

Epistemic indefinite restrictors as discourse particles: conjectural & recall questions

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One characteristic property across a large subset of attested South Asian discourse particles: based on scope or syntactic position, differing interpretations arise.

Bangla/Bengali has a **discourse particle** *jyano* that has many natural functions:

- A flavor of **deontic modality** comes from *jyano* interpreted as a modifier of the VP/or at the sentential level:

- (1) a. Keu ei baksho-ta **jyano** na khule phel-e.
WH this box-CL JYANO NEG open throw-3P.PRF
'Make sure that no one opens this box/ No one should open this box.'
- b. Keu ei baksho-ta na khule phel-e.
WH this box-CL NEG open throw-3P.PRF
'I hope no one opens this box.'

The general consensus among Bangla native speaker linguists I consulted is that both sentences convey some flavor of modality.

Pre-verbal negation in both cases can possibly be contributing a sense of irrealis. (a) conveys weak (?) deontic necessity, while (b) conveys a bouletic flavor. It's hard to translate *jyano*'s exact contribution in (a), but clearly the only difference between the two

sentences is the presence of *jyano* in (a) and therefore, the deontic flavor can be surmised to be coming from *jyano*.

- **Exclamative/similative/'as-if'** uses, again from *jyano*'s attachment to the VP/other verbal projections/at the sentential level:

- (2) Kham-ta dekhe mone holo keu ektu aagei eta
envelope-CL dekhe mind happen WH little before this
jyano khule-chilo!
JYANO open-3P.PST.PRF
'The envelope looked as if someone had just opened it!'

- Attachment of *jyano* to the VP can also trigger a **purpose/reason clause** reading:

- (3) Dorja-ta bondho kore dao, Rahul **jyano** dhuk-te
door-CL shut do give.2P.IMP Rahul JYANO enter-IMPV
na pare.
NEG can
'Close the door so that Rahul cannot enter.'

- Some **pretense** uses:

Context: A history teacher is asking her students:

- (4) Gandhi-ji **jyano** kobe theke kobe Dandi March
Gandhi-HON JYANO when from when Dandi March

kore-chilen?
do-PAST.HON

Lit: 'When did Gandhi do the Dandi March again (I am pretending to have forgotten, can you remind me)?'

Context: Rahul's friends know that he is not really busy over the weekend. Rahul is claiming to be very busy. His friend says:

- (5) Aha, tui koto **jyano** byasto!
oh, you.NON-HON how-much JYANO busy
Lit: 'Ah, (you are pretending) as if you are so busy!'

- Coming to the nominal domain, *jyano* attaches, broadly speaking, to **elements that mark ignorance**.

⇒ Bangla has an indeterminate pronoun system which have a variety of uses (Ramchand 1997) – existential, universal, *wh*-words, free choice items, negative polarity items, and also **epistemic indefinites**.

I gloss the indeterminates as WH for simplicity.

- *Jyano* attaches to epistemic indefinites:

- (6) [Kon (ekta) chele] **jyano** gailo.
WH one-CL boy JYANO sang
'Some boy sang.' (inadequate translation)
Epistemic implicature: The speaker knew the identity of the referent in the past but has now cannot recall.

- *Jyano* also attaches to *wh*-words that do not have an indefinite counterpart in the indeterminate system:

- (7) Dokan-paat aaj [keno] **jyano** bondho.
shop-etc. today why JYANO closed
'Shops are closed today for some reason.' (inadequate translation)
Epistemic implicature: The speaker knew the identity of the referent in the past but has now cannot recall.

We will zoom in on this specific use – specifically in questions.

- (8) kon ek-ta chatro **jyano** boi-ta rekhe gelo?
WH one-CL student JYANO book-CL keep.IMPV go.PST.PRF

Most accurate representation: *Which student (whose identity I_{speaker} did know at some point but cannot recall right now) left the book here?*

i.e. can you remind me of this information that I have forgotten?

The meaning in brackets is contributed by *jyano*, while the entire utterance still functions as a question that expects an answer.

- (9) chabi-ta kothay **jyano** rakh-lam?
key-CL WH JYANO keep-1P.PRS.PERF
'Where did I keep the keys (I have forgotten, can you remind me)?'

