Where is Perspective-Sensitivity Headed?

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1 How important is perspective?

- Perspective-sensitivity is a special type of context-sensitivity such that a grammatical perspective is made salient syntactically, semantically, and pragmatically.

- A whole host of elements in natural language have been claimed to be perspective-sensitive, i.e., they require an anchor to orient to.

- These include: predicates of personal taste, vague predicates, epistemic modals (embedded and matrix), evidentials (embedded and matrix), high adverbs, spatial expressions, because and since clauses, relative clauses, appositives, relative socio-cultural expressions, and anaphora (logophoric anaphors, exempt anaphors, long distance anaphors).

- Depending on the evaluation of the grammatically encoded perspective of this anchor, the sentence containing such a heterogeneous array of elements may be true or false.

   a. It might be raining.
   b. Sam thinks it might be raining.

(2) Predicates of Personal Taste (Lasersohn 2005, Stephenson 2007, a.o.)
   a. This rollercoaster is fun.
   b. Sam thinks the rollercoaster is fun.

(3) Embedded and unembedded Appositives (Harris and Potts 2009)
   a. The other day, she told me that we need to watch out for the mailman, a possible government spy.
   b. The other day, she refused to talk with the mailman, a possible government spy.

(4) Spatial expressions & Evidentials (Partee 1989, Oshima 2006, Bylinina et al. 2015)
   a. The man sitting on the left was a foreigner.
   b. daremo [rōshiago hanashi-soo-na] otoko-o
      anybody [Russian-ACC speak-EVID.INF-COP] man-ACC
      shootaishinakatta invited.NEG
      ‘Nobody invited a man who they / I thought might speak Russian.’

- Where does this point-of-view come from?
The structural encoding of discourse participants, with non-trivial semantic consequences.

- Many different proposals of the (left) periphery have been formulated to represent perspective grammatically (cf. Ross 1970, Speas and Tenny 2003, Haegeman and Hill 2013; Hill 2013; Krifka 2013; Woods 2014; Wiltschko 2016, a.o.).

- Crucially, all of these are formulations of the Speech Act Layer, leading to a multitude of definitions of what a speech act is:

In this talk, I will argue that:

- Structural encoding of perspective is tied to finiteness; more concretely, to coordinates inside a finite clause.
- Co-indexation and contra-indexation patterns between these coordinates and those in the Speech Act domain can help explain some puzzling behavior of PSIs.
- Semantic computation mechanisms are directly correlated with the articulated syntax, leading to disambiguation of interpretations.

2 A Puzzle

- In Bangla (also known as Bengali; SOV, Indo-Aryan), depending on the syntactic position of the evidential, the flavor of evidentiality changes.

(5) Bhadra (2018a): (2,3)

a. *Mina amerikachol-eja-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)?’

b. *Mina naki amerikachol-eja-cche? reportative*

   Mina NAKI America go-IMPV go-3P.PRES.PROG

   ‘(Given what I heard), Mina is going away to America (is it true)?’

- Interestingly, apart from the syntactic position correlation, a similar ambiguity in flavor of evidentiality can be found in some English high adverbs:

(6) Across the hallway, all of the rooms are dark, except for Ram’s.

a. Q: Is anyone here?

b. A: (Apparently) Ram (?apparently) is here (apparently).

c. A: (Evidently) Ram (?evidently) is here (evidently).
Ram heard a rumor about Laxman at the party, and he is now relaying it to Sita.

a. (Apparently) Laxman (apparently) didn’t get into med school (apparently).

b. (Evidently) Laxman (evidently) didn’t get into med school (evidently).

This kind of ambiguity is due to the difference in the perspectival center of the PSIs.

The syntactic anchoring of perspective has crucial consequences that lead to a difference in the flavor of evidentiality.

3 Coordinates of a Finite Clause

3.1 Matrix and Embedded Speech Events

- 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 a finite indicative clause as far as syntactic properties are concerned (Dasgupta 1996; Datta 2016), cannot have independent assertive force.

- Ramchand (2014) 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).

(8) [Force [(Topic⁺) [(Focus) [+Fin⁺ (Speech Event Sₑ) [... Tense VP]]]]]

- The ‘speech event’ Sₑ 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.

