'Was it Ali or Ayse who drank coffee?'

(Gračanin-Yuksek 2016: 14a)

Interestingly, Bangla does not allow disjunctive subjects, as shown below:

(236) a. **Ann na Bill piano baja-y?*
        Ann NA Bill piano play-HAB
        Intended: 'Does Ann or Bill play the piano?'

    b. **Ram na Sita Laxman-ke dhonuk-ta diye-chilo?*
        Ram NEG Sita Laxman-ACC bow-CL give-PAST.3P
        Intended: 'Did Ram or Sita give Laxman the bow?'

In an AltQ construction with a predicative adjective predicated of a disjunctive subject, we again see ungrammaticality:

(237) **Tor ma na baba shundor?*
        Your mom NEG dad beautiful
        Intended: 'Is your mom or dad good-looking?'

These types of questions predictably become grammatical as soon as the whole clauses comprising the disjunction are pronounced:

(238) a. *Ann piano baja-y na Bill piano baja-y?*
        Ann piano play-HAB NA Bill piano play-HAB
        'Does Ann play the piano or does Bill play the piano?

    b. *Tor ma shundor na tor baba shundor?*
        your mom beautiful NA your dad beautiful
        'Is your mom beautiful or is your dad beautiful?

Another salient way to ask an AltQ with a disjunctive subject in Bangla is with a construction that looks like a 'split-question' (cf. Camacho 2002, Arregi 2010):

(239) *Ke piano baja-y, Ann na Bill?*
        who piano play-HAB Ann NA Bill
        'Who plays the piano, Ann or Bill?'

I will return to this issue in Section 6, where I explore the structure of Split Questions in Bangla, and investigate how they are able to host disjunctive subjects in AltQs.

I argue that the ungrammaticality of disjunctive subjects can be explained only under the movement account laid out above. The movement analysis argued that *ki*

moves out of the *kina* complex to a higher position to mark the scope of disjunction. In an AltQ with a disjunctive subject, this movement would look like the following:

(240) *Ki Ann *t*-na Bill piano bajay?

The result would be a question a word order where polar *ki* finally ends up being clause-initial. Such a construction is ungrammatical in Bangla. The reasons for this ungrammaticality, however, can be traced back to our findings in the chapter on the syntax of *naki*. In that chapter, we observed that the particle *ki* (the polar particle *ki*; not the homophonous thematic *wh*-word *ki*) cannot appear in a clause-initial position. This is shown in (a) below. In (b), as soon a constituent appears to the left of *ki*, the structure becomes grammatical.

(241) a. **Ki Ram bhaat kheye-che?*
           Q Ram rice   eat-PERF.3P
           Intended: 'Did Ram eat rice?'

       b. *Ram ki bhaat kheye-che?*
           Ram Q rice   eat-PERF.3P
           'Did Ram eat rice?'

Bangla has several particles which are similar to *ki* in that they avoid the clause-initial position. Bayer and Dasgupta (2014) call these elements 'enclitics' (adopting a term by Faller (2002)) because they obligatorily require a phonological host. In the chapter on the syntax of *naki* I argued for a syntactic embodiment of this enclitic property, by arguing that these particles come with an [+EPP] feature, and some XP moves to the specifier position to satisfy the EPP. Maintaining consistency, I will adopt the same position here. (240) is ungrammatical because the EPP feature of the moved *ki* is not satisfied.

The structure for (240) is given in (242a). The EPP being unsatisfied makes the derivation crash. The disjunctive phrase being the closest goal, it moves to the specifier of *ki*, as shown in (242b). However, given that after *ki* has moved out of the disjunctive

phrase to Force, it is the remnant phrase that undergoes this movement to Force's specifier, *ki* ends up not c-commanding its trace. This results in the crash of the derivation. The movement analysis, thus, is able to predict this ungrammaticality. Without assuming the movement of *ki*, there is no obvious way to explain what prevents disjunctive subjects in Bangla AltQs.

(242) a. ****ki** [Ann **t**-na Bill] piano bajay?

     b. *[Ann t_i-na Bill]$_j$ ki$_i$ t$_j$ piano bajay?

The claim formulated above can be stated as follows: the ungrammaticality of (242b) arises purely as a by-product of *ki*'s movement, since the resulting structure does not permit *ki* to c-command its trace inside the moved remnant. The prediction of this claim is that if any other constituent apart from the disjunctive phrase moves to satisfy the EPP, the structure would be grammatical, since *ki* would be able to c-command its trace inside the in-*situ* disjunction phrase. This prediction is borne out, as shown below. (243) is a perfectly fine way to ask an AltQ with a disjunctive subject (in addition to the Split Question configuration in (239), which we will return to later).

(243) Piano$_j$ ki$_i$ [Ann t$_i$-na Bill] t$_j$ bajay?

An important question that arises at this juncture is: doesn't this EPP feature on *ki* affect all AltQ structures in Bangla? For example, in the matrix AltQ below, *ki* moves to Force, and that ends up being the clause-initial position. In that case, I assume that there is across-the-board (ATB) movement of the subject *John* out of both disjuncts without affecting the c-command relationship between *ki* and its trace. Moving out of just the first one would result in a Coordinate Structure Constraint violation. I show the ATB movement of *John* from both disjuncts below.

(244)
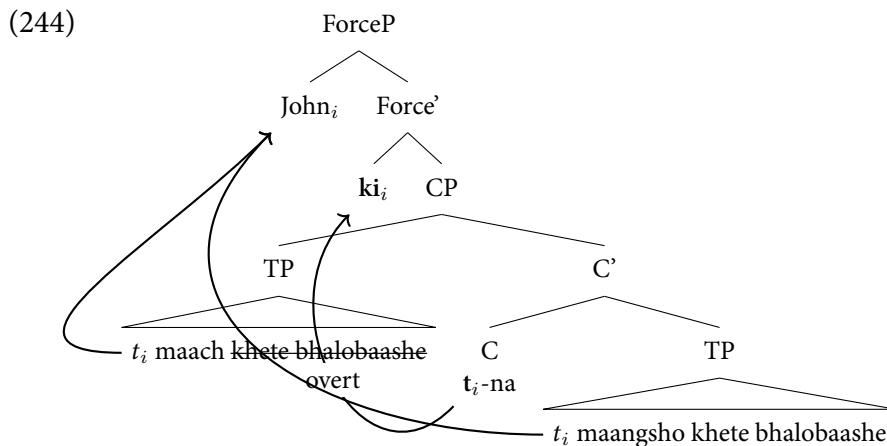
Such a movement to [Spec, ForceP] at the end of the derivation would have to happen in all cases of interrogative disjunction in Bangla, in order to satisfy the EPP on *ki*. Only in the disjunctive subject case would the issue of the break in c-command arise because the 'mover' originates within the 'movee' itself, since the whole disjunctive phrase is moved. A more in-depth study of this is undertaken in Section 6.2.

The movement analysis (Larsonian in spirit) of interrogative disjunction that has been argued for in this section is thus able to account for several empirical patterns as well as quirks in Bangla.

6   Split Questions can host Disjunctive Subjects

In the previous sections, we saw that Bangla does not allow disjunctive subjects in AltQs. An example is repeated below:

(245) **Ann na Bill piano bajay?*   Alternative Question
Ann NA Bill piano play-HAB
Intended: 'Does Ann or Bill piano bajay?'

Section 5.2 argued that the ungrammaticality of such structures can be given an explanation predicated jointly on the movement analysis and the [+EPP] feature on *ki* and its null equivalent.

It was briefly mentioned in that section that the seemingly curious problem of ungrammatical disjunctive subjects can be solved by turning the construction into a Split Question.

(246)   *Ke piano bajay,   Ann na Bill?*   Split Question
       who piano play-HAB Ann NA Bill
       'Who plays the piano, Ann or Bill?'

This section will investigate the reasons behind Split Questions (henceforth, SQs) being able to host AltQs with disjunctive subjects in Bangla.

I first provide a brief overview of SQs and an analysis that has been proposed for them, followed by investigations into Bangla.

6.1   Split Questions: A biclausal approach

SQs are a relatively under-explored area of research. Arregi (2010) and Camacho (2002) are two major formal accounts of the phenomenon, and Arregi cites Bäuerle (1979) and Schwarzschild (1999) as containing sporadic mentions of the phenomenon. In this section, I will outline Arregi's account of SQs, and I refer the reader to Camacho (2002) for the other account, and to Arregi (2010) for valid criticisms of that account.

SQs are constructions that look like the following, provided by Arregi (2010): (21, 1) (also see Klecha 2008).

(247)   Which shrub did you plant, the rhododendron?   English

(248)   *Qué árbol plantó Juan, un roble?*   Spanish
       what tree   planted Juan an oak
       'What tree did Juan plant, an oak?'

Arregi argues for a biclausal approach to SQs, whereby the *wh*-part is a *wh*-question, and the second part is a polar question. Thus, a SQ in this approach, is a sequence of

two questions asked by a speaker. There is no formal link between the two questions (Arregi sets discourse concerns aside).

Structurally, a SQ is derived in the following manner: (i) inside the *wh*-question, the *wh*-phrase moves to the specifier of a *wh*-interrogative C; (ii) the overtly visible tag is focus-fronted inside the polar question itself; (ii) everything but this focus-fronted constituent inside the polar question is elided, under identity with an antecedent in the *wh*-question. Arregi represents this derivation as shown:

(249) $[_{CP1}$ *wh*-phrase$_i$ C$_{Q,wh}$ …t$_i$] $[_{CP1}$ tag$_j$ C$_Q$ [T̶P̶ t$_j$ ̶.̶.̶.̶]]

The analysis that Arregi provides for the tag is based on Merchant (2004)'s influential account of fragment answers, such as below:

(250)   Arregi (2010): (5)

    a. *Qué árbol plantó Juan?*
        what tree planted Juan
        'What tree did Juan plant?'

    b. *Un roble*
        an oak
        'An oak.'

Merchant argues that fragment answers involve: (i) movement of the fragment within a full sentence; (ii) ellipsis of everything in the sentence apart from the fragment. In addition, Arregi adopts Brunetti (2003)'s insight from Italian fragment answers that the movement is always focus-fronting.

A standard method of implementing ellipsis that Arregi adopts from Merchant (2001) is to posit an E feature on certain heads that triggers the deletion of the complement of the head. Note that the second part of a SQ is considered an interrogative CP, given that it is assumed to be a polar question. Thus, the C has a [+Q] feature. In addition, what triggers the fronting of a focussed constituent (the visible tag in an SQ)? It is a Foc feature on the C head itself, that is checked by the moved phrase on its way

to the specifier of C. Thus, the C head in the second clause in an SQ in Arregi's system bears three features, in order for all of these things to happen.

(251) $[_{CP}$ XP$_{F,j}$ C$_{F,Q,E}$ [~~TP~~ t$_j$ ~~...~~]]

Arregi produces arguments to motivate each part of the overall analysis independently.   In particular, evidence for the focus-driven movement is drawn from preposition stranding in Spanish, island-sensitivity of the movement, and complementizer deletion facts. With regard to ellipsis of the remnant inside the polar question part of the SQ after the focus-fronting has taken place, Arregi argues that a principle of deletion of 'backgrounded' material is able to capture the facts. I refer the reader to the original work for a full exposition of the extensive argumentation.

With respect to the interaction we are concerned with in this section - interrogative disjunction and SQs - Arregi includes a relevant discussion.   Spanish allows constructions where the second clause in an SQ is an AltQ:

(252)   a.   *Quién plantó   el   roble, Juan o Pedro?*
                who   planted the oak   Juan or Pedro
                'Who planted the oak, Juan or Pedro?

         b.   *Qué árbol plantó   Juan, un olmo o un haya?*
                what tree   planted Juan an elm   or a   beech
                'What tree did Juan plant, an elm or a beech?

The first configuration Arregi considers is one where the disjunction phrase undergoes the focus-fronting movement, followed by the ellipsis of the rest of the sentence:

(253) $[_{CP}$ [an elm or a beech]$_i$ C [$_{TP}$ ~~Juan planted t$_i$~~]]

However, it is acknowledged that this is not the standard analysis of alternative questions. As discussed above, Han and Romero (2004b) argue convincingly for a

clausal coordination analysis in which both disjuncts are clausal constituents, and the all material in the second disjunct apart from the overt ones are elided. Adopting this approach, Arregi proffers the following structure instead of the one in (253):

(254)   [Juan planted an elm] or [~~Juan planted~~ a beech]

In this analysis, the remnant of the ellipsis has no trigger for undergoing movement and consequently, does not. Arregi concludes that this analysis then would not be compatible with his approach to SQs - obligatory movement inside the second clause.

In order to bring SQ with AltQs into the fold, Arregi tentatively suggests that the remnant does undergo movement, just like regular SQs and fragment answers:

(255)   Arregi (2010): (29)

   [Juan planted an elm] or [[a beech]$_i$ ~~Juan planted t_i~~]

To provide support for this movement, it is shown that the non-elliptical counterpart of (255) is grammatical in Spanish:

(256)   Arregi (2010): (30)
   Juan plantó   un olmo, o   un HAYA   plantó   (Juan)?
   Juan planted an   elm,   or a   BEECH planted (Juan)
   'Did Juan plant an elm, or did Juan/he plant a BEECH?'

In this conceptualization of the syntax of AltQs, both disjuncts would undergo the type of movement + ellipsis we see in for only the second disjunct in (255).

(257)   Arregi (2010): (31)

   [[an elm]$_i$ ~~Juan planted i~~] or [[a beech]$_j$ ~~Juan planted t_j~~]

This is how the tag part of an SQ with alternatives is derived.

In previous sections, I argued in favor of the Han and Romero (2004b) analysis: clausal disjunction with ellipsis in one of the disjuncts (in Hindi, it's in the second

disjunct; in Bangla, it's mostly in the first disjunct). Based on the cross-linguistic evidence the authors draw in support of their analysis, specially from Hindi (a close relative of Bangla), I will continue to adhere to that account of Alt Q formation. I outline a potential problem with Arregi's analysis below.

Arregi's tentative account of what looks like an AltQ on the surface is focus-fronting (movement) of the overt element followed by deletion of the remnant phrase (ellipsis). Applying this account to some of the Hindi examples in Han and Romero (2004b) leads to ungrammaticality. For example, the (a) examples below are the representations of Han and Romero's analysis of the AltQ; the (b) examples are the representation of Arregi's analysis on the same sentence, and the AltQ interpretation is not available anymore or hard to get.

(258) Embedded AltQ

    a. *Jaun kyaa sochtaa hai*   *[ki Chandra-ne* **coffee** *pii*   *thii]*
       John what think   be.PRES that Chandra-ERG coffee drink-PFV PAST

       yaa [~~Chandra-ne~~ **chai** ~~*pii*~~   ~~*thii*~~*]?*
       or   Chandra-ERG tea drink-PFV PAST

       'Which one does John think: that Chandra drank coffee or that Chandra drank tea?'

    b. **Jaun kyaa soch-taa hai*   *ki*   *[[coffee]$_i$ Chandra-ne* t$_i$ *pii*
       John what think   be.PRES that coffee Chandra-ERG   drink-PFV

       thii] yaa [[chai]$_j$ ~~*Chandra-ne*~~ ~~t$_j$~~ ~~*pii*~~   ~~*thii*~~ *]?*
       PAST or   tea   Chandra-ERG   drink-PFV PAST

       Intended: 'Which one does John think: that Chandra drank coffee or that Chandra drank tea?'