Let's call the genre of questions in (8) and (9) as **recall questions**, to indicate that the call to the addressee is to help the speaker recall information.

This recall effect may directly remind you of a *remind-me* presupposition studied in Sauerland and Yatsushiro (2017) in German questions with *noch mal/wieder*:

- (10) Wie ist **noch mal** Ihr Name?
 how is again your name
 ‘What is your name **again**?’

Sauerland and Yatsushiro (2017):(2)

Sauerland (2009), Sauerland and Yatsushiro (2017) observe that the question in (10) has what they call a *remind-me* presupposition:

- very close paraphrase: ‘you ought to make it known to me again what your name is’
- the answer has to have existed in the common ground before
- crucially, the speaker need not have necessarily known the answer before
- the authors call particles like German *noch mal*, *wieder*, Japanese *kke* ‘repetitive particles’

There are several important differences between the *remind-me* presuppositions triggered by repetitive particles and recall questions (Section 3).

Roadmap: §1 *jyano* declaratives and questions; §2 Understanding *jyano*; §3 Proposal; §4 Recall questions ≠ ‘remind-me’ questions; §5 Typological musings

jyano, depending on the final intonational contour¹ and thus the speech act of the utterance, displays a variety of meaning preferences:

Shorthand:

¹Insights about Bangla intonation used here come from Hayes and Lahiri (1991), Mycock et al. (2021); thanks to Miriam Butt for the suggestions.

- ↓ = declarative tune (all focus) = H* L_I;
 ↑ = *wh*-question tune = L* H_P L_I;
 ❖ = incomplete², almost #

Declarative:

- (11) **Mina** chabi-ta ka-ke ek-ta **jyano** di-lo↓
 Mina key-CL WH-DAT one-CL JYANO give-3P.PRS.PRF
 ❖ ‘I wonder who Mina gave the keys to.’
 ✓ ‘I knew at some point who Mina gave the keys to, now I do not recall.’

Wh-question:

- (12) **Mina** chabi-ta ka-ke ek-ta **jyano** di-lo↑
 Mina key-CL WH-DAT one-CL JYANO give-3P.PRS.PRF
 ✗ ‘I wonder who Mina gave the keys to.’
 ✓ ‘Can you tell me who you gave the keys to (I knew at some point, now I do not recall)?’

Observations:

- All declaratives with EI-*jyano* are statements of derived ignorance.
- A conjectural question (CQ) reading is deemed incomplete, and almost unavailable with all *jyano* declaratives. What is at the root of this judgement?
- All *wh*-questions with *jyano* are recall questions.
- The forgetting effect is triggered by the particle *jyano* in both types of speech acts.

²Thanks to Arka Banerjee for this nomenclature.

- This forgetting effect does not flip to the addressee in questions; i.e. ‘Who (the referent whose identity you_{Addr} knew at some point but cannot recall right now) did Mina give the keys to?’ is not an available meaning for (12), for example.

Some questions I will attempt to answer: what is the semantics of *jyano*? Does it trigger this presupposition in interaction with any other element? What do the semantics of recall questions look like? Why are CQ meanings deemed incomplete?

1 *Jyano*, examined

In the nominal domain, *jyano* only attaches to epistemic indefinites and *wh*-words.

- (13) *Chatro-ta/*ekta chatro/*Mina/*prottyek chatro/*oi
 student-CL/one student/Mina/every student/that
 chatro/*koyekta chatro/*shorbadhik duto chatro jyano
 student/few student/at-most two student JYANO
 chole ge-lo
 leave go-3P.PRF
 *The student/*one student/*Mina/*every student/*that stu-
 dent/*few students/*at most two students (I used to know
 the referents of these but cannot recall right now) left.’

Epistemic indefinites (EIs) signify an ignorance on the part of the speaker (usually) about the witness of the existential claim (Kratzer and Shimoyama 2002, Farkas 2002, Alonso-Ovalle and Menéndez-Benito 2003, 2010, 2015, Chierchia 2006, Zamparelli 2008, Falaus 2009 Aloni and Port 2015, among many others).

- (14) María se casó con algún médico
 María SE married with algún doctor
 ‘María married some doctor or other.’

Traditionally, in almost all of the large body of work on EIs, it is apparent that the speaker has never known what the witness of the claim is.

- I term this effect *pure ignorance*.