(9) 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 to only the +finite head in the structure, to which the -finite heads are anaphorically related:
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, schematically represented as:

\[
\text{Gianni}_i \text{ asked}_j \text{ Maria}_j \text{ [iLC}_1 \text{ Person}_j \text{ to cook the dinner].}
\]

The iLC is co-indexed with the matrix verb, as per the formulation in (10b).

3.2 Proposal

- In addition to the two coordinates above, a [+finite] Fin° also encodes two **other coordinates**, which are null coordinates of the **finite utterance** and not the event. (Bhadra 2017).

- 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).

- 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°’s **speaker** and **addressee** of the finite clause: Fin° speaker, Fin° addressee.

- **They are not the arguments of the matrix verb.**

\[
\text{FinP} \\
\text{FINspeaker} \\
\text{FINaddressee} \\
\text{Fin'} \\
\text{Fin} \\
\text{TP} \\
\text{Gianni} \\
\text{asked} \\
\text{Maria} \\
\text{...}
\]

- [-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**
The notation \( \text{SA} \) speaker and \( \text{SA} \) addressee - refer to the Speas-Tennyian speech act coordinates.

The notation \( \text{FIN} \) speaker and \( \text{FIN} \) addressee - refer to the coordinates of the finite clause, as projected by \( \text{Fin} \).

Making these distinctions between speech act participants and finite clause participants help us to make important distinctions:

\[
(13) \quad \text{Ram} \quad \text{[} +_{\text{finite}} \text{Fin sang at the party yesterday}] \]

Speech Act: \( \text{SA} \) speaker = John, \( \text{SA} \) addressee = Mary

Finite clause: \( \text{FIN} \) speaker = John, \( \text{FIN} \) addressee = Mary

\[
(15) \quad \text{Ram reportedly} \quad \text{[} +_{\text{finite}} \text{Fin sang at the party yesterday}] \]

Speech Act: \( \text{SA} \) speaker = John, \( \text{SA} \) addressee = Mary

Finite clause: \( \text{FIN} \) speaker = reporter = a third party (cannot be John himself), \( \text{FIN} \) addressee = John (could have been told directly or he could have overheard it).

\[
(16) \quad \text{[ Ram presumably} \quad \text{[} +_{\text{finite}} \text{Fin sang at the party yesterday} \text{]} \]

Speech Act: \( \text{SA} \) speaker = John, \( \text{SA} \) addressee = Mary

Finite clause: \( \text{FIN} \) speaker = John, \( \text{FIN} \) addressee = Mary

- My proposal thus makes finite clauses perspective-sensitive because of the presence of these two extra coordinates.
- A syntactic way to think about perspective-sensitivity resulting from finite clauses introducing \( \text{FIN} \) speaker and \( \text{FIN} \) addressee operator-like elements is with respect to binding and agreement.
- Finite clauses with these operators should then be able to enable the following two scenarios:

a. In languages with attested indexical shift, indexicals inside a finite clause should be able to take \( \text{FIN} \) speaker and \( \text{FIN} \) addressee as antecedents.

b. Since \( \text{FIN} \) speaker and \( \text{FIN} \) 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 will now show that both of these predictions are borne out. To illustrate (17a), I draw on the indexical shift and complementizer agreement literature, and to illustrate (17b), I discuss the presence of indexical shift across multiple embedded clauses cross-linguistically.

3.3 Motivating a P-S finite clause

3.3.1 Indexical Shift and Complementizer Agreement

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, 1P and 2P indexicals have to shift only when they appear in the finite complement clause constructions, and they are banned from shifting in the nominalized clauses.

(18) Uyghur (Shklovsky and Sudo 2014: 4a-b)

   a. nominalized complement
      Ahmet [1.SG. GEN leave-REL-NMLZ-1SG-ACC] say-PAST.3P
      ✓ (non-shifted) ‘Ahmet said that I speaker left.’
      * (shifted) ‘Ahmet, said that he, left.’

   b. finite complement
      Ahmet [1 leave-PAST.1SG] say-PAST.3P
      ✓ (non-shifted) ‘Ahmet said that I speaker left.’
      ✓ (shifted) ‘Ahmet, said that he, left.’

- 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 FINSPEAKER or FINADDRESSEE being present to shift the reference of indexicals

2For example, see Anand and Nevins (2004), Deal (2013), among others, for arguments for individualized monstrous operators such as OP_AUTH, OP_LOC, etc.