(259) Matrix AltQ

    a. *(Kyaa) Q [Chandra-ne* **coffee** *pii]*   *yaa [~~Chandra-ne~~* **chai**
       what   Q Chandra-ERG coffee drink-PFV or   Chandra-ERG tea

       ~~*pii*~~*]?*
       drink-PFV

       'Which of these two things did Chandra drink: coffee or tea?'

b. **??** *(Kyaa)* Q [*[coffee]$_i$* *Chandra-ne* t$_i$ *pii]* *yaa* [*[chai]$_j$*
what Q coffee Chandra-ERG drink-PFV or tea

~~*Chandre-ne*~~ ~~t$_j$~~ ~~*pii*~~ *]?*
Chandra-ERG drink-PFV

Intended: 'Which of these two things did Chandra drink: coffee or tea?'

Thus, it appears that mandatory focus-fronting of the pronounced material is too strong an assumption to make for regular AltQs.

An additional concern in this setup is: how does the disjunction in the AltQ take scope? As we have seen above, the analyses of AltQ disjunction (Larson 1985b, Han and Romero 2004b) either assume the movement of a *wh*-like operator (that is generated adjoined to the disjunction phrase and undergoes movement to [Spec, CP]) or head-movement of the Q particle as in the current analysis, solely for reasons of scope. Arregi does not mention any such scopal movement in his analysis of AltQs, and it is not clear if the focus-fronting of disjuncts can be argued to be scopally relevant at all.

An important structural concern with Arregi's hypothesis with respect to AltQ tags in SQs is: what is the motivation for elements in both the disjuncts to undergo focus-fronting? Recall that in this system, it is the C head that has 3 features: E (to trigger deletion of the complement of the head it appears on), Q (to mark the interrogative nature of the complementizer), and F (to trigger focus fronting within the clause). To ensure that there is focus-fronting in both disjuncts as shown in (257), Arregi would have to postulate something special about the F probe on C whereby it would require movements of multiple constituents to value its feature.

Thus, we have to concede that Arregi's mechanism is problematic for regular AltQs. But what makes it a plausible explanation of the SQ with AltQ tags, such as the ones in (252) or its English counterparts: *Who painted the rock, Sam or Bill?* (see Klecha 2008 for a discussion of English SQs). The answer can be found in Arregi (2010) itself.

The crux of the idea is that since under the standard assumption, *wh*-phrases are focussed, answers to these questions are focussed as well. Everything else in the

answer is 'background material', and is deleted under identity with the backgrounded material in the *wh*-question (adopting Brunetti 2003's condition on backgrounded material). There needs to be overt movement of the constituent that is the answer to the *wh*-question to [Spec, CP], to check the Foc feature on C. This is the 'focus-fronting' movement. This analysis is identical to Merchant (2004)'s account of fragment answers.

Essentially then, I propose that we acknowledge that a unified analysis of regular AltQs and AltQs in the tags of SQs is untenable. They are two different constructions and should be treated as such. Han and Romero's analysis and predictions relating to the former are independently valid, and Arregi's analysis and predictions relating to the latter are independently valid.

With this caveat in place, in the next section, I undertake an analysis of Bangla SQs, Arregi-style. The goal is to investigate why such structures are able to host disjunctive subjects in a language that otherwise disallows disjunctive subjects.

6.2   Split Questions in Bangla

Klecha (2008) points out an interesting generalization for English questions: English does not allow non-elliptical focus fronting of any constituent in a polar questionn:

(260)   Klecha (2008): (12)

    a. *An oak, did John plant?

    b. *Did an oak, John plant?

As Klecha points out, this data is problematic for Arregi (2007)'s analysis which critically depends on focus-fronting to ensure ellipsis of a constituent. Klecha then goes on to propose that in English, the focus-fronting head also bears the ellipsis-causing [E] feature. This idea shows up in Arregi (2010), as we saw in (251) above.

Like Spanish, Bangla does not have any restrictions on focus-fronting constituents

in non-elliptical structures. For example,

(261) a. *Chithi-ta, John pathiye-chilo toma-ke?*
 letter-CL, John send-PAST.3P you-ACC
 'The letter, did John send to you?'

 b. *Pathiye-chilo, John toma-ke chithi-ta?*
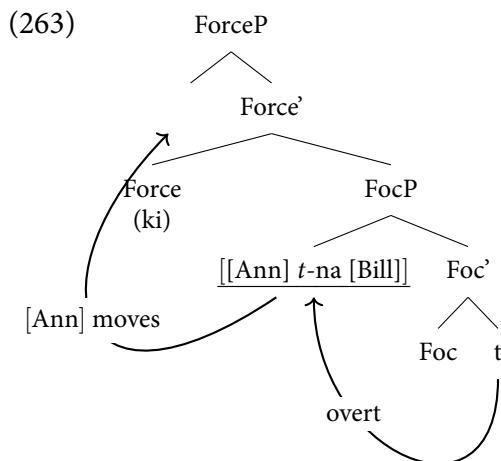 send-PAST.3P, John you-ACC letter-CL
 'Sent, John the letter to you?'

AltQs as tags of SQs are also grammatical in Bangla, as we have seen above. Following our basic analysis of Bangla AltQs in the previous parts of this chapter, we can claim that the surface structure in (a) (*Who plays the piano, Ann or Bill?*) is derived from the underlying structure in (b):

(262) a. $[_{CP1}$ ke piano bajay] $[_{ForceP}$ Ann na Bill]

 b. $[_{CP1}$ ke piano bajay] $[_{ForceP}$ (ki)$_i$ $[_{CP1}$ [Ann ~~piano bajay~~] t_i-na [Bill ~~piano bajay~~]]]

The vP ellipsis in the second disjunct is special to this SQ structure, because it is deleted under identity with the backgrounded material in the *wh*-question. Note that are some non-trivial differences between Arregi's structural assumptions and mine. First, Arregi assumes SQs to be formed of two CPs (one *wh*-question and one polar question/AltQ); while adhering to my analysis of AltQs, I assume Bangla SQs with AltQ tags are comprised of a CP and a ForceP. Second, Arregi does not assume any movement for reasons of scope; however, I have argued for a structure in which the Q head moves from its base position inside a Q-Disj complex to Force° (and is optionally left unpronounced in this landing position).

Of crucial importance is to remember the fact that the structure in (262b) would result in ungrammaticality, given that *ki*'s EPP ends up being unsatisfied. We can argue that the structure in (262b) is not the final structure yet, because focus-fronting has

not taken place yet. Below, I represent this further movement as movement to the specifier of a FocP projection, which is below the Force projection (following Rizzi 1997's conception of the left periphery).[13]

(263)

```
                    ForceP
                      |
                    Force'
                   /      \
             Force          FocP
             (ki)          /    \
                 [[Ann] t-na [Bill]]  Foc'
                                     /    \
        [Ann] moves              Foc      t
                                overt
```

This is the derivation for the tag portion of a SQ with AltQ. Several things are going on here. The whole CP containing the survivors of ellipsis and the disjunction connective *na* move as a constituent to [Spec, FocP]. Following this movement, [Ann] moves to the specifier of Force to satisfy its EPP feature.[14] Thus, the AltQ-with-a-disjunctive subject tag of an SQ like (262a) is derived.

7 Conclusion

The central tenet of this chapter was to defend the claim that the clausal alternatives embedder *whether* and the interrogative disjunctor in Bangla are underlyingly the same element: a Q-Disj complex. Crucial support for the claim was garnered from three different quarters: (i) a comparative study of higher and lower clause disjunction; (ii)

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[13]For reasons unclear at this point, overt pronunciation of *ki* in the tag of a SQ is ungrammatical. Note that I am assuming the EPP feature is still present on *ki* and drives movement to its specifier.

[14]Note that this analysis does set up a contrast with (242b), in that it can be asked why [Ann] cannot move to the specifier of *ki* in (242b) to satisfy the EPP. One possible explanation is that the phasehood status of the CP is compromised when it is in its moved position - [Spec, FocP], as opposed to its base-generated position. I leave further exploration of this question for future research.

investigating constraints on ellipsis and movement as syntactic operations that drive the distinction between *whether* and interrogative disjunction; (iii) the ban on disjunctive subjects as well as the ban on the co-occurrence of interrogative disjunction and *whether* under embedding predicates. The last also inspired an investigation into the nature of split questions in Bangla and the surprising ability of split questions with AltQ tags to host disjunctive subjects when regular AltQs cannot. The discussion in this chapter sheds light on the syntactic configurations of alternative questions, and weighed in on two areas of significant debate in the literature: the scope of disjunction and the size of the disjuncts. As such, the formulation as well as the predictions of the core hypothesis and the analysis presented here substantiate the claim that Bangla is a language that represents a deep connection between interrogative disjunction, clausal disjunction with *whether*, and polar Q-particles.

Chapter 4

Alternative Questions: A Semantic Profile

1   Introduction

đ The central tenet of the previous chapter was to defend, from a syntactic perspective, the claim that an expression denoting embedded clausal alternatives, such as *whether*, and a form of disjunction resulting in alternative questions, such as interrogative disjunction, are underlying the same element in Bangla. The contribution of this chapter will be to defend that claim from a semantic perspective. Thus, these chapters together fit into a broader landscape that seeks to understand the deep connections between alternative-producing elements such as disjunction and their interaction with questions and assertions. In addition to the claim of underlying unification, this chapter will also venture into a relatively under-explored area in the disjunction and questions literature - the distinction between boolean[1] and interrogative disjunction in a language that overtly contains both. In the previous chapter, we learnt that Bangla is such a language that makes morphological and syntactic distinctions between boolean and interrogative disjunction. I now pursue a semantic theory that can account for both while keeping

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[1]I will be using the term 'boolean' to solely refer to non-interrogative disjunction throughout this chapter.

their differences alive, as well as capturing their interaction with questions. In particular, I will undertake a comparative study with Mandarin Chinese, which has the same distinction and demonstrate that the two languages have key differences that our semantic theory has to grapple with. With a proposal couched in the framework of Alternative Semantics, I will show that the previous chapter's claim of clausal disjuncts can be upheld, and makes vital predictions relating to focus intervention effects. I investigate focus intervention effects in both Bangla and Hindi AltQs and argue that an Alternative Semantics-theoretic analysis, coupled with our syntactic assumptions, can capture both the lack of intervention effects in Bangla and presence of intervention effects in Hindi AltQs.

The chapter is organized as follows: Section 2 provides a review of the technology of Alternative Semantics; Section 3 undertakes a theoretical journey into focus alternatives and how they are relevant for our purposes; Section 4 lays out my core proposal in several parts; Section 5 investigates focus intervention effects in *wh*-Qs and AltQs in Bangla; Section 6 argues that disjunct size makes a crucial difference, and provides a comparison with Hindi; Section 7 concludes.

2   Background: Alternative Semantics

Hamblin (1973)'s main innovation was an analysis of questions in a system where the unique semantic value of all expressions are sets of alternatives, which then combine compositionally with other elements. This insight has been the foundation stone of Alternative Semantics, also called Hamblin semantics.

Beginning somewhat abstractly with Partee and Rooth 1983, the standard denotation of disjunction (Von Stechow 1991, Aloni 2003, Simons 2005a, Alonso-Ovalle 2006b) is the computation of alternatives. The lexical item *or* introduces a set of alternatives into the derivation, which is the union of the denotation of each of

its disjuncts:

(264)　$[\![[\text{X or Y}]]\!]^{g,c} =_{def} [\![\text{X}]\!]^{g,c} \cup [\![\text{Y}]\!]^{g,c}$

(265)　a.　$[\![\text{meat}]\!]^{g,c} = \{\text{meat}\}$

　　　b.　$[\![\text{fish}]\!]^{g,c} = \{\text{fish}\}$

　　　c.　$[\![[\text{meat or fish}]]\!]^{g,c} = [\![\text{meat}]\!]^{g,c} \cup [\![\text{fish}]\!]^{g,c} = \{\text{meat, fish}\}$

This resultant set of alternatives can then be manipulated by a variety of Hamblin operators which collect the alternatives and turn them into meanings more compatible with our traditional conceptions. Until such operators are made available in the derivation, the alternatives keep 'expanding' via a special compositional rule.
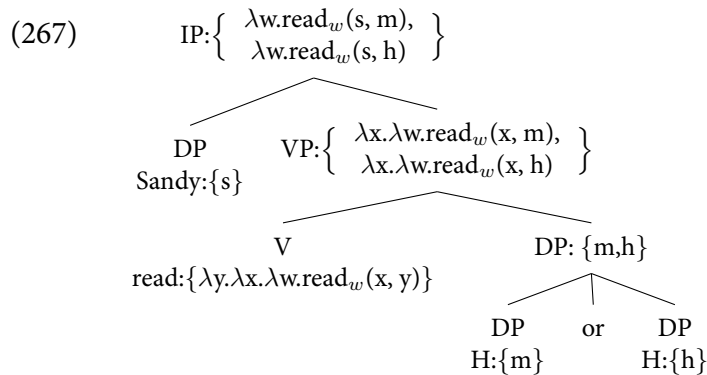
This special compositional rule is *Pointwise Functional Application* (PFA): objects of type $\langle \sigma, \tau \rangle$ apply to objects of type $\langle \sigma \rangle$ and the output of this application are collected in a set:

(266)　If $[\![\alpha]\!] \subseteq D_{\langle \sigma, \tau \rangle}$ and $[\![\beta]\!] \subseteq D_\sigma$, then

　　　$[\![\alpha(\beta)]\!] = \{\ c \in D_\tau \mid \exists a. \in [\![\alpha]\!]\ \exists b. \in [\![\beta]\!]\ (c = a(b))\ \}$　　　(Hamblin 1973)

Successive applications of PFA enable the alternatives that have been introduced by elements like 'or', indeterminate pronouns, etc. in a sub-part of the tree to expand into alternatives of higher types. Alonso-Ovalle (2006b):(30) illustrates this process for the sentence with a disjunction in the object position: *Sandy read Moby Dick or Huckleberry Finn*.

(267)   IP:$\left\{ \begin{array}{l} \lambda w.read_w(s, m), \\ \lambda w.read_w(s, h) \end{array} \right\}$

DP
Sandy:{s}

VP:$\left\{ \begin{array}{l} \lambda x.\lambda w.read_w(x, m), \\ \lambda x.\lambda w.read_w(x, h) \end{array} \right\}$

V
read:$\{\lambda y.\lambda x.\lambda w.read_w(x, y)\}$

DP: {m,h}

DP
H:{m}

or

DP
H:{h}

We see the recursive application of PFA here. The verb itself denotes a singleton set - the 'property' of reading, as do the individual disjuncts themselves as well the subject. The disjunction connective *or* collects the alternatives, following which the singleton set in V combines with the alternative set via PFA, expanding the alternatives. The subject combines in the same manner, turning what were originally individual alternatives into propositional alternatives. If two singleton sets have to combine, they compose via the traditional Fregean Functional Application.

(267) is the illustration of a simple sentence. What happens when operators that can manipulate alternatives are introduced into the derivation? These operators select the alternative set and usually return a singleton set. Since alternatives can have the types of individuals, properties or propositions, the operators that manipulate them have to have matching types. Kratzer and Shimoyama (2002b) provide a list of the most common operators: $\exists$, $\forall$, Neg, Q. These operators can be propositional operators or generalized quantifiers, and combine with the appropriate type of alternatives.

With regards to boolean disjunction, it is standardly assumed that the operator manipulating the alternatives introduced by *or* is an Existential Closure operator. This operator returns a singleton set containing the proposition that is true in a world *w* iff at least one of the alternatives in the alternative set is true in *w*. Following Rooth and Partee (1982), Kratzer and Shimoyama (2002b) define the existential operator as:

(268) $[\![\exists\alpha]\!] = \{\lambda w.\ \exists p \in [\![\alpha]\!]: p(w) = 1\}$

This operator brings us to the classical existential conception of disjunction.