This novel effect in Bengali – that of *forgetting* the witness of the existential, i.e. it was known/familiar at some point, but not any more – I term as *derived ignorance*.

Bengali EIs combine with *jyano* to signal derived ignorance.

By itself, *jyano* does not have any quantificational properties.

Derived ignorance has a cluster of properties that make it:
 i) distinct from the effects of partial variation or ignorance and free choice effects found cross-linguistically with unmodified EIs, and
 ii) not easily subsumable under any of the standard categories of unmodified EIs (*domain-wideners* (Kratzer and Shimoyama 2002, Alonso-Ovalle and Menéndez-Benito 2010, *et seq*), *domain-shifters* (Aloni and Port 2015), *referential vagueness indicators* (Jayez and Tovena 2006, Giannakidou and Quer 2011)).

1.1 Properties of EI-N+*jyano*

The EI in (15), in brackets, shows pure ignorance, while the addition of the particle *jyano* (16) to the DP containing the EI immediately signals derived ignorance:

(15) [Kon ek-ta] chele gailo.
 WH one-CL boy sang
 ‘Some boy sang.’
Pure ignorance: the speaker doesn’t know which boy

(16) [Kon ek-ta] chele **jyano** gailo.
 WH one-CL boy JYANO sang
 ‘Some boy sang.’ (closest translation)
Derived ignorance: the speaker knew in the past which boy,
 but can’t recall now

Derived ignorance is still ignorance: it is odd for the addressee to follow up about the referent (18), or for the speaker to name the referent (19) (Alonso-Ovalle and Menéndez-Benito 2010).

Speaker:

(17) Jodu ei bari-r [kon ek-ta ghor-e **jyano**]
 Jodu this house-GEN WH one-CL room-LOC JYANO
 lukiyeche
 hide-3P.PRF
 ‘Jodu has hidden in some room in this house (I knew which room, but now cannot recall).’

Addressee:

(18) # Kon-ta-y?
 WH-CL-LOC
 ‘In which?’

(19) Jodu ei bari-r [kon ek-ta ghor-e **jyano**]
 Jodu this house-GEN WH one-CL room-LOC JYANO
 lukiyeche, # aar sheta hocche showa-r ghor-e!
 hide-3P.PRF, # and that is sleep-GEN room-LOC

‘Jodu has hidden in some room in this house (I knew which room, but now cannot recall), # and that room is the bedroom!’

This derived ignorance effect with the EI-N-*jyano* complex is distinct from pure ignorance (20):

(20) Mina-ke [kon ekta daktar-ke **jyano**] biye korte
 Mina-DAT WH one dr.-DAT JYANO wedding do.IMPV
 hobe, #ami jani-na kake /✓amar mon-e nei kake.
 has-to, #I know-NEG who, /✓my mind-LOC NEG who
 ‘Mina has to marry some doctor, # I don’t know who / ✓ I cannot remember who.’

The derived ignorance effect projects from under negation:

(21) Rahul nijer bibhage e [kake **jyano**] pochondo
 Rahul own department in WH JYANO like
 kore-na.
 do-NEG
 ‘Rahul does not like someone in his department (and I used to be familiar with who that is but now have forgotten).’
Unavailable: ‘It is not the case that I have forgotten who Rahul likes in his department.’

It also projects from within the antecedent of a conditional:

(22) Kon ekta bibhage **jyano** porashona kor-le
 WH one-CL department-LOC JYANO study do-COND
 nishchit chakri pawa jay.
 certainly job get go-HAB
 Lit: ‘If one studies in some/a particular department (whose

reference I used to know but now cannot recall), one will definitely get a job.’

The effect is not cancellable (23), and is amenable to reinforcement (24):

(23) Mina chabi-ta [kothay ekta **jyano**] rakhlo. #Ashole ami
 Mina key-CL WH one JYANO put. #actually I
 jani kothay rekheche!
 know where put.PRF
 ‘Mina put the keys somewhere (and I cannot recall where).#
 Actually, I know where!’

(24) [Kon ekta boi **jyano**] pore ge-lo, amar mon-e
 WH one book JYANO fall go-3P.PRF my mind-LOC
 nei kon-ta.
 NEG WH-CL
 ‘Some book (I used to know which one, but now do not re-
 call) fell down, I don’t remember which book.’