- The main claim here - that finite clauses project their own coordinates which are essentially ‘controllable’ by higher operators, is supported by the fascinating pattern in a language with complementizer agreement, Kipsigis (Nilotic; Kenya): (19) Kipsigis (Diercks and Rao 2016: 31e)

   a. ko-i-mwaa-wɔɔɔɔ a-le-ndɔɔɔɔ ko-∅-it lawayok
      PST-1SG-tell-2PL.OBJ 1SG-C-2SG PST-3-arrive children
      ‘I DID tell you (pl) that the children arrived.’

- Claim: the presence of the two operators - FINSPEAKER and FINADDRESSEE - is what licenses both the affixes on the complementizer, i.e. reflexes of C agreeing with both of them.

3.3.2 Evidence from locality


- 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):

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

   a. English: [CP1 S_i, A_k [TP1 John_j told Mary_m [CP2 [TP2 I_i like you_k_i/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 (20b), 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 (20a), the embedded clause does not project the necessary coordinates and thus indexical shift is unavailable.

The non-trivial difference between Baker’s and the current proposal: 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.

The current 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, 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 $\text{FINSPEAKER}$ and $\text{FINADDRESSEE}$ 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):

(21) Finite Complements Only

Indexical shift is restricted to finite complement clauses.

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:

Tsez (Polinsky 2015: 33a-b)

a. $\text{žoy-}ā$ $\text{nelo-}qo-r$ $[\text{babiy-}ā$ $\text{di}$

lad-ERG DEM.NI-POSS-LAT father-ERG 1SG.ABS(.I)

$\underbrace{\text{že-egir-si=λin}} \quad \text{esi-n}$

I-send-PST.WIT-QUOT tell-PST.WIT

(i) ‘The youngster told her that the father had sent me’

(ii) ‘The youngster, told her that the father had sent him’

b. $\text{žoy-}ā$ $\text{nelo-}qo-r$ $[\text{babiy-}ā$ $\text{di}$

lad-ERG DEM.NI-POSS-LAT father-ERG 1SG.ABS(.I)

$\underbrace{\text{že-egü-ru-}i}$ $\quad \text{esi-n}$

I-send-PST.PTCP-NMLZ tell-PST.WIT

‘The youngster told her that the father had sent me.’

NOT: ‘The youngster, told her that the father had sent him.’

Deal points out that similar alternations are reported in Slave (Rice 1986), Japanese (Sudo 2012), 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 $\text{FINSPEAKER}$ (and $\text{FINADDRESSEE}$) that all have to be controlled by higher operators, then even deeply embedded indexicals can participate in Shift Together.

I present data from the head-final, understudied, indexical shifting language Magahi (Indo-Aryan; India) below, demonstrating that violations of Shift Together are not permitted:
Thus, this overall body of facts demonstrates that the predictions of the tying perspective-sensitivity to finiteness helps us posit coordinates that are controlling (binding) and controllable (bindable) operators inside finite clauses, explain a range of anchoring patterns.

4 Seat-of-Knowledge

- The anchors of PSIs exist in the structure as the syntactic representation of discourse participants.

- Apart from speaker and addressee, another sentient node - the seat of knowledge, has been argued to be present in the left periphery (Speas and Tenny 2003).³

- The SOK is a sentient individual in the syntactic spine, an individual whose point of view is reflected in the sentence.

• This additional node - **seat of knowledge** - encodes perspective in this system, and can be co-indexed or contra-indexed with the speaker.

• Thus, there are three components in the speech act domain that play a crucial role:

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

   a. \(sa_{\text{SPEAKER}}\)
   b. \(SOK\)
   c. \(FIN_{\text{SPEAKER}}\)

• The default is \(\text{speaker}_i = SOK_i\) (cf. Speas and Tenny 2003).

• In a question, the **addressee** is co-indexed with the SOK.

• This system crucially treats co-indexing to be a sort of control, which requires that the controller c-command the controllee.

• Another productive pattern attested by Speas & 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 distinction will be important for us below.

(27) The controlled interaction among the peripheral perspectival elements in the speech act domain and the finite clause domain lead to the varying patterns of PSI anchoring.

5 Tackling the Puzzle

• 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.

(28) *Naki Ram amerika chol-e ja-cche?*  
\[ \text{NAKI Ram America go-IMPV go-3P.PRES.PROG} \]
Intended: ‘(I hear/infer) Ram is going away to America, (is it true)?’