In the previous chapter, I mentioned that boolean and interrogative disjunction are marked differently in Bangla, unlike English. In addition to Bangla, many other languages have been reported to have this distinction within the disjunction system. Erlewine (2014) lists them as follows: Amharic, Syrian Arabic, Basque, Buriat, Finnish, Gothic, Kannada, Korean, Latin, Lithuanian, Mandarin, Sinhala, Vietnamese, and Yoruba. More details can be in found in Moravcsik 1971; Alonso-Ovalle (2006b); Slade (2011) Winans (2012), Mauri and van der Auwera (2012) and the references therein.

Boolean disjunction in Bangla is marked by the connective *ba*. For a declarative with a disjunction such as *John maach ba maangsho pochondo kore* (John likes fish or meat), the Existential Closure operator takes the alternatives introduced by *ba* and returns a singleton set:

(269)

$$\llbracket \exists \text{ [\textbf{Ram likes fish ba meat}]} \rrbracket =$$
$$\{\lambda w'. \exists p \in \{\lambda w.\text{like}_w(\text{Ram, fish}), \lambda w.\text{like}_w(\text{Ram, meat})\} : p(w') = 1\}$$

$\exists$ $\{\lambda w.\text{like}_w(\text{Ram, fish}),$
$\lambda w.\text{like}_w(\text{Ram, meat})\}$ (via the PFA!)

$\{\text{Ram}\}$ $\{\lambda x.\lambda w.\text{like}_w(x, \text{fish}), \lambda x.\lambda w.\text{like}_w(x, \text{meat})\}$ (via the PFA!)

$\llbracket \text{pochondo kore} \rrbracket^o =$
$\{\lambda \textbf{y}.\lambda \textbf{x}.\lambda \textbf{w}.\textbf{like}_w(\textbf{x, y})\}$ $\{\textbf{fish, meat}\}$

$\llbracket \text{DP} \rrbracket =$ **ba** $\llbracket \text{DP} \rrbracket =$
$\{\text{fish}\}$ H:$\{\text{meat}\}$
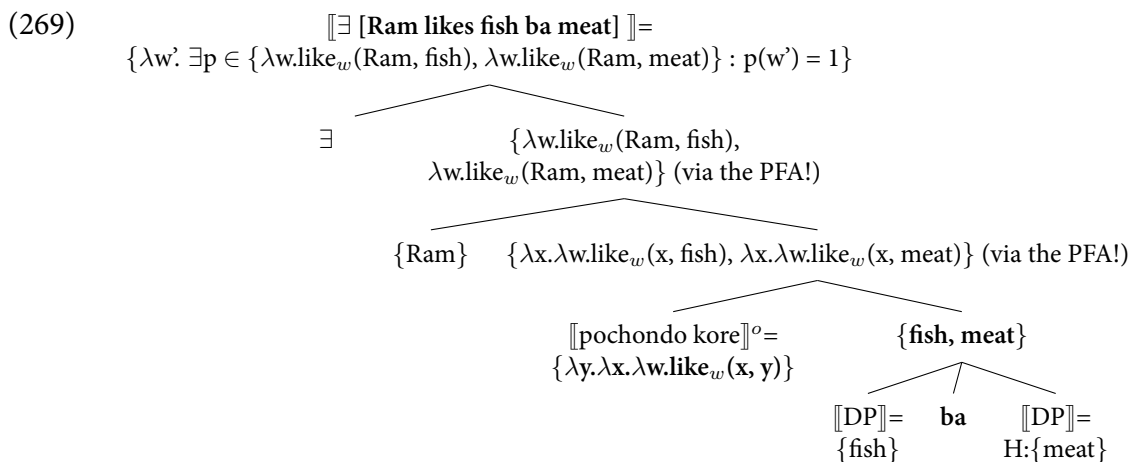
In a language like English, interrogative and boolean disjunction are denoted by the same connective: *or*. Thus, a derivation like (269), with $\exists$ replaced by a Q operator, would be what interrogative disjunction would look like in a system like Biezma and Rawlins'. The result would be a return of the exact same set (since the function of Q is to leave the alternatives intact) - $\{\lambda w.\text{like}_w(\text{Ram, fish}), \lambda w.\text{like}_w(\text{Ram, meat})\}$.

Crucially, in such a set up, there is no real distinction between interrogative and

boolean disjunction. *Or* in both cases introduces a set of alternatives into the structure that is manipulated either by the existential closure operator (resulting in a singleton set) or by a Q operator (resulting in a non-singleton set). Adopting this setup, one cannot explain why *ba* is permitted only in declaratives, while *kina* as a disjunction operator is only permitted in questions.

In the next section, I explore an alternate conception of disjunction - a pointwise computation of Rooth-Hamblin focus alternatives, and see if it holds more potential for accounting for distinctions within the disjunction space.

3   Focus alternatives

3.1   Von Stechow (1991) and Beck (2006a)

Von Stechow (1991), and following him, Beck and Kim (2006), argue for a analysis of disjunction in which *or* has both an ordinary semantic contribution as well as a focus semantic contribution. The ordinary value is the classical disjunction formulation, while the focus value is an alternative set formed out of the ordinary meanings of the disjuncts. In an AltQ, then, the Q operator takes the focus semantic value and outputs an ordinary question meaning. For example, consider the following illustration from Beck and Kim (2006):

(270)   a.   Did the program execute or the computer crash?

      b. $[\![\text{DisjP}]\!]^o = \{\lambda w. \text{ the program executed in w or the computer crashed in w}\}$

      c. $[\![\text{DisjP}]\!]^f = \{\lambda w. \text{ the program executed in w}, \lambda w. \text{ the computer crashed in w}\}$

(271) $[\![Q\, \phi\,]\!]^f = \{ [\![Q\, \phi\,]\!]^o \}$

In this system too, we cannot find a locus of distinction between logical and interrogative disjunction. Both types of disjunctions would arguably project focus alternatives, which are then manipulable by Hamblin operators. So essentially, while the basic tenet of projected focus alternatives can be upheld, the space of disjunction does not appear to be amenable to further refinement.

In the next section, I describe an analysis recently profferred by Erlewine (2017) which is especially catered to accounting for distinctions within the disjunction space.

3.2 Erlewine (2014, 2017)

Erlewine (2014, 2017) explores alternative questions in another language with a boolean-interrogative divide within the disjunction space: Mandarin Chinese. Consider the paradigm below:

(272) a. *haíshi* ⇒ alternative question

> *Zhang San xihuan Li Si **haishi** Wang Wu (ne)?*
>
> Zhang San like   Li Si HAISHI Wang Wu NE
>
> 'Does Zhang San like [Li Si] or [Wang Wu]?

b. *huòzhe* ⇒ boolean disjunction

> *Zhang San xihuan Li Si **huozhe** Wang Wu.*
>
> Zhang San like   Li Si HUOZHE Wang Wu
>
> 'Zhang San likes Li Si or Wang Wu.'

Erlewine's crucial distinction between the two kinds of disjunction lies in the contrast between their ordinary and focus semantic contributions. In his analysis, both disjunctors come with a *junctor head* J (cf. Dikken 2007) whose function is to collect ordinary values of disjuncts into a set of alternatives (superscripted as "alt").

(273) The semantics of J:

a. $[\![\text{ J } x_1, \ldots, x_n]\!]^o$ = undefined

b. $[\![\text{ J } x_1, \ldots, x_n]\!]^{alt}$ = $\{[\![x_1]\!]^o, \ldots, [\![x_n]\!]^o\}$

What divides the two disjunctors is the requirement of an existential closure operator $\exists$ by the boolean disjunctor *huozhe* that is not the case with the interrogative disjunctor *haíshi*. This requirement is enforced in syntactic terms: *huozhe* comes from the lexicon with an uninterpretable feature [u$\exists$] on the J which has to be checked via AGREE. Coming to the interrogative disjunction *haíshi*, it does not have the uninterpretable feature [u$\exists$], and thus free adjunction of $\exists$ is prohibited. Thus, an AltQ with *haíshi*, such as (272a), has an undefined ordinary meaning and a well-defined focus value (intensionalized denotations are from the original work):

(274) a. $[\![\text{TP}]\!]^o$ undefined

b. $[\![\text{TP}]\!]^f$ = {like(ZS,LS), like(ZS,WW)}

At this point, Beck (2006a)'s *Principle of Interpretability* comes into play, which requires all root nodes to have an ordinary semantic value. To satisfy this requirement, Erlewine adopts Kotek (2015)'s ALTSHIFT operator that takes a set of focus alternatives and converts them into an ordinary denotation.

(275) AltShift (Kotek 2015)
a. $[\![\text{ALTSHIFT } \alpha]\!]^o$ = $[\![\alpha]\!]^{alt}$
b. $[\![\text{ALTSHIFT } \alpha]\!]^{alt}$ = $\{[\![\text{ALTSHIFT } \alpha]\!]^o\}$ = $\{[\![\alpha]\!]^{alt}\}$

It might strike the reader that this operator is uncannily similar to a traditional Q operator in Alternative Semantics, that has been postulated in many works as having the exact same function. I refer the reader to Erlewine (2017), who refers to Kotek (2015) for a rationale for using this operator over the canonical Q; I will not go into the details here. What is important is that this operator lifts focus values into ordinary

values (in the tradition of Rooth 1992, Ramchand 1997, Beck 2006a, Beck and Kim 2006, among many others). Erlewine's conception of the distinction between boolean and interrogative disjunction can thus be concretely captured in the following manner:
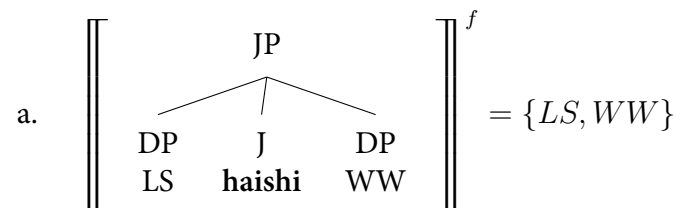
(276) Boolean disjunction is lexically specified for requiring an ∃ operator (and thus does not need a Q/ALTSHIFT operator), while interrogative disjunction eventually needs a Q/ALTSHIFT operator to convert its focus alternatives (but does not come lexically specified for any such operator).
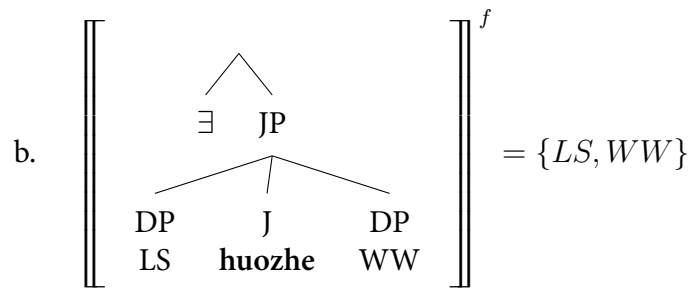
This analysis is arguably the first formal account of the divisions within the disjunction space. Beck and Kim (2006) demonstrate that Korean is a language that also has the interrogative-boolean distinction, but they do not provide a strategy to locate the locus of the distinction. Before exploring the possibility of adopting Erlewine's analysis to account for the Bangla facts, let us learn about an important consequence of such a formulation of the boolean-interrogative distinction.

3.2.1 Neutralization of differences

Recall that both disjunctors - *haíshi* and *huozhe* - in Erlewine's system crucially share a common core that gives them the identity of being disjunction connectives: a J(unctor)-ness that generates focus alternatives based on the disjuncts. Erlewine demonstrates that *Li Si haishi Wang Wu* and *Li Si huozhe Wang Wu* have the exact same focus alternatives:

(277) Erlewine (2017): (39b, 40b; with some modifications)

a. $\left[\!\!\left[\begin{array}{c} \text{JP} \\ \overbrace{\text{DP} \quad \text{J} \quad \text{DP}} \\ \text{LS} \quad \textbf{haishi} \quad \text{WW} \end{array} \right]\!\!\right]^{f} = \{LS, WW\}$

b.
$$\left[\!\!\left[\begin{array}{c} \exists \quad JP \\ \diagup\!\!\diagup \\ DP \quad J \quad DP \\ LS \quad \textbf{huozhe} \quad WW \end{array} \right]\!\!\right]^{f} = \{LS, WW\}$$

The operator ∃ that is featurally needed in the latter case in this system, as seen in the previous section, does convert the focus value into an ordinary set, but does not obliterate the alternative set in the process; instead, it just "passes up the alternative set of its complement" (Erlewine 2017: p.22). This means that applying ∃ to (277b) will not yield anything different from (277b) and (277a). All these sets are exactly the same. What does this buy us? This buys us interchangeability between *haíshi* and *huozhe* in the scope of any operator that only cares about the focus alternative set of a disjunctor. Such an operator would not be able to distinguish between boolean and interrogative disjunction because it only sees the focus alternative sets - i.e. (277a) and (277b) - of the two elements, which are identical. Thus, differences in the disjunction space would stand 'neutralized' in such environments.

Erlewine draws empirical evidence from various sources to demonstrate that the neutralization prediction is borne out. Note that the author himself notes (footnotes 18 and 20) the existence of considerable speaker variation with regards to the judgements. Indeed, none of the Mandarin native speakers I consulted agreed with non-interrogative uses of *haíshi* (which is predicted by the neutralization hypothesis).[2] I provide a few of Erlewine's neutralization examples below:

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[2]There might be a regional difference at play here between speakers from mainland China (who reject attempts at interchanging *haíshi* and *huozhe*), and speakers from Taiwan (who allow interchangeability) (R. Huang, p.c.).

(278) **Neutralization under epistemic modals** (based on Huang 2010)
Ta   dagai/keneng   xihuan [Zhang San haishi/huozhe   Li Si]
3sg probably/might like   Zhang San HAISHI/HUOZHE Li Si
'S/he probably/might like(s) Zhang San or Li Si.'

(279) **Neutralization in *ruguo*-conditional**
Ruguo (you) [ZS haishi/huozhe   LS] dadianhua lai,   jiu   shuo wo bu
if   have ZS HAISHI/HUOZHE LS call   come then say   1sg not
  zai
  present
'If Zhang San or Li Si calls, say I'm not here.'

(280) **Neutralization by *dou* universal quantification**
[Zhang San haishi/huozhe   Li Si] dou jin-lai-le
Zhang San HAISHI/HUOZHE Li Si DOU enter-come-LE
'Both Zhang San and Li Si came in.'

In all of these cases, Erlewine reports that the speakers who permit neutralization agree that *haishi* only contributes a non-interrogative, existential interpretation.

Though Erlewine's analysis laid out above appears to account for the neutralization of the interrogative-boolean divide, his technology for doing the same raises some serious issues.

Recall that in his system, the boolean disjunction is specified for [u∃] and thus ensures mandatory existential closure over its focus alternatives. In the traditional conception of existential closure, for example from Rooth and Partee (1982), Kratzer and Shimoyama (2002b), the ∃ operator accesses the focus alternatives set of its sister and returns an ordinary singleton set. The traditional definition is repeated below:

(281) $[\![\exists\alpha]\!] = \{\lambda w.\ \exists p \in [\![\alpha]\!]: p(w) = 1\}$

However, in Erlewine's system, the ∃ operator can still "pass up" the focus alternatives, even after converting them to an ordinary value. This means that the boolean

disjunction *huòzhe* in Mandarin would always retain its focus alternatives. In that case, another Hamblin operator, for example - Q, that merges above the ∃ should be able to access *huòzhe*'s focus set. This Q operator would then use those focus alternatives to return a question meaning - crucially, an AltQ meaning. This analysis then makes two non-trivial predictions: (i) that *huòzhe* should never be able to appear in a PolQ; (ii) whenever *huòzhe* appears in a question, the result should be an AltQ. None of these prediction are borne out, as the following question shows:[3]

(282)   *Zhang San xihuan Wang Wu huozhe   Li Si ma?*
        Zhang San likes   Wang Wu HUOZHE Li Si Q
        'Does Zhang San like WW or LS? (PolQ)
        # 'Does Zhang San like [WW] or [LS] (# AltQ)

We see here that the only interpretation available here is the the polar one, and not the alternative one, contrary to what Erlewine predicts[4]. Unambiguously then, both predictions stand incorrect.