Importantly, the speaker’s forgetting of the witness of EI’s the existential claim does not render all possibilities as live. Thus, **derived ignorance does not lead to free choice**.

(25) Mina-ke porashona-r [kon ekta bishoy **jyano**] bachte
 Mina-DAT study-GEN WH one subject JYANO pick.IMPV
 hobe.
 has-to
 ‘Mina has to pick some subject of study (and I cannot recall
 what that is).’
Unavailable: ‘Mina has to pick a subject (and *any* subject
 is a viable option).’

Bengali makes distinctions within the morphological paradigm of indeterminates to demarcate Free Choice (FC) vs. non-Free choice indefinites:

FC	non-FC	
kauke	kake	‘to someone/who-DAT’
kono	kon	‘some/which’
keu	ke	‘someone/who’
kichu	ki	‘something/what’

Table 1

For example:

(26) a. Ja-o kono boi niye ash-o
 go-2P.IMP some book take.IMPV come-2P.IMP
 ‘Go, bring *a/any* book.’
 b. Kichu kheye-cho?
 something eat-2P.PRF
 ‘Have you eaten *anything*?’

The relative pronoun *je* (allomorph: *ja*) in Bengali (also homophonous with the clause-initial complementizer) attaches only to the FC indeterminates to render a ‘no matter WH/WH-ever’ interpretation. This is basically equivalent to a domain-widening effect:

(27) Ja kichu ene-cho phele da-o
 REL something bring-2P.PRF throw.IMPV give-2P.IMP
 ‘Throw away whatever you brought.’

Crucially, *je* is only compatible with the left column members in Table 1!

FC	non-FC
je kauke	*je kake
je kono	*je kon
je keu	*je ke
ja kichu	*je ki

Table 2

There is thus a morphological tell-tale sign inside the indeterminate pronoun system for FC allowance.

Now, if derived ignorance is incompatible with FC, then the FC indefinites should be incompatible with *jyano*. This is indeed what we find:³

FC	non-FC
*kauke jyano	kake jyano
*kono jyano	kon ekta jyano
*keu jyano	ke jyano
*kichu jyano	ki jyano

Table 3

Unlike the unmodified German *irgendein*, Italian *uno qualsiasi* (Kratzer and Shimoyama 2002, Chierchia 2006, Alonso-Ovalle and Menéndez-Benito 2010), the EI-*jyano* complex rejects any hint of an FC effect, and thus does not lead to any domain widening.

³All intended interpretations in Table 3 are where *jyano* attaches to the DP containing the indefinite, and not to the VP in the sentence (which would give rise to other interpretations – see Section 1).

Modal variation can be partial or total.

The derived ignorance effect is compatible with both:

- (28) Context (a): Shyam & Jodu are playing hide-&-seek; Jodu knows Shyam is hiding in the house and that he is not in the bedrooms or bathrooms, but could be in any of the other rooms. So not all possibilities are live (partial variation).
Context (b): Same context of hide-&-seek, but now Jodu does not rule out any possibilities (total variation). Jodu says to his friend:

Shyam [kon ekta ghor-e **jyano**] lukolo.

Shyam WH one room-LOC JYANO hid

‘Shyam hid in some room (and I have forgotten which one).’

(✓ in contexts (a),(b) with derived ignorance only)

Summary:

- The projection under negation and from the antecedent of conditionals, and the non-cancellability facts above support *jyano* encoding a presupposition, as opposed to an implicature or entailment.
- The lack of a free choice reading and insensitivity to total vs. partial variation signals that the EI-*jyano* complex is not a domain widener (unlike Germanic & Romance EIs).
- Derived ignorance is also not sensitive to different methods of identification, and thus a domain shifting account (Aloni and Port 2015) is not applicable here.
- A strong FC effect is ruled out with the EI-N+*jyano* complex; instead a weaker modal variation effect is present.

The question then becomes:

How do we formally integrate the ignorance component of an EI with the knowledge component of *gyano*, i.e. what is the semantics of a complex expression of which one unit blocks knowledge and the other supports its presence (at a past time, amenable to retrieval)?

2 Proposal

2.1 Declaratives

The answer lies in analyzing *gyano* as a restrictor of the EI along an added temporal dimension.