• 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:

(29) a. \([O-r \text{ jonno]}_{pp} naki \text{ amra konodin kichu ko-ri-ni} \]
   \(\text{him-Gen for NAKI we ever anything do-1P-NEG}\)
   Lit. ‘(I hear) for him we have never done anything.’

b. \([\text{Konodin}]_{AdvP} naki \text{ amra o-r jonno kichu ko-ri-ni} \]
   \(\text{ever NAKI we him-Gen for anything do-1P-NEG}\)
   Lit. ‘(I hear) never have we done anything for him.’

c. \([\text{Amra}]_{DP} naki \text{ konodin o-r jonno kichu ko-ri-ni} \]
   \(\text{We NAKI ever him-Gen for anything do-1P-NEG}\)
   Lit. ‘(I hear) we never did anything for him.’

d. \([\text{Amra je o-r biye-te jai-ni Seta}]_{CP} naki o \]
   \(\text{We COMP him-GEN wedding-LOC go-NEG that NAKI he}\)
   \(\text{soObai-ke bol-e beRay.}\)
   \(\text{everyone-ACC tell-IMPV goes}\)
   Lit. ‘(I hear) that we didn’t attend his wedding he goes around telling everyone.’

• In addition, more than one constituent can precede naki:
In all the cases below, *naki* has 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 ge-chilo.*
   
   ‘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.*

This distribution can be summed up as follows:

<table>
<thead>
<tr>
<th></th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>naki</td>
<td>any position inside a clause</td>
</tr>
<tr>
<td>[+]EPP</td>
<td>end of a clause</td>
</tr>
</tbody>
</table>

Table 1: Position-Interpretation Correlation

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.

I will argue that *naki* is a single element in the Bangla grammar, which 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.

- The crucial question wrt the Position-Interpretation Correlation is - how does the syntactic position of the same particle effect a change in interpretation?

- **Claim:** *naki* is generated in the 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.