A possible solution Erlewine's analysis might proffer at this juncture is that since ∃ has both converted its sister's focus value and also passed up the focus value, the higher Q operator can access both the ordinary and focus values, resulting in both a PolQ and an AltQ reading. This is reminiscent of the inherent ambiguity in similar configurations in English. However, this solution for Mandarin would not hold water, as we can see. (282) only has a PolQ reading (i.e. it can only be answered with a *yes* or *no*) and no AltQ reading (i.e. it cannot be answered with one of the disjuncts or *neither* or *both*).

In light of these concerns with Erlewine's proposal, one would have to reconsider the ability of ∃ to "pass up" as well as convert its sister's focus value into ordinary value. The potential existence of such operators raises significant questions about the overall structure of the grammar, both because of the omnipotence of the operator

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[3] I thank Yi-Hsun Chen, Shu-Hao Shih and Jess Law for the judgements.

[4] Note that the judgements remain the same even without the overt presence of the Q particle *ma*.

as well as its uniqueness - why is ∃ the only operator that can perform this dual function? Reconsidering this property of ∃ also has implications for the explanation of the neutralization of *haíshi* and *huòzhe* - the possibility of neutralization in Erlewine's system crucially hinges on the exceptionality of of ∃.

In spite of these concerns, it is the case that any study of the boolean-interrogative divide within the disjunction space in other languages that locates the root of the distinction in the grammar would have to contend with the neutralization prediction. I will demonstrate in Section 4.2 that the Bangla interrogative disjunctor *kina* cannot appear in such neutralizing contexts. Furthermore, I will argue that the absence of neutralization in Bangla is predicted by my analysis, which is laid out in the next section.

4 Proposal

I propose an account of the Bangla paradigm within the framework of Alternative Semantics, adopting Erlewine's basic idea that the two types of disjunction must share a common core: the ability to generate alternatives (in the spirit of Partee and Rooth 1983, Aloni 2003, Simons 2005b, Alonso-Ovalle 2006b; see Ramchand 1997 for the very first extension of Hamblin semantics to quantification in the domain of *k*-words (wh-words) in Bangla). More concretely, these alternatives are focus alternatives, thereby defending the claim that both the boolean disjunction *ba* and the interrogative disjunction *kina* necessarily project a focus-semantic alternative set of their disjuncts. This is illustrated below:

(283) a. *Sita Ram ba Laxman-ke   bhalobaash-e.*
    Sita Ram or Laxman-ACC love-3P.HAB
    'Sita loves Ram or Laxman.'

   b. $[\![\text{Sita Ram ba Laxman-ke bhalobaashe}]\!]^f = \{\lambda\text{w.love}_w(\text{S,R}), \lambda\text{w.love}_w(\text{S,L})\}$

(284) a. *Sita ki$_i$ Ram t$_i$-na Laxman-ke bhalobaashe?*
Sita ki Ram t-NAA Laxman-ACC love-3P.HAB
'Which of the two does Sita love: Ram or Laxman?'

  b. ⟦Sita (ki) Ram na Laxman-ke bhalobaashe⟧^{f} = {λw.love$_w$(S,R), λw.love$_w$(S,L)}

This formulation is similar to Erlewine's proposal for Mandarin: *ba/huozhe* and *kina/hÃ¡ishi* provide cross-linguistic support for the claim that refinements within the disjunction space still retain the core identity of disjunction.

At this juncture, it is pertinent to remind ourselves of one of the most crucial claims defended in the previous chapter of this dissertation. I argued in the previous chapter that the syntactic structure of an AltQ in Bangla looks like the following:

(285) **Matrix interrogative disjunction**
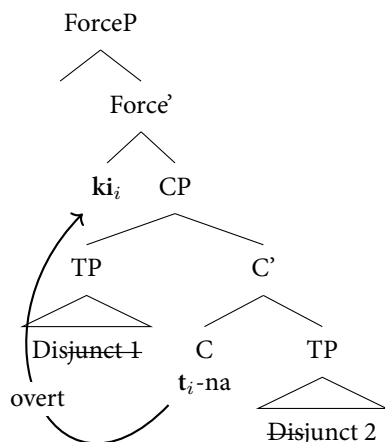
This structure is a representation of my claim that both interrogative disjunction and *whether* in Bangla are marked by *kina*; the crucial difference between the two lies in the fact that in the former, the Q operator head-moves out of *kina*, while in the latter, there is no movement. In describing this structure, I had said that it is in order to mark the scope of disjunction that *ki* moves out of *kina* to a higher position (in the spirit of Larson 1985b and Han and Romero 2004b, but with head-movement and not operator/phrasal movement), leaving *na* behind as the surface instantiation of the connective. This formulation formed the basis of my concatenation claim: interrogative

disjunction 'whether' (*kina*) is itself actually the concatenation of the surface disjunction connective (*na*) and its scope marker (*ki*) (the Q-Disj complex). I have independently demonstrated in previous chapters that *ki* is the Polar Question particle in Bangla, and thus can be definitively taken to be an overt instantiation of the Q operator (Dasgupta 1980, Dasgupta 2007, Bayer and Dasgupta 2014).

In this section, I will still defend my concatenation claim but with a slightly more evolved definition, in light of the discussion above:

(286)   **Concatenation claim** (final)

Bangla is a language where a Hamblin alternatives-introducing element and a Hamblin alternatives-manipulating element are lexically concatenated into one word - *kina*.

This claim is especially significant in the face of one of the key components of a Hamblin semantics for disjunction (Alonso-Ovalle 2004, 2006b, Rawlins 2008, Biezma and Rawlins 2012) which is the disassociation of alternatives-introducing connectives and Hamblin operators. Note that the claim in (286) is not in opposition to this key component: the two genres of elements are crucially still disassociated in their semantic form and function, but only appear in one lexical package which is then dismantled within the derivation. This packaging being available as an option in natural languages is what is striking about the set of facts being explored here.

With the revised concatenation claim, I am also, in essence, being agnostic about the 'movement for scope' talk and instead, signaling agreement with the idea that 'scope' in Alternative Semantics is analogous to sets containing alternatives expanding via Pointwise Functional Application up the tree, as described in Section 2. A pertinent question that can be asked at this point is: then why does *ki* move at all? - is this a syntactically-motivated (as claimed in the previous chapter) or a semantically-motivated movement? I argue that it is still a syntactic movement (as

evidenced by the discussion of locality constraints in the previous chapter): arguably, movement for clause-typing reasons (cf. Cheng 1991), to overtly mark the clause as an interrogative. Regardless, the landing site of *ki* has a vital consequence: the presence of the Q operator delimits the expansion of alternatives up the tree.

In the framework of Alternative Semantics, Larsonian movements or movements 'for scope' in general are precluded by in-situ computations of Hamblin/Rooth alternatives at LF. The computational power of the system is fueled by the recursive applications of Pointwise Functional Application, and no constituent needs to move to attain propositional or wider-than-propositional scope. Hamblin operators that curb/convert these expanding alternatives can be adjoined freely in the derivation, and thus as high or low as desired, lending flexibility to the sizes and shapes alternatives can take. Couching my proposal within such a framework then begs the question: is the movement of *ki* and the Hamblinian approach to AltQs taken here at odds with each other? I argue not.

As mentioned above, I am assuming that the Q operator moves overtly in the syntax solely for clause-typing reasons. There is no null operator movement for reasons of scope, neither does the disjunction phrase itself move. The claim about movement made in the previous chapter and this chapter remains consistent - there is movement of *ki*; what is altered in this chapter is the reason for the movement. Although the movement is fueled in the syntax, the crucial consequence is apparent in the semantics: *ki*/Q manipulates the alternatives as soon as they reach it at its landing site. Thus, the syntax and semantics fall in line under this line of attack. The syntax does not make a Hamblin/Rooth alternatives based system impossible, and the semantics does not preclude the possibility of the Q morpheme moving just for clause-typing reasons. The Q morpheme moves to Force°, and disjunction is computed as alternatives-introducers in-situ at LF.

To begin laying out the core proposal, let us start by investigating what the
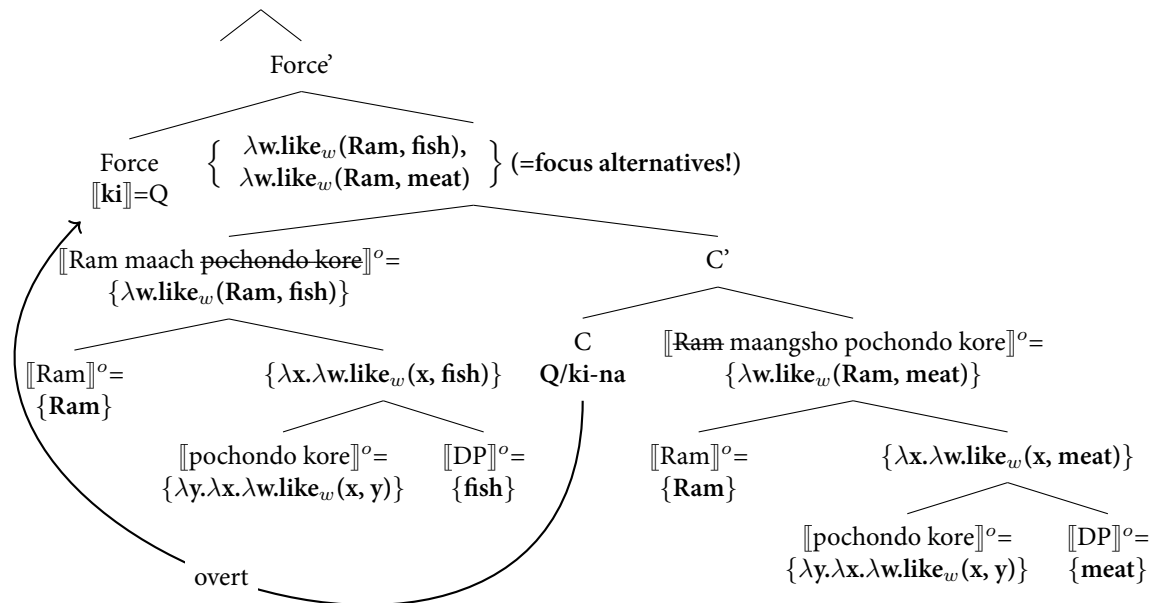
concatenation claim means for the disjunction space in Bangla as well as AltQs in the language.

4.1   The Logical vs. Interrogative divide

As discussed earlier, Erlewine (2017) locates the locus of the divide in Mandarin in the featural specification of the two disjunctions: the logical disjunction *huòzhe* always has an ∃ adjoined in the structure because of an uninterpretable [u∃] it comes with; while the interrogative disjunction *haíshi* has no such lexical requirement. As a consequence, *huòzhe*'s focus alternatives set mandatorily, in every structure, gets lifted by the ∃ to its ordinary value, resulting in a logical disjunction meaning. Its counterpart, *haíshi*, in Erlewine's sytem, is disallowed from having ∃ adjoin because of the lack of the relevant feature on the head.

I will argue that such a featural setup need not be stipulated for Bangla. Instead, we should view Bangla as an instantiation of a choice Universal Grammar provides to lexically associate elements that are deeply connected: Q-particles and disjunction (this was argued for at length in the previous chapter). In this vein, I argue that the morphological underpinnings of the concatenation claim (286) points us to a very definitive direction: interrogative disjunction is the result of the actual presence of the Q operator. The alternatives introduced by the disjunctor - KINA or Q-na - at the base of the tree are then manipulated by this operator itself from a higher position. This results in an AltQ reading with Q/*ki…na*. Thus, in this analysis, the focal point is not prescribing features on a head that forces certain operators to adjoin, but the actual presence of the operator within the disjunction connective.

(287) ⟦Ram ki maach na maangsho pochondo kore?⟧^{o}=
  {λw. **R likes fish in w or R likes meat in w**}

$$\text{Force'}$$

Force
⟦**ki**⟧=Q

{ λw.like$_w$(**Ram, fish**),
  λw.like$_w$(**Ram, meat**) } (=focus alternatives!)

⟦Ram maach ~~pochondo kore~~⟧^{o}=
{λw.like$_w$(**Ram, fish**)}

C'

⟦Ram⟧^{o}=
{**Ram**}

{λx.λw.like$_w$(**x, fish**)}

C
Q/**ki-na**

⟦~~Ram~~ maangsho pochondo kore⟧^{o}=
{λw.like$_w$(**Ram, meat**)}

⟦pochondo kore⟧^{o}=
{λy.λx.λw.like$_w$(**x, y**)}

⟦DP⟧^{o}=
{**fish**}

⟦Ram⟧^{o}=
{**Ram**}

{λx.λw.like$_w$(**x, meat**)}

overt

⟦pochondo kore⟧^{o}=
{λy.λx.λw.like$_w$(**x, y**)}
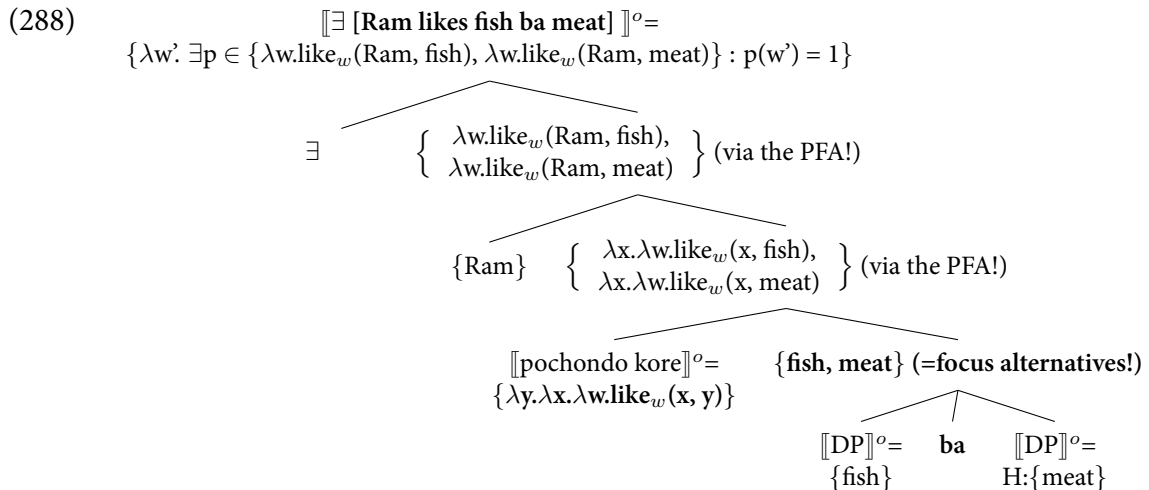
⟦DP⟧^{o}=
{**meat**}

In this tree, we see that each of the disjuncts have an ordinary semantic value, corresponding to their propositional content. The disjunctor collects these alternatives into a set of focus alternatives. The Q particle *ki* has already moved to Force° in the syntax, and is now ready to convert this focus alternative set into an ordinary disjunctive value. Thus, we get an AltQ interpretation at the top, with each alternative corresponding to a possible answer. This is the analysis of interrogative disjunction with the *ki-na* complex in Bangla.

This explanation can straightforwardly predict why the *ki…na* disjunction can never appear in declaratives. The obligatory presence of the Q operator produces a non-singleton set of alternatives as the resultant meaning - which cannot be the right type of output for a declarative.