The modal variation component for EIs like Spanish *algún* have been modeled as follows (following an analysis of *some* by von Stechow 1999):

LF: $\Box [\text{algún}(P)(Q)]$

The Modal Variation component:

$\exists w', w'' \in \mathcal{D}_w [\{x : P(w')(x) \ \& \ Q(w')(x)\} \neq \{x : P(w'')(x) \ \& \ Q(w'')(x)\}]$

(where \mathcal{D}_w is the set of worlds compatible with what the speaker believes in w , and P and Q are two properties)

Alonso-Ovalle and Menéndez-Benito (2010):(18)

This semantics is widely-adopted as the the underlying basis of pure ignorance.

Modal variation, which models the property that individuals satisfying the existential claim are varied across the speaker's

epistemic worlds, does not show sensitivity to time.

I suggest that the felicitous modification of EIs by particles like *gyano* indicate the necessity of a temporal dimension.

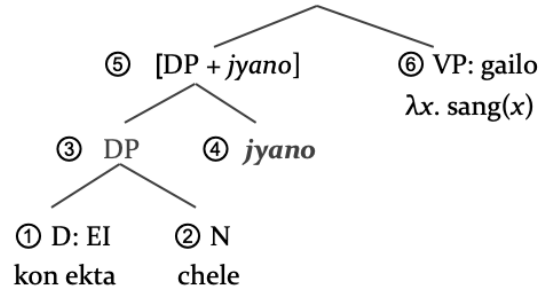
The solution: the modal variation component in the meaning of the EI has to instead be modal *and temporal variation*, which then interacts with the presupposition of *gyano*, resulting in a restriction of world-time pairs in the epistemic alternatives of the speaker (forming the derived ignorance/forgetting effect).

Assumed semantic components include:

- **Epist**_{sp} < w, t >, a set of world-time pairs epistemically accessible to the speaker from the world of evaluation w and speech time t (denoted as t_{ST})
- a temporal precedence relation < where $t' < t_{ST}$ denotes t' is an interval preceding t
- Predicates are relativized to world-time pairs, denoted by subscripts.

Example (16) is represented in the tree, which is used to show each step of the computation (29).

gyano places a **direct restriction** on epistemically accessible time intervals, anchoring the assertion to ST & the presupposition to a time preceding ST.