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

```
(31) nakiP
     
        naki' FinP 
         naki [+EPP] 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.6

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6Numerous 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.
5.1 The High Periphery

5.1.1 High Topics

- I assume a [+EPP] feature on naki, given the ban on its clause-initial position, and the lack of any restrictions on the moved constituent(s).

- 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 factors:
  - there is a higher probe in the structure (a high Topic)
  - the controllable elements in the structure have to be controlled by a controller immediately c-commanding them.

- I adopt Simpson and Bhattacharya (2003)’s insight, In arguing for the presence of the higher Topic probe.

- Drawing evidence from wh/focus and the focus particle/complementizer je’s syntactic properties, they 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:

  (32) Simpson and Bhattacharya (2003): (28)
  
  a. jon bord-e kil [kon boi-Ta], kinlo t
  John Borders-LOC yesterday which book-CL bought
  ‘Which book did John buy yesterday at Borders?’

- Argument 1: Only referentially definite or specific elements occur as subjects preceding wh-phrases in the subject position.

- Argument 2: quantified subjects, which the authors argue frequently resist topicalization (34), can only appear to the right of the wh-phrase (35) and not to the left (36).

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

  (35) 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?’

  (36) *kew ka-ke vot dEy-ni
  anyone who-DAT vote gave-NEG

  b. *Sudhu meri ka-ke vot dEy-ni
  only Mary who-DAT vote gave-NEG

Also see Hsu (2017) for a similar configurational claim for Old English, West Flemish, Kashmiri and Yiddish.
• 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.

(37)

5.2 When *SA* SPEAKER and SOK are contra-indexed

In (38), 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, YP SOK.

Table 2: Indexation patterns of the SOK
XP naki FinP FINspeaker\_j - the correct word order.

- We should discuss other logical possibilities, given this analysis. For example, what happens if the FinP itself is [+TOP]?

(39)

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 FINspeaker is controlled by speaker\_i, and the base copy by the contra-indexed SOK\_j. Thus, the head and tail of the chain have different indices here.

- Assuming a strict reconstruction framework such as Fox (1999):

  - 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:

(40) Fox (1999): (82)

  a. QP\_2 ... pronoun\_1 ... QP\_2 ... pronoun\_1 ... QP\_2

  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 (41a), and only if this adjunct is inserted after movement (41c). Fox illustrates this schematically in the following manner:

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

  a. *[QP ... [complement ... R-expression\_1 ... ] ... ]\_2

     ... pronoun\_1 ... [QP ... [complement ... R-expression\_1 ... ] ... ]\_2

     (adjunct inserted before movement)

  b. *[QP ... [adjunct ... R-expression\_1 ... ] ... ]\_2

     ... pronoun\_1 ... [QP ... [adjunct ... R-expression\_1 ... ] ... ]\_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.

• 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.

• The main idea: 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.

• In (39), unrecoverable deletion of the offending copies of FinP is blocked because of the the different indices on FINSPK, and the result is incoherent.

• 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.

• Given the non-identity of the copies, unrecoverable deletion and consequently, reconstruction, are blocked, resulting in an uninterpretable derivation.

• Note: these alternate structures demonstrate that no extra principles are stipulated here to govern the control and indexing relations between these syntactic elements - any indexation configuration is possible, and independent syntactic principles rule the undesirable derivations out.
5.3 When SAspeaker and SOK are co-indexed

- What forces naki to be clause-final when the SAspeaker and SOK are co-indexed?

- Reframing the question: 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 on an insight from the work of Bhatt and Dayal (2017) on the Hindi polar Q particle kyaa.

- Note: One of the main here 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 to clause-final naki.

5.3.1 Whole clause topicalization

- Bhatt and Dayal (2017): 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.

(43) Distribution of Hindi polar kyaa (Bhatt and Dayal (27, 36))

| a. (kyaa) anu-ne (kyaa) uma-ko (kyaa) kitaab (%kyaa) |
| QY NAnu-ERG QY N Uma-ACC QY N book.FEM QY N |
| [dii]↑ |
| give.PFV.FEM |
| ‘Did Anu give a/the book to Uma?’ |
| b. Subject kyaa Object Verb |
| ← [Subject, [ForceP kyaa [CP1 ___ C= Y/N][IP t , ... ]]] |
| c. Subject Object kyaa Verb |
| ← [Subject, Object, [ForceP kyaa [CP1 ___ C= Y/N][IP t , t , ... ]]] |

d. Subject Object Verb
← [ForceP TP, kyaa [CP [Y/N] t ]] |

- 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; I only show clause-medial kyaa.

(44) kyaa follows the subject:

| a. [ram-nei [kya [t, Sita-ko kitaab dii]]]