What about the logical disjunction connective *ba*? Like any other Hamblin disjunctors, *ba* also projects a set of focus alternatives. Infact, *kina* and *ba* share the property of being able to project a set of focus alternatives corresponding to their

disjuncts.[5] We get the boolean disjunction declarative when the $\exists$ operator existentially closes over the focus set and outputs the classical meaning for disjunction.

(288) $\quad\quad\quad\quad\quad\quad$ $[\![\exists$ [**Ram likes fish ba meat**] $]\!]^o=$
$\quad\quad\quad$ $\{\lambda w'. \exists p \in \{\lambda w.\text{like}_w(\text{Ram, fish}), \lambda w.\text{like}_w(\text{Ram, meat})\} : p(w') = 1\}$

$$\exists \quad \left\{ \begin{array}{l} \lambda w.\text{like}_w(\text{Ram, fish}), \\ \lambda w.\text{like}_w(\text{Ram, meat}) \end{array} \right\} \text{(via the PFA!)}$$

$$\{\text{Ram}\} \quad \left\{ \begin{array}{l} \lambda x.\lambda w.\text{like}_w(x, \text{fish}), \\ \lambda x.\lambda w.\text{like}_w(x, \text{meat}) \end{array} \right\} \text{(via the PFA!)}$$

$[\![\text{pochondo kore}]\!]^o=$ $\quad$ $\{$**fish, meat**$\}$ (=**focus alternatives!**)
$\{\lambda y.\lambda x.\lambda w.\text{like}_w(x, y)\}$

$\quad\quad\quad\quad\quad\quad$ $[\![\text{DP}]\!]^o=$ $\quad$ **ba** $\quad$ $[\![\text{DP}]\!]^o=$
$\quad\quad\quad\quad\quad\quad$ $\{\text{fish}\}$ $\quad\quad\quad\quad$ H:$\{\text{meat}\}$

These two structures above form the core of my proposal. My analysis locates the crucial difference between logical and interrogative disjunction in the obligatory morphologically-associated presence of the Q operator in the latter case, as opposed to the former. What this translates to in terms of the semantics is that the interrogative disjunction construction never has its focus semantic value 'left over' to be manipulated by any other operator after the Q is done with it. This proposal reflects the fact that interrogative disjunction always leads to an AltQ in Bangla (and can never have a PolQ interpretation) and can never appear in declaratives because the Q comes packaged with the disjunction. It is the Q that always keeps the *ki…na* disjunction in Bangla interrogative. It moves from inside the disjunction complex to a higher position, and then manipulates the alternatives to return an AltQ interpretation.

---

[5]Recall that in the previous chapter I made explicit the claim that *ba* does not have a clausal restriction on the size of its disjuncts, unlike *kina*. I assume that *ba* can disjoin constituents of any size or category, as was evidenced by its both wide and narrow scope bearing properties.

4.2   Impossibility of neutralization in Bangla

This proposal also has another important prediction. It predicts that in 'neutralization' contexts similar to those discussed above for Mandarin, the difference between *ba* and *kina* should not be neutralizable. Since these neutralization contexts are concerned with the focus alternatives sets of the disjunctor, and *na* (i.e. what is underlyingly *kina*) does not have any focus alternative set left (because the Q (i.e. *ki*) has already converted the focus set into an ordinary meaning), the interrogative disjunctor should be ungrammatical/disallowed in these contexts. I show below that this prediction is borne out.

I adopt a whole host of neutralization contexts from Lin (2008), who provides an extensive survey of environments where the Mandarin interrogative disjunction *haíshi* loses its AltQ reading, and only gets an existential interpretation (the same qualifications about speaker variation apply). The Bangla minimal pairs below that I test in these contexts show that while disjunction with *ba* is perfectly grammatical in neutralization contexts, disjunction with *ki…na* (irrespective of whether the moved *ki* is overtly pronounced or not) is not. It is not like the Mandarin situation where the *haíshi* (for some speakers) loses its AltQ reading and becomes interchangeable with *huòzhe* in such contexts. In Bangla, the interrogative disjunction is just plain banned from appearing in some contexts; in others, even if it can appear, it retains the AltQ reading and is certainly not interchangeable with *ba*.

(289)   **Antecedent of a conditional**

    a.   *Jodi Ram podotyaag kore ba retayar kore, amake jani-yo   toh.*
          if   Ram resign   does or retire   does, me   let-know EMPH
          'If Ram resigns or retires, let me know.'

    b. **Jodi Ram (ki) podotyaag kore na retayar kore, amake janiyo   toh.*
          if   Ram Q resign   does NA retire   does, me   let-know EMPH
          Intended: 'If Ram resigns or retires, let me know.'

(290) **Under an epistemic modal**

a. *Ram Sita-ke ba Surponokha-ke bhalobesh-e thak-te paare.*
Ram Sita-ACC or Surponokha-ACC love-IMPV stay-IMPV can
'Ram may have been in love with Sita or Surphonokha.'

b. *Ram (ki) Sita-ke na Surponokha-ke bhalobesh-e thak-te paare?* AltQ
Ram Q Sita-ACC NA Surponokha-ACC love-IMPV stay-IMPV can
'Can it be the case that Ram is in love with Sita, or Surponokha?'

(291) **Strong negative adverbs**

a. *Baba konodino amake ba amar bhai-ke boke-n-ni.*
father never me or my brother-ACC scold-HON-NEG
'My father never scolded me or my brother.'

b. *Tomar baba ki konodino tomake na tomar bhai-ke*
your father Q never you NA your brother-ACC
boken-ni?
scold-HON-NEG
'Did your father never scold you, or your brother?' (AltQ)

(292) **Non-factive adversative predicates**

a. *Ami amar baba-r ba amar ma-er amar sathe kotha bola-r*
I my father-GEN or my mother-GEN my with talk say-GEN
onurodh protyakhyan kore diye-chi.
request deny do give-1P
'I have denied my father's or my mother's request to talk to me.'

b. *Tumi ki tomar baba-r na tomar ma-er tomar sathe kotha*
You Q your father-GEN or your mother-GEN your with talk
bolar onurodh protyakhyan kore diyecho?
say-GEN request deny do give-2P
'Did you deny your father's, or your mother's request to talk to you?' (AltQ)

(293) **Weak negative adverbs**

a. *Khub kom lok daami juto ba daami jamakapor kene.*
very few people expensive shoes or expensive clothes buys
'Very few people buy expensive shoes or expensive clothes.'

b. *Khub kom lok ki daami juto na daami jamakapor kene?*
very few people Q expensive shoes NA expensive clothes buys
'Do very few people buy expensive shoes, or expensive clothes?' (AltQ)

(294) **Non-factive verbs**

    a. *Ami asha kor-chi*   *Ram ba Sita amake nemontonno kor-be.*
        I   hope do-1P.PROG Ram or Sita me   invite   do-FUT.3P
        'I am hoping that Ram or Sita will invite me.'

    b. * *Tumi asha kor-cho*   *Ram na Sita tomake nemontonno korbe?*
        you hope do-2P.PROG Ram NA Sita you   invite   do-FUT.3P
        Intended: 'Are you hoping Ram, or Sita will invite you?'

(295) **Imperatives**

    a. *Phol ba shobji*   *kha-o shorir thik kora-r jonno.*
        fruit or vegetable eat-2P body right do-GEN for
        'Eat fruits or vegetables to feel better.'

    b. *Phol na shobji*   *kha-o shorir thik korar jonno?*
        fruit NA vegetable eat-2P body right do-GEN for
        'Do you eat fruits, or vegetables to feel better? (AltQ)

Thus, as the fairly diverse empirical facts tell us, it is correctly predicted by this analysis that the difference between boolean and interrogative disjunction can never be neutralized in Bangla.

We have now looked at two very diverse languages - Mandarin and Bangla - both of which have the boolean-interrogative divide and yet only the former (again, with disclaimers about dialectal and idiolectal differences) allows neutralization of the difference in some contexts, while the latter does not. It is pertinent to understand where the possible cross-linguistic variation stems from. The analysis laid out in this chapter placed the focus on interrogative disjunction, in claiming that the difference comes from the presence of the Q operator head base-generated inside the disjunctor and then moving to a higher position. This movement was independently motivated for Bangla via the discussion of the locality constraints on head-movement. This exact same configuration might not be defensible in other languages with the interrogative-boolean divide. However, the issue can be narrowed down to the presence or absence of neutralization. The absence of neutralization in a language would signal the

impossibility of interrogative disjunction ever having a non-interrogative use in that language, which is captured by the analysis presented here. We can arguably defend the claim that Bangla instantiates an option UG provides of the disjunction coming packaged with a Q operator. We can expect to see many other instantiations of the same option - I leave such a cross-linguistic survey for further research.

4.3   Polar questions with the boolean disjunction *ba*

A logical question that can be asked is what happens if a Q-operator is merged into the structure after *ba* introduces alternatives? We know that when *ba* appears in a question, that question can only be interpreted as a PolQ, and never as an AltQ. Possible answers to the question are in (b); the answers in (c) are infelicitous.

(296)   a.   *John ki maach ba maangsho pochondo kore?*
             John Q fish   or meat   like   do
             'Does John like fish or meat?'

        b.   ✓ Yes / ✓ No.

        c.   # Maach / # Maangsho

Our analysis needs to be able to account for this fact.

While the pronunciation of the *ki* is optional in the AltQ scenario, in PolQs with *ba* disjunction, the *ki* is obligatorily present. Two points about this difference that were made in the last chapter are worth repeating here: (i) this *ki* is the PolQ marker that is merged above *ba* in the structure and has no structural dependency with the disjunction like in the interrogative disjunction case; (ii) this lack of structural dependency between the Q morpheme and logical disjunction is supported by the lack of any locality effects as well the structure being grammatical even when *ki* does not c-command the *ba* phrase.

Our understanding of the Q operator from the beginning of this chapter has been that it is a Hamblin operator that takes the alternatives of its sister and returns the exact same set, without any alteration. Biezma and Rawlins (2012), in their quest for the

formulation of an universal Q operator across different question types, define the Q operator in such a manner:

(297) $[\![[Q \; \alpha]]\!]^c = [\![\alpha]\!]^c$

Biezma and Rawlins, however, do not discuss focus alternatives per se, and the distinction between ordinary and focus values of disjunctive phrases. Neither do they discuss the computation of polar questions containing disjunctions (such as *Does John like meat or fish?*) in contrast to their discussion of alternative questions (such as *Does John like [meat]$_F$ or [fish]$_F$?*). Consequently, their operator would take a *ba* structure and return the exact same set, crucially resulting in an AltQ interpretation, whereby the disjuncts form the alternatives the addressee is expected to choose from. This gives us the wrong result - predicting that the answers in (296c) would be felicitous answers, contrary to fact.

The correct derivation for a PolQ containing a *ba* boolean disjunction would be to first existentially close the focus set and then have the Q operator take that existential statement as an input and output the PolQ meaning.

(298) a. $\exists$ [John likes [fish] ba [meat]]

b. $= \{\lambda w'. \; \exists p \in \{\lambda w. \; like_w(John, fish), \lambda w. \; like_w(John, meat)\} : p(w') = 1\}$

c. *ki* $[\{\lambda w'. \; \exists p \in \{\lambda w. \; like_w(John, fish), \lambda w. \; like_w(John, meat)\} : p(w') = 1\}]$

d. $= \{\lambda w'. \; \exists p \in \{\lambda w. \; like_w(John, fish), \lambda w. \; like_w(John, meat)\} : p(w') = 1, \lambda w'.$ $\neg \; \exists p \in \{\lambda w. \; like_w(John, fish), \lambda w. \; like_w(John, meat)\} : p(w') = 1\}$

This approach gives us the right result: a PolQ interpretation that does not offer the disjuncts themselves as alternatives, but offers a binary set of propositional alternatives, i.e. the proposition containing the disjunction and its negation.

4.4 Deriving *'whether'*: clause-final *kina*

As might be apparent to the reader of this dissertation, the previous chapter and this chapter is together defending an unification claim of *whether*(clause-final *kina*) and interrogative disjunction (*ki…na*) at the syntax-semantics interface. The objective is to demonstrate that underlyingly, in both these constructions, what is present in each case is the Q + Disjunctor complex head *kina*, which denotes a set of focus alternatives. In the sections above, we have discussed what the semantics of interrogative disjunction in a language that has the interrogative-boolean disjunction might look like, given a syntactic configuration where the *ki* (Q head) has undergone movement and turned the structure into an interrogative. In this section, I take up the case of the non-moved *kina* complex and offer a proposal to capture its semantic contribution as the clausal alternative-encoding expression 'whether'.

The syntactic structure for a 'whether' (clause-final *kina*) construction was provided in the previous chapter:

(299)   **Clause-final *kina* (*whether*)**
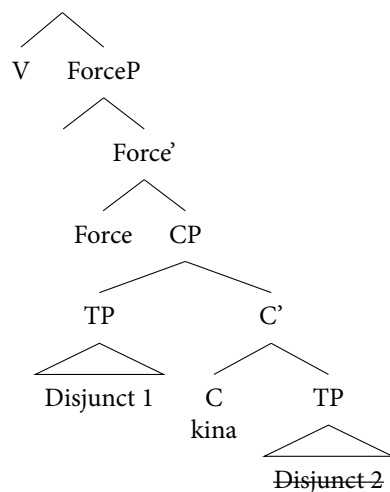
For a sentence such as *Ram knows whether Sita will go*, the second disjunct is completely elided under identity with the first disjunct. The leftover negation feature/marker is deleted under identity with the *na* part of *kina*.

(300)   *Ram jaane [Sita jaa-be]*   **kina** *[S̶i̶t̶a̶ ̶j̶a̶a̶b̶e̶ ̶n̶a̶]*
      Ram knows Sita go-FUT.3P KINA Sita   go-FUT.3P
      'Ram knows whether Sita will go.'

In terms of the semantics, I maintain my formulation of *kina* as a disjunctive complementizer that introduces alternatives (as all the sections above have argued for). I propose that the derivation proceeds in the following manner:

(301)
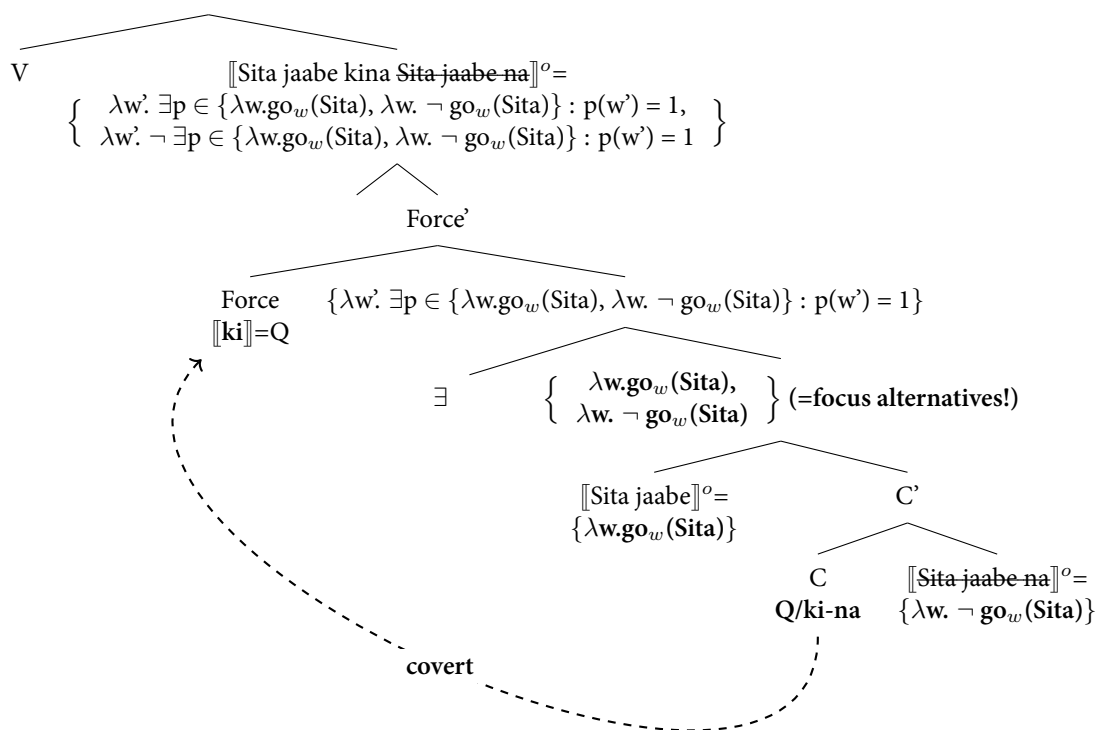
The disjunctive complementizer *kina* introduces a set of focus alternatives comprising its clausal disjuncts: p and $\neg p$. An existential closure operator $\exists$ turns this focus meaning into an ordinary existential statement. The Q operator, which can manipulate ordinary values in addition to focus values (Beck 2006a, Beck and Kim 2006, among many others), takes this existential statement and creates a binary set,[6] resulting in an embedded PolQ reading.

---

[6] For a singleton set approach to polar questions, see Gawron (2001), Biezma and Rawlins (2012), among others.

Two crucial details warrant our attention here: (i) I am assuming head-movement of Q here too, but a covert counterpart of it (unlike the overt movement in the interrogative disjunction configuration); (ii) the $\exists$ operator can access the alternative set before the Q operator (resulting in a PolQ meaning), unlike the structure in (287), where the Q immediately converted the focus set into an AltQ.

These two operations are related. I assume that the overt syntactic movement of *ki* from C to Force in (287) happens as soon as the Force head is merged into the structure. The syntactic string received by the interpretative module thus has Q already in a position to access the alternative set. In contrast, the covert movement in (301) does not have any trigger until after $\exists$ has merged, when the Q operator is needed for interpretation. This results in an embedded PolQ. In contrast, an embedded *AltQ* interpretation with *kina* and two dissimilar disjuncts would be identical to the root configuration: *ki* would move to the Force head in the subordinate clause overtly in the syntax, again as soon as the head is merged, leaving no opportunity for other operators such as $\exists$ to access the set of alternatives. Thus, we can maintain a consistent account of what generates the alternatives and what Hamblin operators access and manipulate those alternatives across all of these constructions, building a strong case for their underlying connectedness, as proposed in this chapter.

Upholding the tenet of preclusion of movement for scopal reasons in Alternative Semantics, Beck and Kim (2006) presents arguments in favor of reanalyzing Larson's island-sensitivity paradigms as focus intervention effects. They argue that it is problematic to assume that there is overt movement of any part of the disjunctive phrase in AltQs. Their analysis, arguing for a Hamblin/Rooth approach to disjunction, propose that focus-sensitive operators such as 'only◻ quantify over the alternatives introduced by the disjunction and consequently 'reset' them, making the disjunctive focus alternatives unavailable to higher operators such as Q. This is also what happens in the cases which Larson (1985a) argued to be islands, the claim being

that the ungrammaticality arises not from the prohibition of movement of a null operator/*whether* across island-boundaries but the intervention of operators between Q and the disjunction phrase.

In Bangla, the theoretical possibility of focus intervention effects occurring in AltQs can still be maintained under my analysis because, as argued above, there is no movement for assigning scope to the disjunction. Alternatives are introduced and computed in-situ and thus another focus-sensitive operator's presence risks disrupting interpretation of an AltQ. Thus, Bangla again stands out in the cross-linguistic territory marked out so far in that a part of the Disjunction Phrase (in Beck and Kim 2006's categorial terms) does move, and yet does not rule out the possibility of focus intervention effects.

However, I demonstrate that focus intervention effects do not arise in Bangla AltQs in Section 5.1.2. They do arise as expected in Bangla *wh*-questions, however. Beck and Kim (2006) strongly defend their claim that in any given language, the set of interveners should be the same in both types (*wh* and AltQs) of questions. Given that hypothesis, it is a puzzle as to why the set of interveners that produce intervention effects in *wh*-questions do not do so AltQs in Bangla. I will propose a solution to this puzzle: the answer lies in the size of the disjuncts. Given my proposal about the syntactic size of *kina*'s disjuncts, a ready answer will be shown to be available for the lack of intervention effects in AltQs.

I first introduce the phenomenon of focus intervention in AltQs, followed by the influential analysis that Beck and Kim (2006) proposes for them. Following that, I lay out the empirical domain of *wh*-intervention effects in Bangla and the lack of the same in AltQs. I then show how the surprising disparity can be accounted for under the proposals proffered in the previous and current chapters.

5 Intervention effects in Alternative Questions

A focus-centered analysis of elements such as indeterminate pronouns or disjunction does automatically carry an important prediction:

(302) The presence of a focus-sensitive operator in *between* the interpreting operator and the base focus-alternatives-generating element can disrupt the relationship, leading to a crash in the interpretation component.

This particular phenomenon was first termed an *intervention effect* in Beck (2006a). She schematized the relevant configuration in the following manner:

(303) *[Q …[OP […*wh*-phrase …]] …]]

The OP is an 'intervener' that disrupts the association between the Q operator and the in-*situ* interrogative phrase. Intervention comes into play in the computation of Hamblin/Rooth alternatives, and does not affect any movement or binding. Focus intervention effects in *wh*-questions have received a lot of attention in the literature. It is now is a robustly cross-linguistic phenomenon attested in languages such as Hindi, Japanese, German, English, Mandarin, Korean (see Li and Law 2016 and the references therein).

Beck (2006a) is the first compositional framework equipped to handle the uninterpretability resulting from intervention in *wh*-questions. Adopting Rooth's focus semantics, Beck's semantics of *wh*-questions is multi-dimensional. A *wh*-phrase is like a focus in that it denotes a set of alternatives as its focus semantic value, but lacks any ordinary semantic value; and both of these properties hold of the larger structure that the *wh*-phrase is contained within. A Q operator has to thus, 'lift' the focus value of its sister into ordinary semantics, failing which, the whole structure would end up with an undefined meaning. I provide a brief introduction to the technology so as to help us understand intervention better.

For a question such as *Who left?*, the various pieces look like the following:

(304)   Who left?

    a.   [Q [$_\phi$ who left]]

(305)   a. $[\![$who$]\!]^o$ = undefined

    b. $[\![$who$]\!]^f$ = D

(306)   a. $[\![\phi]\!]^o$ = undefined

    b. $[\![\phi]\!]^f$ = {p: p = λw. x left in w | x $\in$ D}

(307) $[\![$ [Q [$_\phi$ who left]] $]\!]^o$ = $[\![$ [$_\phi$ who left] $]\!]^f$ = {p: p= λw. x left in w | x $\in$ D}

Thus, the alternatives-introducer *wh*-phrase has a key connection with the Q operator, whereby the latter saves a *wh*-question from uninterpretability.

Enter an intervener, and that connection is disrupted. Before getting to intervention, first let us see how Beck (2006b)'s proposal for focus association works. For a sentence such as *Only John left*, where the focus is associated with the subject, the pieces look like the following.

(308)   a.   Only John left.

    b.   [only [$_\phi$ John$_F$ left]]

The focus-marked constituent has both an ordinary and focus value, both of which project to the sentential structure:

(309)   a. $[\![$John$_F]\!]^o$ = John

    b. $[\![$John$_F]\!]^f$ = D = {John, Bill, Amelie, …}

(310)   a. $[\![\phi]\!]^o$ = λw. John left in w

    b. $[\![\phi]\!]^f$ = {p: p= λw. x left in w | x $\in$ D} = {that John left, that Bill left, that Amelie left, …}

The function of *only* (or for any operator that is accompanied by Rooth's $\sim$ operator, i.e. signaling focus-sensitivity) is denote that out of all the alternative propositions introduced by its sister, there is a single true one.

(311)   a. $[\![\,only\,\phi\,]\!]^o = \lambda w.$ for all p such that $p(w) = 1$ & $p \in [\![\phi]\!]^f : p = [\![\phi]\!]^o$

      b. $[\![\,only\,\phi\,]\!]^f = \{\,[\![\,only\,\phi\,]\!]^o\,\}$

Putting the pieces together, we get the correct truth conditions for the sentence:

(312) $[\![\,[\,only\,[_\phi\,John_F\,left]]\,]\!]^o$

      a. $= [\lambda w.$ for all p such that $p(w) = 1$ & $p \in \{p': p' = \lambda w.\ x$ left in $w\mid x \in D\}$: $p =[\lambda w.$ John left in $w]]$

      b. $= [\lambda w.$ for all x such that x left in w: x=John]

Let us see how this works taking the uninterpretable *wh*-question *Only John invited who?* as an example:

(313)   a.   *Only John invited who?

      b. $[\,Q\,[_\psi\,only\,[_\phi\,John_F\,invited\,who]]]$

(314)   a. $[\![\phi]\!]^o$ is undefined

      (because the *whether* has no ordinary value)

      b. $[\![\psi]\!]^o$ is undefined, hence $[\![\psi]\!]^f$ is undefined

      (since the embedded structure has no ordinary semantic value)

      c. $[\![(313b)]\!]^o$ is undefined

      (since the Q operator needs focus values to operate, and gets none of those from its sister)

This, very briefly put, is the standard analysis of focus intervention effects in *wh*-questions.

Beck and Kim (2006) was the first study to point out that focus intervention effects can also be seen in AltQs. To begin with, the authors point out, following Bartels (1999)

and Han and Romero (2004a), that the only way to get an AltQ reading instead of a PolQ

reading for the following question is to pronounce both disjuncts with focus intonation.

(315) a.   Did Sally teach syntax or semantics?   ✓ PolQ, *AltQ

       b.   Did Sally teach [SYNTAX]$_F$ or [SEMANTICS]$_F$?   ✓ AltQ, *PolQ

The authors list a couple of constructions where *only* the AltQ reading is lost from such

questions, while the PolQ remains unaffected. Han (1999), Han and Romero (2001)

demonstrate this with negation, Beck and Kim (2006) with operators such as *only, also,*

almost, nobody, very few, often, etc in a variety of languages. Representative examples

are provided below:

(316)   Did**n't** Sally teach syntax or semantics?

      a.   Yes.   ✓ PolQ

      b. # Semantics   *AltQ

(317)   Does **only** John like Mary or Susan?   *AltQ

In each case, operators with general properties of interveners (focus association (Beck

2006a), non-additivity (Mayr 2014)) interferes between the in-*situ* disjunction phrase

and the Q operator.

(318) * [Q …[OP […[A or B] …]] …]]

In their conceptualization of intervention effects, Beck and Kim (2006) assign

crucial importance to the syntactic configuration of the construction, in that the

interference of an operator is defined in terms of structural c-command. This set up

predicts that as soon as the *wh* or disjunction phrase is structurally placed higher than

the intervener, the intervener is no longer an intervener. Compare Beck and Kim

(2006)'s minimal pair from German demonstrating this prediction.

(319)   Beck and Kim (2006): (12a, 12c)

    a.   ?* *Hat **nur** Maria [den Jonas oder die Ida] eingeladen?*
        has only Maria the Jonas or the Ida invited
        Intended: 'Did only Maria invite Jonas or Ida?'

    b.   *Hat [den Jonas oder die Ida] **nur** Maria eingeladen?*
        has the Jonas or the Ida only Maria invited?
        'Did only Maria invite Jonas or Ida?'

Such a linear precedence account in which intervention occurs anytime an operator linearly precedes the *wh*/disjunction phrase but not the Q operator crucially predicts that the following sentences should be ungrammatical due to intervention:

(320)   Did Peter only drink [coffee or tea]?

However, this AltQ, where the *only* associates with a disjunction in the object position is completely grammatical in English. Thus, Beck and Kim (2006)'s analysis makes an important incorrect prediction.[7]

The syntactic nature of the intervention effect is also reflected in the following constraint that the authors posit:

(321)   *General Minimality Effect MIN*

    An alternatives-introducing XP such as the [DisjP] cannot have the $\sim$ operator as its closest c-commanding operator:

    a.   * [Q […[$\sim$C [$_\phi$ …[$_{DisjP}$ A or B] …]] …]]

The syncategorematic formulation of the constraint states that the evaluation of alternatives by an XP cannot skip an intervening an $\sim$ operator. This operator is Rooth's $\sim$ operator (usually accompanied by the contextual free variable C), which resets the focus semantic value of the whole structure to a singleton set containing the ordinary semantic value, as per its definition:

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[7]See Li and Law (2016) for a solution to this problem in their quantificational domain approach to focus intervention.

(322)   Rooth (1992)

    a. $[\![\, {}^{\sim}C \, \phi \,]\!]^o = [\![\phi]\!]^o$ if $[\![C]\!]^o \subseteq [\![\phi]\!]^f$, undefined otherwise

    b. $[\![\, {}^{\sim}C \, \phi \,]\!]^f = \{ \, [\![\, {}^{\sim}C \, \phi \,]\!]^o \, \}$

Thus, on such an account, the intervention follows from the Q operator having no alternatives left to evaluate, because the $\sim$ operator gets to the focus alternatives first, and converts them into an ordinary singleton set (a 'non-question meaning', in Beck & Kim's terms).

5.1   Intervention effects in Bangla

In this section, I first demonstrate that *wh*-questions in Bangla do display Beck-style intervention effects. This will mainly be an empirical section that will demarcate the space of possible interveners in Bangla, which we can then test across other types of questions to assess their robustness.

5.1.1   Wh-intervention effects in Bangla

Bangla is a *wh*-in-situ language.[8] Given a Rooth-Hamblin analysis of *wh*-words (see Ramchand 1997 for an analysis of Bangla *k/wh*-words in this framework), an in-situ *wh*-phrase in Bangla may not be c-commanded by an intervener. The data below shows an interesting pattern whereby elements like *only, even, almost everyone, very few, nobody* are interveners in Bangla *wh*-questions, while elements such as *always, every/all, often* are not. Some of the latter elements trigger intervention effects in English and German (Beck 1996, Pesetsky 2000). These differences are in keeping with an observation going back to Beck (1996) that the set of problematic interveners is subject to considerable cross-linguistic variation.

    For each set, I provide an example demonstrating the intervention effect, an example

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[8]See Simpson and Bhattacharya (2003) for a contrary view.

without the intervener, and an example showing that scrambling the *wh*-phrase to a position higher than the intervener obliterates the intervention effect.

(323) a. **Shudhu Maria-i   kaake nemontonno kore-che?*
       only   Maria-EMPH whom invite   do-3P.PRES
       Intended: 'Who did only Maria invite?'

  b. *Maria kaake nemontonno kore-che?*
       Maria whom invite   do-3P.PRES
       'Who did Maria invite?'

  c. *Kaake shudhu Maria-i   nemontonno koreche?*
       whom only   Maria-EMPH invite   do-3P.PRES
       'Who did only Maria invite?'

(324) a. **Praay shobai   kaake nemontonno kore-chilo?*
       almost everyone whom invite   do-3P.PAST
       Intended: 'Who did almost everyone invite?'

  b. *Kaake praay shobai   nemontonno korechilo?*
       whom almost everyone invite   do-3P.PAST
       'Who did almost everyone invite?'

(325) a. ?? *Khub alpo kojon   kaake nemontonno kore-chilo?*
       very few people whom invite   do-3P.PAST
       Intended: 'Who did very few people invite?

  b. *Kaake khub alpo kojon   nemontonno korechilo?*
       whom very few people invite   do-3P.PAST
       'Who did very few people invite?