| ram-ERG QY 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 is 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.8

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8 Again, I provide only their clause-medial kyaa paradigm below; see the original work for the exhaustive list of tests.
5.3.2 Topicalized FinP

- This analysis can be extended to the clause-final instantiation of the *naki.

- Applying Bhatt and Dayal’s diagnostics to clause-final *naki and *ki constructions lead to expected results.

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

a. Anu-ne Uma-ko kitaab dii *kyaa yaa Mona-ne
   Anu-ERG Uma-DAT book.fem give.pfv.fem QYN or Mona-ERG
   Intended: ‘Did Anu give a/the book to Uma or was it Mona who gave a/the book to Uma?’

b. Bangla *naki
   Anu Uma-ke boi-Ta diye-che naki na Mona?
   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)?’

(48) 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 (46) (and an identical question with *naki in Bangla), the following cannot be felicitous answers.

a. #nahi:, 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.

- i.e. 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 (39, 42). 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? 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:

(49)

An unified analysis can be defended of the Bangla evidential *naki* which changes its evidential flavor based on its syntactic position relative to other phrases.

It 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.

6 Consequences for Semantic Computation

6.1 The Judge argument

- Following Lewis (1979), Chierchia et al. (1989), Lasersohn (2005), 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.

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

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

- This analysis can be extended to indirect evidentials as well, given the fact that coming to conclusions based on indirect evidence requires epistemic alternatives.

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

- 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 \(<\langle s <i, et> e > s > t \rangle>\) (Bhadra 2018b):

(52) \[
\langle \text{naki} \rangle_{w,t,x} = \lambda p_{s <i, et> e > s > t } \lambda z_x \lambda w_x \in Epist_{w,t,z} : p(w')(t')(x)
\]

- This definition claims that *naki* a function that requires a proposition and a Lasersohnian judge argument and returns a statement saying that there is at least one alternative in the judge’s epistemic domain in which the proposition holds.
The SOK translates directly into the judge variable.

**Inferential interpretation**

\[
\begin{align*}
\text{Sen}_P\lambda w \exists <w',t',x> \in \text{Epist}_{w,t:}\text{it's raining at } w',t' \\
\text{SOK}_i \quad \lambda z \quad \lambda w \exists <w',t',x> \in \text{Epist}_{w,t:}\text{it's raining at } w',t' \\
\text{nakiP} \quad \lambda z \quad \lambda w \exists <w',t',x> \in \text{Epist}_{w,t:} [\lambda w'' [\lambda t'' [\lambda j'' \text{[it's raining]}(w')(t')(x)]](w')(t')(x)] \\
\Rightarrow \lambda z \quad \lambda w \exists <w',t',x> \in \text{Epist}_{w,t:}\text{it's raining at } w',t' \\
\text{naki} \quad \lambda p \quad \lambda z \quad \lambda w \exists <w',t',x> \in \text{Epist}_{w,t:} p(w')(t')(x) \\
\text{FinP} \quad \lambda w'' [\lambda t'' [\lambda j'' \text{[its raining]}(w')(t')(x)]](w')(t')(x)
\end{align*}
\]

**Reportative interpretation**

\[
\begin{align*}
\text{Sen}_P\lambda w \exists <w',t',x> \in \text{Epist}_{w,t:}\text{it's raining at } w',t' \\
\text{SOK}_i \quad \lambda z \quad \lambda w \exists <w',t',x> \in \text{Epist}_{w,t:}\text{it's raining at } w',t' \\
\text{nakiP} \quad \lambda z \quad \lambda w \exists <w',t',x> \in \text{Epist}_{w,t:} [\lambda w'' [\lambda t'' [\lambda j'' \text{[it's raining]}(w')(t')(x)]](w')(t')(x)] \\
\Rightarrow \lambda z \quad \lambda w \exists <w',t',x> \in \text{Epist}_{w,t:}\text{it's raining at } w',t' \\
\text{naki} \quad \lambda p \lambda z \lambda w \exists <w',t',x> \in \text{Epist}_{w,t:} p(w')(t')(x) \\
\text{FinP} \quad \lambda w'' [\lambda t'' [\lambda j'' \text{[its raining]}(w')(t')(x)]](w')(t')(x)
\end{align*}
\]

Thus, an interface-oriented analysis helps us achieve a holistic picture of the phenomenon.

### 6.2 English

- Let us now see if this interface analysis can be applied to the English paradigms in (6) and (7) as well.

Given the mostly rigid word order of languages like English, there is no special movement posited in order to get the differing interpretations.

I.e. there is no Position-Interpretation Correlation in this paradigm.

The crucial mechanisms of - (i) the PSI Merging over a perspective-sensitive finite clause, (ii) co- and contra-indexation of perspectival heads in the periphery, (iii) a strict correlation with the semantic computation - give us the right results.
Conclusion

So far, we have argued for:

• Connecting syntactic perspective to finiteness (drawing on empirical evidence from indexical shift, complementizer agreement, finite and non-finite anchoring).

• Syntactic perspective-sensitivity being the result of the interaction of control by speech-act heads in three different layers in the periphery.

• A direct semantic translation of this structural perspective-sensitivity in terms of a relativized judge argument: such that a PSI quantifies over the epistemic alternatives of this judge, determined by referential indexation patterns.