(326) a. ??/* *Kalke   tomar bari-te   keu   kon   aitem-ta khay-ni?*[10]
       yesterday your   house-LOC someone which item-CL eat-NEG
       Intended: 'Yesterday at your place, which item did no one eat?'

  b. *Kalke   tomar barite   kon   aitem-ta keu   khayni?*
       yesterday your   house-LOC which item-CL someone eat-NEG
       'Yesterday at your place, which item did no one eat?'

Next are a few quantificational elements that do not trigger intervention effects in Bangla *wh*-questions. Elements like *often, always, everyone* are attested interveners in English, Hungarian and German (Lipták 2002), but not in Bangla.

(327)   a.   *Mina sobsomoy kaake daak-to   or   party-gulo-te?*
             Mina always   whom invite-PAST.3P her party-CL-LOC
             'Who did Mina always invite to her parties?'

        b.   *Mina kaake sobsomoy daakto   or   party-gulo-te?*
             Mina whom always   invite-PAST.3P her party-CL-LOC
             'Who did Mina always invite to her parties?'

(328)   a.   *Kaal   shobai/prottyeke ki   khelo?*
             yesterday all/everyone   what ate
             'What did everyone eat yesterday?'

        b.   *Kaal   ki   khelo   shobai/prottyeke?*
             yesterday what ate   all/everyone
             'What did everyone eat yesterday?'

(329)   a.   *Mina praayi kaake daak-to   or   party-gulo-te?*
             Mina often   whom invite-PAST.3P her party-CL-LOC
             'Who did Mina often invite to her parties?'

        b.   *Mina kaake praayi daakto   or   party-gulo-te?*
             Mina whom often   invite-PAST.3P her party-CL-LOC
             'Who did Mina often invite to her parties?'

5.1.2   Do Bangla AltQs have intervention effects?

Beck and Kim (2006) demonstrate with concrete empirical evidence that it appears to be a cross-linguistic truth that the problematic elements triggering intervention effects in *wh*-questions also trigger the same effects in AltQs. In the former case, these interveners disrupt the relationship between the *wh*-phrase and Q; while in the latter, they disrupt the relationship between the disjunction phrase and Q. However, as we will see below, this universal truth appears to not hold in Bangla. Apart from *only*,[11] all of the quantificational elements that were shown to be interveners in *wh*-questions in the previous section do not trigger intervention effects in AltQs.

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[11]It is difficult to construct an intervention-less AltQ with *only*, where the disjunction phrase precedes the intervener, because of the immediately salient object association reading.

(330) a. *Shudhu Maria-i   cha na coffee kheye-che?*
         only   Maria-EMPH tea NA coffee eat-3P.PRES
         Intended: 'Did only Maria drink tea, or coffee?'

(331) a. *Praay shobai   Ram-ke   na Sita-ke   nemontonno kore-chilo?*
         almost everyone Ram-ACC NA Sita-ACC invite   do-3P.PAST
         'Did almost everyone invite Ram, or Sita?'

      b. *Ram-ke   na Sita-ke   praay shobai   nemontonno kore-chilo?*
         Ram-ACC NA Sita-ACC almost everyone invite   do-3P.PAST
         'Did almost everyone invite Ram, or Sita?'

(332) a. *Khub alpo kojon   Ram-ke   na Sita-ke   nemontonno kore-chilo?*
         very few people Ram-ACC NA Sita-ACC invite   do-3P.PAST
         'Did very few people invite Ram, or Sita?'

      b. *Ram-ke   na Sita-ke   khub alpo kojon   nemontonno kore-chilo?*
         Ram-ACC NA Sita-ACC very few people invite   do-3P.PAST
         'Did very few people invite Ram, or Sita?'

(333) a. *Kalke   tomar bari-te   keu   Ram-er   sathe na Sita-r*
         yesterday your   house-LOC someone Ram-GEN with NA Sita-GEN
         sathe kotha bole-ni?
         with talk   say-NEG
         'At your house yesterday, did no one talk to Ram, or Sita?'

      b. *Kalke   tomar bari-te   Ram-er   sathe na Sita-r   sathe*
         yesterday your   house-LOC Ram-GEN with NA Sita-GEN with
         keu   kotha bole-ni?
         someone talk   say-NEG
         'At your house yesterday, did no one talk to Ram, or Sita?'

The elements that were not interveners in *wh*-questions are not interveners in AltQs either.

(334) a. Mina sobsomoy Ram-ke na Sita-ke daakto or party-gulo-te?

      b. Mina Ram-ke na Sita-ke sobsomoy daakto or party-gulo-te?
         'Did Mina always invite Ram, or Sita to her parties?'

(335) a. Kaal shobai Ram-er sathe na Sita-r sathe dekha korlo?

     b. Kaal Ram-er sathe na Sita-r sathe shobai dekha korlo?
        'Did everyone meet Ram, or Sita yesterday?'

(336) a. Mina praayi Ram-ke na Sita-ke daakto or party-gulo-te?

     b. Mina Ram-ne na Sita-ke praayi daakto or party-gulo-te?
        'Did Mina often invite Ram, or Sita to her parties?'

Thus, interrogative disjunction *kina* in Bangla AltQs do not appear to be affected by the presence of focus interveners (apart from *only*, for which I will provide an explanation). Adopting a Rooth-Hamblin analysis of disjunction, as I have in this chapter, then appears to make the wrong prediction: disjunctive alternatives, if they are indeed focus alternatives, should be sensitive to the presence of focus-sensitive operators other than Q, but are not. Then, we either have to give up a Rooth-Hamblin analysis of disjunction or stipulate an approach which claims that focus alternatives in AltQs (but not in *wh*-Qs) are at a different dimension which is invisible to interveners but somehow visible to operators like Q and ∃.

In the next section, I will argue that we do not need to walk down any of these paths. We can retain a Roothian-Hamblinized system of disjunction, as well as a traditional conception of focus intervention. The reason for the disparity in Bangla *wh* and AltQs arise from the size of the disjuncts in the latter, an issue that is not present for the former. This explanation can also bring the exceptionality of *only* in the data above into the fold. In addition, I present a comparison with Hindi AltQs to argue that the size of the disjuncts make a crucial difference there too.

6   Does size matter?

One of the main claims defended in the previous chapter was that *kina* is a disjunctive complementizer that takes TPs as complements (analogous in a few respects to Han and

Romero 2004b's analysis of Hindi AltQs). Sub-clausal surface structures were shown to be derived via ellipsis and backward gapping in some cases. This syntactic setup seems to be a plausible account of the Bangla facts. Similar 'big disjunct' approaches have been taken for other languages as well: Gračanin-Yuksek (2016) argues that Turkish AltQs involve full CP disjuncts; Uegaki (2014) argues that Japanese AltQs involve disjunctions of whole PolQs; Pruitt and Roelofsen (2013, 2011) propose that English AltQs involve disjunctions of full CPs.

However, in the literature on the semantics of AltQs, especially within the Alternative Semantics framework, both movement and ellipsis within the disjuncts are considered to be at odds with the fundamental tenets of the theory. Especially, as Beck and Kim (2006) (p.204) put it, the presence of intervention effects "puts a roof on the size of the disjuncts, in that an analysis must be excluded in which the intervener is part of the disjuncts and has been elided, such as":

(337) $[Q\ [_{DisjP}\ [\ \text{only}_C\ [\sim C\ [_{IP}\ \text{Mary [intro. Sue to Bill]}]]]]\ \text{or}\ [\ \text{only}_C\ [\sim C\ [_{IP}\ \text{Mary}$ [intro. Sue [to Tom]]]]]]

(Beck and Kim 2006: 148)

If such a structure were indeed possible, the authors argue, then the AltQ below should not have been ungrammatical, because there would have been no intervention effect:

(338) ?? Did only Mary introduce Sue to Bill or (to) Tom?

The authors further go on show that in languages with consistent intervention effects in both *wh*-questions and AltQs such as English and German, in constructions where the intervener is in both disjuncts and is not elided, there is no intervention effect:

(339) a. *Hat* [*nur die erste Mannschaft gewonnen*] *oder* [*nur die zweite*]?
            has   only the first   team   won   or   only the second
            'Did only the first team win or only the second?'

    b.   *Hat [nur   der Peter gespielt] oder [auch der Fritz]?*
       has   only the Peter played or   also the Fritz
       'Did only Peter play, or Fritz too?

    c.   Did nobody sing or nobody dance?

Erlewine (2017) demonstrates the same effect for Mandarin AltQs: when *only* is repeated in every disjunct, it is no longer an intervener:

(340)   *[[$_{CP}$ Zhiyou [ZS]$_F$ xihuÄ⊠n LS (ne)] haishi [$_{CP}$ zhiyou [ZS]$_F$ xihuÄ⊠n*
        only ZS   like   LS ɴᴇ ʜᴀɪsʜɪ   only ZS   like
     WW (ne)]]?
     WW ɴᴇ
     'Does only ZS like LS or does only ZS like WW?

This set of facts, Beck and Kim argue, puts a potential Han and Romero-style analysis (big disjunct + repetition of the intervener in each disjunct + ellipsis of that intervener and other material) in jeopardy. This is especially in light of a constraint Han and Romero (2004a)'s propose:

(341)   Focus Deletion Constraint (FDC)

    Focus-marked constituents at LF (or their phonological locus) cannot delete at Spell-Out.

The authors adopt this idea from previous literature: Heim (1997) applied this constraint to antecedent-contained ellipsis; Merchant (2001) used it for sluicing; and Romero (2000) for reduced conditionals.

The FDC allows Han and Romero to account for the grammaticality contrast between (a) and (c) below; (b) and (d) are the LF structures of the two sentences, respectively:

(342)　a.　?? Either he REALly IS going out with MarTIna or with SUE.

　　　b.　*either [[$_{CP_1}$ VERUM$_F$ he REALly IS going out with MarTIna$_{F_1}$]$^\sim$C]$^\sim$C$_1$ or [[$_{CP_2}$ ~~VERUM$_F$ he REALly IS going out~~ with SUE$_{F_2}$]$^\sim$C'$_2$

　　　c.　Either he REALly IS going out with MarTIna or he REALly IS going out with SUE.

　　　d.　either [[$_{CP_1}$ VERUM$_F$ he REALly IS going out with MarTIna$_{F_1}$]$^\sim$C]$^\sim$C$_1$ or [[$_{CP_2}$ VERUM$_F$ he REALly IS going out with SUE$_{F_2}$]$^\sim$C'$_2$

What makes (a) ungrammatical and (c) grammatical? Notably, both have the exact same LF representations. Han and Romero argue that the answer lies in the material that is pronounced at Spell-Out: the ungrammaticality of (a) is the result of deleting a focus-marked constituent (*REALly*) and its phonological locus (VERUM$_F$), while (c) is grammatical because no focus-marked constituent is deleted or left unpronounced at Spell-Out.

It is in light of this FDC constraint that Beck and Kim argue against the structure in (337). And indeed, if the constraint did not hold we would expect (338) to be a grammatical AltQ with the relevant interpretation, i.e. each disjunct associated with *only*. Thus, we can glean two crucial insights from this discussion:

(343)　a.　The repetition of an intervener in each disjunct results in the absence of intervention effects.

　　　b.　The deletion of one of those interveners and its focused-marked constituent violates the FDC, and should result in ungrammaticality.

Both of these insights are highly relevant for our discussion of the lack of intervention effects in Bangla AltQs, as seen in Section 5.1.2. We can maintain the big disjunct claim consistently across the previous and current chapter:

(344)   The lack of focus intervention effects in Bangla AltQs is the result of the potential intervener being present in each disjunct.

Taking the quantifier *few* (which is an attested intervener in English AltQs) as an example, the underlying structure of the Bangla AltQ (*Did very few people invite Ram, or Sita?*) would look like the following:

(345)   [Q/**ki**$_i$ [**Khub alpo kojon** Ram-ke$_F$ nemontonno korechilo] t$_i$-na [**khub alpo kojon** Sita-ke$_F$ nemontonno korechilo]]?

The focus-sensitive operator *khub alpo* ('few') is present in both disjuncts of *kina*. The *ki* has moved out of the disjunctor head in the syntax, and at LF it is the Q operator. I present an derivation below to show how intervention effects do not arise in this configuration.

Beck (2006b) assumes that quantifier as well as focus operators can be accompanied by Rooth's $\sim$ operator (predicting focus-affected interpretations of quantifiers studied in Herburger 1993, Krifka 1990, among others), which resets the focus semantic value of the whole structure to a singleton set containing the ordinary semantic value, as defined in (322) above. Assuming this operator (and the contextual free variable C) to be present as an accompaniment to the quantifier *khub alpo* ('few') in each of the disjuncts in (345) (without getting into the technicalities of the semantics of the quantifier), we can see how an intervention effect is avoided in the structure :

(346)   a.   [Q [$_\phi$ few people invited RAM$_F$] t-*na* [$_\phi$ few people invited SITA$_F$]

      b.   = [Q [$_\phi$ few people invited RAM$_F$]$\sim$C$_1$ t-*na* [$_\phi$ few people invited SITA$_F$]$\sim$C$_2$

(347)   a. $[\![Ram_F]\!]^o$ = Ram

      b. $[\![Ram_F]\!]^f$ = {Ram, Shyam, Jodu, …}

(348)   a.   [[few people invited Ram$_F$]]^o = λw. invite$_w$(few-people, Ram)

       b.   [[few people invited Ram$_F$]]^f = $\left\{ \begin{array}{l} \lambda\text{w. invite\_w(few-people, Ram),} \\ \lambda\text{w. invite\_w(few-people, Shyam),} \\ \lambda\text{w. invite\_w(few-people, Jodu)} \end{array} \right\}$

After the generation of these focus alternatives, the $\sim$ applies to this set and resets the focus value to an ordinary value:

(349)   [[[few people invited Ram$_F$]]^f]$^\sim$C = λw. for all x such that few-people invited x invited x in w : x = Ram

The exact same computation takes place in the second disjunct too, with [Sita]$_F$. After that, the disjunctor *kina* takes these two disjuncts (within each of which the focus-sensitive operator has already associated with the F-marked material) and forms a set:

(350)   [Disjunct 1] *kina* [Disjunct 2] = { λw. for all x such that few-people invited x invited x in w : x = Ram, λw. for all x such that few-people invited x invited x in w : x = Sita }

Thus, this leaves us with no configuration in which the focus-sensitive operator is intervening in the relationship between the disjunctor and Q (aka *ki* after it moves out). Thus, this system, assuming a structure with clausal (TP) disjuncts where the intervener gets repeated in each disjunct explains the lack of intervention effects in Bangla AltQs.

The second important insight in (343) is that ellipsis of a focus-marked constituent should be ungrammatical because it violates the FDC. In the previous chapter, I argued that in Bangla AltQs, though the disjuncts are full TPs underlyingly, the sub-clausal surface structure of the disjuncts is the result of backward gapping in the first disjunct, and ellipsis of the subject in the second disjunct. Given that I am assuming ellipsis, it is important to investigate if this analysis ends up violating the FDC and over-generating.

If we again look at out representative example, we see that in this structure no focus-marked constituent is being deleted. The intervener, being in the subject position is elided in the second disjunct but the focussed constituents [RAM] and [SITA] are preserved in both disjuncts. This analysis, thus, does not violate the FDC.

(351)   [ki [**Khub alpo kojon** Ram-ke$_F$ ~~nemontonno korechilo~~] t-na [~~khub alpo kojon~~ Sita-ke$_F$ nemontonno korechilo]]?

Thus, we have managed to keep the clausal disjunct analysis consistently defensible and plausible across both syntactic and semantic explorations into Bangla AltQs, while predicting and explaining the lack on intervention effects in the construction.

The exceptionality of *shudhu* ('only') in Bangla can also be explained in this framework. Recall that *shudhu* stood out in the empirical landscape above because, in addition to being a *wh*-intervener, it is also an intervener in Bangla AltQs. We can explain this exceptionality by looking at *only*'s attachment site as well as its association.

Consider our representative example below, for which I have provided the underlying structure in addition to the ellipsis sites. The particle *only* attaches above the TP in most analyses of focus intervention (Rooth 1992, Beck 1996, Beck 2006a, Beck and Kim 2006, Erlewine 2017, among others), and thus cannot get repeated in each disjunct of *kina*. In addition, given that *only* associates with the subject below, deletion of the subject in the second disjunct results in a violation of the FDC.

(352)   [Q/ki$_i$ shudhu [$_{TP}$ Maria cha ~~kheyeche~~] t$_i$-na [$_{TP}$~~Maria~~ coffee kheyeche]?

In the next section, I provide a concise comparison with Hindi AltQs and show that there is a crucial difference between the two languages.

6.1   Hindi

In the previous chapter on the syntax of alternative questions, I discussed Han and Romero (2004b)'s influential analysis of AltQs, in support of which they provided some key Hindi and Korean data. In particular, they consistently entertain the possibility that Hindi (as well as Korean) AltQs are disjunctions of two VPs instead of two TPs. Their main claim is that disjunction in English as well as these other languages is clausal, and since under the VP-internal Subject Hypothesis, a VP is clausal, VP disjunctions are completely plausible.

I will argue below that an investigation of focus intervention effects in Hindi AltQs (as compared to *wh*-Qs) does make the VP disjunction option necessary. The IP disjunction hypothesis leads to incorrect predictions.

6.1.1   Intervention Effects in Hindi

Malhotra (2009) demonstrates that focus markers like 'also' and 'only' induce strong intervention effects in *wh*-questions in Hindi:

(353)   Malhotra (2009): (40-41)

    a. * *John-hi   kyaa khaaye-gaa?*
       John-only what eat-will
       Intended: 'What will only John eat?

    b. * *Kisi-ne-bhi kyaa nahi kharidaa?*
       noone   what not bought
       Intended: 'What did no one buy?

Both of these focus particles also cause focus intervention effects in Hindi AltQs (neither Han and Romero 2004b nor Han and Romero 2004a discuss intervention effects in Hindi). For each of the focus particles, I present the intervention effect example and a repaired example showing that scrambling the disjunction phrase to a position higher

than the intervener makes the sentence grammatical:[12]

(354) a. *_Kisi-ne-bhi_   _Ram-ko   nahi dekha thaa   yaa Sita-ko?_
          noone-ERG-also Ram-ACC NEG see   be.PAST.M or Sita-ACC
          Intended: 'Did no one see [Ram]$_F$ or [Sita]$_F$?'

       b. _Ram-ko   yaa Sita-ko kisi-ne-bhi   nahi dekha thaa?_
          Ram-ACC or   Sita-ACC noone-ERG-also NEG see   be.PAST.M
          'Did no one see [Ram]$_F$ or [Sita]$_F$?'

(355) a. *_Sirf John-ne-hi   Ram-ko   dekha thaa   yaa   Sita-ko?_
          only John-ERG-only Ram-ACC see   be.PAST.M Sita-ACC
          Intended: 'Did only John see [Ram]$_F$ or [Sita]$_F$?'

       b. _Ram-ko   yaa Sita-ko sirf John-ne-hi   dekha thaa?_
          Ram-ACC or   Sita-ACC only John-ERG-only see   be.PAST.M
          'Did only John see [Ram]$_F$ or [Sita]$_F$?'

Thus, Hindi is an instantiation of a language in which the same set of interveners show intervention effects in both types of questions.

The question that can be asked is: does the analysis that has already been proposed for Hindi AltQs (Han and Romero 2004b,a predict the possibility of intervention effects in AltQs? Recall that Han and Romero defend the following clausal disjunct + ellipsis analysis for Hindi AltQs:

(356) a. _(Kyaa) Chandra-ne   coffee pii   yaa chai?_
          what   Chandra-ERG coffee drink-PFV or   tea
          'Which of these two things did Chandra drink: coffee or tea?'

       b. _(Kyaa) Q [Chandra-ne   coffee pii]   yaa [~~Chandra-ne~~ chai_
          what   Q Chandra-ERG coffee drink-PFV or   ~~Chandra-ne~~ tea
          pii]?
          ~~drink-PFV~~

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[12]I am grateful to Ayesha Kidwai, Divya Chaudhry, Deepak Alok and Sakshi Bhatia for the judgements. There was a crucial point of variation between the 4 speakers: 3 of them found the intervention examples completely ungrammatical while the other speaker found it well-formed. I offer a tentative hypothesis in the text for what the locus for the variation could be.

Essentially, if we examine Han and Romero's claim that this is a disjunction of TPs, it is immediately fairly obvious that we will run into the issues discussed in the previous section. The intervener in question should be able to be repeated in each disjunct (like in Bangla) and thus, result in the lack of any intervention effects. This is however, not what we see; we see robust intervention effects in Hindi AltQs.

For a plausible explanation of the intervention effects, I would argue that there is crucial difference between Hindi and Bangla: the former has VP-sized disjuncts, while the latter has TP-sized disjuncts. Han and Romero hint at several points that they consider VPs and IPs to be interchangeable; however, it is important to stress that the focus intervention data points us to a VP analysis over an IP analysis. Thus, we can reanalyze the AltQ above in the following manner:

(357)   a.   [Q [IP kisi-ne-bhi [VP Ram-ko nahi dekha thaa] yaa [VP Sita-ko nahi dekha thaa]]]

The repaired example, i.e. the construction without the intervention effect would have a complicated structure, given the clausal size (VP) of the disjuncts. Without going into too much detail, I posit the following structure as a representative of a plausible configuration in which the intervener ends up in a position below the disjunction phrase.

(358)   [Q [$_{DisjP}$ [$_{VP}$ Ram-ko t$_{vP}$] yaa [Sita-ko t$_{vP}$]] [$_{IP}$ kisi-ne-bhi t$_{DisjP}$ [$_{vP}$ nahi dekha tha]]]

Adopting an idea that Han and Romero (2004b) mention briefly, I propose that the *v*P has night-node-raised out of both VP disjuncts, and the remnant Disj(unction)P (containing the two objects of the predicate) is then scrambled to a position higher than the intervener *kisi-ne-bhi*. This is how an intervention effect is avoided. Note that crucially, this avoidance arguably only works on the VP-disjunct hypothesis. The

TP-disjunct hypothesis, which is Han and Romero (2004b)'s central claim - would predict the lack of any intervention effects in the first place, given the occurrence of the intervening subject *kisi-ne-bhi* in each disjunct.

Thus, we can conclude, based on our investigations into focus intervention effects in Bangla and Hindi AltQs that the size of the disjuncts across languages do matter. The differences among languages with respect to disjunct size have important interpretative consequences, whereby they result in cross-linguistic variation on the presence or absence of intervention effects.

7 Conclusion

This chapter ventured on the mission of deciphering the deep connections between disjunction and interrogation. The discussion was centered around two main directions: (i) finding a unified semantics for the clausal-alternatives-embedder *whether* and interrogative disjunction in Bangla; (ii) providing a semantic theory that captured the boolean-interrogative divide in the language and its interaction with questions. Drawing evidence from focus intervention effects, as well as the relatively under-explored area of disjunction neutralization, this chapter demonstrated that a unified theory of alternative questions vis-a-vis a refined disjunction space is plausible within the Alternative Semantics framework. The claims made in this chapter, coupled with the syntactic claims of the previous chapter, have non-trivial cross-linguistic predictions, and some of those predictions were discussed and shown to be borne out via a comparative investigation of Mandarin and Hindi. Bangla alternative questions, thus, provide us with a vital window into the landscape of disjunction and questions.

Chapter 5

Conclusion

The central focus of this dissertation is an exploration into the interaction of speech-acts with perspective-sensitivity and disjunction. The former is represented by the detailed study of evidentiality, and the latter by the study of alternative questions. The empirical focus is on Bangla, in which both evidential particles and interrogative/non-interrogative disjunctors exhibit restrictions pertaining to the speech act they appear in.

I argue for a theory of evidentiality that is sensitive to the syntax-semantics-pragmatics interfaces. In the syntax, I adopt (following Speas and Tenny 2003) a refined view of the left periphery that contains several distinctions within the speech act projection - a SPEAKER, ADDRESSEE and a SEAT-OF-KNOWLEDGE. All of the three coordinates function as perspective-encoders. The SEAT-OF-KNOWLEDGE has to have an index in order to signify whose point-of-view is salient with respect to the embedded content: it can be co/contra-indexed with the SPEAKER (and ADDRESSEE). One of my claims is that, in addition to the high left periphery, finite clauses have perspective-sensitive coordinates as well. In particular, finite clauses are a partial mirror of the high left periphery in that they contain SPEAKER and ADDRESSEE coordinates, which are strict control operators in that they need indices at every point

in the derivation. This system thus sets up a dependency between perspectival heads across finite clauses and the highest regions of the left periphery, which allows for tight referential patterns of syntactic perspectives.

Evidentials fit naturally into this system. I propose that evidentials crucially take only finite clauses as complements, and thus are automatically sensitive to the syntactic perspective these clauses encode. The different semantic flavors of evidentiality are derived from a 'judge' that is the SEAT-OF-KNOWLEDGE coordinate in the left periphery. Given the various possible patterns of indexation, the valuation of the judge parameter differs in the semantic module. Compositionally, the judge is a variable that is encoded in the meaning of an evidential. Thus, different syntactic perspectives arising out of control and indexation amount to varying evidential interpretations such as INFERENTIAL, REPORTATIVE, etc. The literature on evidentiality does not contain such an interface-oriented treatment of the phenomenon. I argue that this cross-module approach of towards the study of evidentials can allow us a richer system of distinction and a greater understanding of the universal properties of such perspective-sensitive elements cross-linguistically.

This novel way of approaching evidentiality in particular helps shed light on an interesting puzzle in Bangla. The evidential *naki* was studied in-depth in this dissertation, which changes its evidential flavor based on its syntactic position. The syntactic configuration of perspective-sensitivity and the consequent interpretative consequences were jointly shown to be able to achieve a unified analysis of this evidential (contrary to previous work on the topic such as Mukherjee 2008 and Xu 2017 who have posited a lexical ambiguity account of the evidential). In the analysis laid out in this dissertation, there is only one lexical item *naki* that, depending on the different combinations of variables described above, shows up with differing evidential interpretations.

I also argue for a dynamic pragmatic component in the contribution of evidentials.

This component makes novel fine-grained distinctions within the traditional notions of commitment and sourcehood (Gunlogson 2004, 2008; Farkas and Bruce 2009). In essence, I argue that Gunlogson's Independent/Dependent sources should be further classified into Involved (committed) or Uninvolved (not committed) sources of the information offered in an utterance. This classification gives rise to non-trivial typological predictions, which I argue are desirable - different kinds of evidentials have distinct places in this new typology predicated on sourcehood and commitment. For example, the use of a REPORTATIVE evidential makes the speaker an Uninvolved Independent source, while an INFERENTIAL evidential makes the speaker a Involved Independent source. Commitments have internal structure too - they can be tentative (cf. Gunlogson 2008) or absolute. Sourcehood and commitment are also sensitive to speech-act distinctions: the underlying properties of varying genres of canonical and non-canonical questions such as polar, biased, rhetorical, conjectural can be accurately accounted in this fine-grained system of pragmatic contributions. The discourse is shown to be structured and shaped by these distinctions in significant ways, which cannot be accounted for in obvious ways in the analyses available in the literature.

The dynamic pragmatic analysis offered in the dissertation also forges another novel link - between Interrogative Flip and bias. I adopt the operators $\uparrow$ and $\downarrow$ (following Bartels 1999, Davis 2009) which have semantic purport: they add to agent's tentative or actual commitment sets. I argue that the evidentials of the world come in two shapes: those that license $\uparrow$ and those that do not. The latter are languages with Interrogative Flip and the former are languages without the Flip. The crux of the analysis can be stated as follows: when the $\uparrow$ is licensed by an evidential, the proposition in its scope is added to the speaker's tentative commitment set, making the speaker an Involved Independent source asking for confirmation of the prejacent. This Involved Independent status of the asker of a question crucially leads to the presence of bias in questions, I argue. This sourcehood status is also fundamentally different from

that of an agent in an Interrogative Flip construction: the evidential is anchored to the addressee, who is expected to choose either the prejacent of the question or its negative counterpart. The asker of a question is unambiguously a Dependent source in this configuration, communicating no personal knowledge of the validity of either the prejacent or its polar counterpart. This is the essence of the phenomenon of Interrogative Flip. Thus, my analysis locates the difference between Flip-ping languages and non-Flip-ping languages in a formal semantic property: licensing of $\uparrow$ by the evidential in question. This formal property predicts the presence or absence of bias in questions with evidentials, and forges a cross-linguistic link between evidentiality and bias.

The second part of the dissertation is an exploration of alternative questions. I defend an unification claim in this domain as well - interrogative disjunction and *whether* are underlying the same item in Bangla. This item is a concatenation of a Q head and a disjunctor morpheme - I term it the Q-Disj complex. Thus, alternative questions are formed with this Q+'or' element, and so is the clausal-disjunction embedder *whether*. I defend this claim across the syntax-semantics interfaces. The surface differences between the two constructions is shown to be derivable from the syntactic processes of head-movement and ellipsis. In addition, an Alternative Semantics-theoretic analysis is proposed that claims that this Q-Disj complex unilaterally introduces focus alternatives into the structure.

The nature and behavior of this Q-Disj complex raises non-trivial questions of cross-linguistic import. Crucially, I argue that in alternative questions, the Q-Disj complex introduces Hamblinian focus alternatives in its base-generated position. These alternatives are then manipulated by the moved operator head Q itself, thus making the Q-Disj complex a concatenation of an alternatives-introducer and an alternatives-manipulator. This claim presents Bangla as a language that embodies a connection discussed in Jayaseelan (2008) between Q-particles and disjunction: in

languages such as Tetun, Malayalam, Kannada, Chinese and Sinhala, the Q particle also functions as the disjunction head, strongly suggesting that Universal Grammar encodes overlapping properties between the two categories underlyingly. Such a link between interrogative disjunction and *whether* then, while appearing arguably plausible for Bangla, raises the frequency issue - do more languages embody this link? My analysis would predict an affirmative answer, given that it is mediated on a claim about Universal Grammar. I leave such typological survey for future research.

The analysis of alternative questions is also designed to be able to account for the interrogative-boolean divide in the Bangla disjunction space. Given the proposal that what exists underlyingly is the Q-Disj complex, the link with interrogation is a natural one. This proposal is able to explain the ungrammaticality of the appearance of the Bangla non-interrogative marker in questions. I investigate the Bangla paradigm in contrast with Mandarin Chinese, which also demonstrates the interrogative-boolean divide. In Bangla, the overt presence and head-movement (which is overt in the case of alternative questions and covert in the case of constructions with *whether*) of the Q-particle are jointly the underlying key to the various surface paradigms that are discussed.

Overall, I have pursued the idea that speech acts and clausal types very significantly overlap with domains of perspective-sensitivity and disjunction. Within the sphere of speech acts, I have investigated varying forms - declaratives, rising declaratives, polar questions, biased questions, tag questions, alternative questions and split questions. The underlying principles of structure and computation proposed in this work may potentially be extended to related phenomena such as epistemic modals, expressives, appositives, and various other speech-act sensitive, perspective-encoding constructions such as *because, since*, etc as well as adverbial constructions of the evaluative, epistemic, evidential, and illocutionary kinds. The focus of this work has been to take an approach that is informed of and crucially effectuated at the syntax-semantics-pragmatics

interfaces. I hope the frameworks proposed in this dissertation can aid the treatment of these related questions and phenomena in a similar manner.

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