7 Non-configurational adjuncts

• Charnavel (2018) shows that in adjunct clauses like English because and since clauses, PSIs can be licensed:

  a. speaker = j; matrix subject = i
  b. Liz left the party because things might have spiraled out of control.
  c. Airplanes frighten John because they might crash.
  d. [The senator] decided to resign because an incriminating video of himself was leaked to the press.

(58) Some relevant terminology Charnavel (2018)
  a. A structural mnemonic: A because B
  b. Causal judge: endorses the causal relation
  c. Attitude Holder: endorses the content of the subordinate clause

<table>
<thead>
<tr>
<th>Case</th>
<th>Causal judge</th>
<th>Attitude holder of B</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1a</td>
<td>speaker</td>
<td>speaker</td>
</tr>
<tr>
<td>#1b</td>
<td>speaker</td>
<td>event participant in A (+ speaker)</td>
</tr>
<tr>
<td>*#1c</td>
<td>event participant in A</td>
<td>event participant in A (+ speaker)/ speaker</td>
</tr>
<tr>
<td>#2</td>
<td>speaker + event participant in A</td>
<td>event participant in A</td>
</tr>
<tr>
<td>#3a</td>
<td>speaker + event participant in A</td>
<td>speaker + event participant in A</td>
</tr>
<tr>
<td>*#3b</td>
<td>speaker + event participant in A</td>
<td>speaker</td>
</tr>
</tbody>
</table>

Figure 5: Perspectival possibilities in because-clauses (Charnavel 2018: (44))

(59) When the event participant (matrix subject) in A behaves as an Attitude Holder of B, (s)he must also be the Causal Judge. (Case #1b)
  a. Liz, left the party because there was an embarrassing picture of herself going around.
  b. #But she thinks that she left because she was tired.
  c. #But Liz thought there was no picture of herself going around.

(60) The event participant cannot be the only causal judge either in this case (Case #1c)
  a. Liz, left the party because there was an embarrassing picture of herself going around.
  b. # But I think that she left because she was tired.
  c. I did not think the picture was embarrassing/I could see the picture was in fact of Anna.

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9 Also see Thráinsson 1976, Sells 1987, i.a. for these clauses licensing anaphors exempt from Condition A.
7.1 Bangla because clauses

- Bangla has two syntactic constructions corresponding to this kind of subordination:

(61) A because B
Sita bari chele chole ge-lo karon tar porer
Sita house left go go-perf.3p because after that-gen
ghotona-gulo-r khub kharap porinoti hote paarto;,
incidents-cl-gen very bad outcome happen can-past.3p.
‘Sita left the house because the later incidents could have spiraled out of control.’

(62) because B, A
Porer ghotona-gulo-r khub kharap porinoti hote paarto; bole Sita
bari chere chole ge-lo. incidents-cl-poss very bad outcome happen can-past.3p. quot Sita house left go go-perf.3p
‘Because the later incidents could have spiraled out of control, Sita left the house.’

- Bangla displays some interesting differences with respect to possibilities of perspectival anchoring in the two structures:

(63) Ram plane-e bosh-te bhoy paay karon ogulo kraesh kor-te
Ram plane-loc sit-impv fear gets because those crash do-impv
paare;,
can
‘Ram is scared to sit on a plane because they might/can crash.’

a. Matrix subject need not be a Causal Judge:

Kintu o bhabe je o ogulo-ke bhoy paay karon boshle-i
but he thinks that he those-acc fear gets because sit-cond-loc
or bomi paay.
his nausea gets
‘But he thinks that he fears them because he gets nauseous as soon as he sits in them.’

b. The speaker has to be a Causal Judge:

# Kintu amar mon-e hoy je o ogulo-ke bhoy paay
but mine mind-loc happens that he those-acc fear gets
karon boshle-i or bomi paay.
because sit-cond-loc his nausea gets
‘But I think that he fears them because he gets nauseous as soon as he sits in them.’

c. Both the speaker and the matrix subject have to be Attitude Holders:

# kintu o mon-e kore ogulo kraesh kor-te paare-na.
but he mind-loc does those crash do-impv can-neg
‘But he thinks that they cannot crash.’

# kintu amar mone hoy ogulo kraesh korte parena.
but my mind-loc happens those crash do-impv can-neg
‘But I think they cannot crash.’

(64) Plane kraesh kor-te paare; bole Ram ogulo-ke bhoy paay.
plane crash do-impv can quot Ram those-acc fear gets
‘Because planes might/can crash, Ram fears them.’

a. It is weird (to some speakers) if the matrix subject is not a Causal Judge:
b. **It is decidedly weird if the speaker is not a Causal Judge:**

# Kintu o amar mon-e hoy or ogulo-te bosh-le-i
but my mind-LOC happens his those-LOC sit-COND-FOC nausea
gets QuOT he those-ACC fear gets

‘But I think he fears them because he gets nauseous as soon as he sits in them.’

---

Charnavel (2018): (64)

Binding of j by P is required for logophoric elements anteceded by P to appear in B

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21

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10See Singh (1980), Bayer (1999), Bayer (2001), Bhattacharya (2000) for differing views on the syntax of bole-clauses as complement clauses; however, the causal life of bole has not been extensively studied.
References