- (29) a. $\llbracket \textcircled{1} \rrbracket^{w,t} = \text{Assertion: } \lambda P_{\langle w,t \rangle} \lambda Q_{\langle w,t \rangle} \exists x [\lambda P_{\langle w,t \rangle} (x) \ \& \ \lambda Q_{\langle w,t \rangle} (x)]$
 MTV presupposition: $\exists \langle w',t' \rangle, \langle w'',t'' \rangle \in \text{Epist}_{sp} \langle w,t \rangle [\{x : P_{\langle w',t' \rangle} (x) \ \& \ Q_{\langle w',t' \rangle} (x)\} \neq \{x : P_{\langle w'',t'' \rangle} (x) \ \& \ Q_{\langle w'',t'' \rangle} (x)\}]$
 (temporal accessibility unrestricted)
- b. $\llbracket \textcircled{2} \rrbracket^{w,t} = \lambda x. \text{boy}_{\langle w,t \rangle} (x)$
- c. $\llbracket \textcircled{3} \rrbracket^{w,t} = \text{Assertion: } \lambda Q_{\langle w,t \rangle} \exists x [\text{boy}_{\langle w,t \rangle} (x) \ \& \ Q_{\langle w,t \rangle} (x)]$
 Presupposition: $\exists \langle w',t' \rangle, \langle w'',t'' \rangle \in \text{Epist}_{sp} \langle w,t \rangle [\{x : \text{boy}_{\langle w',t' \rangle} (x) \ \& \ Q_{\langle w',t' \rangle} (x)\} \neq \{x : \text{boy}_{\langle w'',t'' \rangle} (x) \ \& \ Q_{\langle w'',t'' \rangle} (x)\}]$
 (temporal accessibility unrestricted)
- d. $\llbracket \textcircled{4} / \text{jyano} \rrbracket^{w,t} = \text{Assertion: } \lambda R_{\langle et,t \rangle} \lambda Q_{\langle et \rangle} .R(Q) \wedge \neg \exists \langle w',t_{ST} \rangle \in \text{Epist}_{sp} \langle w,t \rangle [R_{\langle w',t_{ST} \rangle} (Q)=1]$
 Presupposition: $\exists \langle w',t' \rangle \in \text{Epist}_{sp} \langle w,t \rangle [\{x : \text{boy}_{\langle w',t' \rangle} (x) \ \& \ Q_{\langle w',t' \rangle} (x)\}]$, **where** $t' < t_{ST}$
 (temporal accessibility restricted)
 (Apart from adopting the existential claim, *jyano*'s assertive meaning signals the lack of knowledge about the witness of the existential DP *at speech time*, while the presupposition signals at least one epistemically accessible world-time pair anchored to *an interval before speech time* where the speaker knew the identity of the referent. Taken together, the result is derived ignorance.)
- e. $\llbracket \textcircled{5} \rrbracket^{w,t} = \text{Assertion: } \lambda Q_{\langle w,t \rangle} \exists x [\text{boy}_{\langle w,t \rangle} (x) \ \& \ Q_{\langle w,t \rangle} (x)] \wedge \neg \exists \langle w',t_{ST} \rangle \in \text{Epist}_{sp} \langle w,t \rangle [\lambda Q_{\langle w',t_{ST} \rangle} \exists x. \text{boy}_{\langle w',t_{ST} \rangle} (x) \ \& \ Q_{\langle w',t_{ST} \rangle} (x)]$
EI-N + derived ignorance combined presupposition:
 $\exists \langle w',t'' \rangle, \langle w'',t''' \rangle \in \text{Epist}_{sp} \langle w,t \rangle [\{x : \text{boy}_{\langle w',t'' \rangle} (x) \ \& \ Q_{\langle w',t'' \rangle} (x)\} \neq \{x : \text{boy}_{\langle w'',t''' \rangle} (x) \ \& \ Q_{\langle w'',t''' \rangle} (x)\}] \wedge \exists \langle w',t' \rangle \in \text{Epist}_{sp} \langle w,t \rangle [\{x : \text{boy}_{\langle w',t' \rangle} (x) \ \& \ Q_{\langle w',t' \rangle} (x)\}]$, **where** $t' < t_{ST}$, $t'' = t_{ST}$, $t''' = t_{ST}$

Thus, EIs encode both modal and temporal variation, and the addition of *jyano* restricts temporal accessibility such that ignorance at speech time but knowledge at past time is signaled together.

Concretely, *jyano* signals ignorance at speech time through its at-issue contribution (assertion), and knowledge at past time with its not-at-issue contribution (presupposition). This proposed division of labor holds up against standard diagnostic tests:

Context: Teacher A discovered that student Anu (one of her favorite students) cheated in the exam. Teacher A confided in Teacher B about the identity of the student. Later, Teacher A and B are in a meeting with the Principal:

- (30) Teacher A says (a), and then Teacher B responds immediately with (b) or (c):
- a. Kalke kon ekta chatro **jyano** porikkha-y tuke-che.
yesterday WH one student JYANO exam-LOC copy-3P.PERF
'Yesterday, some student (I knew who earlier but now cannot recall) cheated in the exam.'
 - b. Ei! Na jana-r bhaan koro-na! Tumi kal
hey! NEG know-GEN pretense do-NEG you yesterday
boll-e toh amay kon chatro-ta tuke-che!
told-2P PRT me WH student-CL copy-3P.PERF
'Hey! Don't pretend to not know! You told me yesterday itself which student cheated.'
 - c. Er moddhei bhule ge-le kon chatro-ta
this.GEN within forget go-2P.PERF WHICH student-CL
tukeche?!
copy-3P.PERF

'You forgot already which student cheated?!' (incredulous contour)
→ *jyano*'s assertive contribution challenged

- (31) Same context: Teacher A says (a), and Teacher B responds immediately (b):
- a. Kalke kon ekta chatro **jyano** porikkha-y tuke-che.
yesterday WH one student JYANO exam-LOC copy-3P.PERF
'Yesterday, some student (I knew who earlier but now cannot recall) cheated in the exam.'
 - b. # Ei! Eta ki bol-cho! Kon chatro porikkha-y
Hey! this what say-2P.PROG WHICH student exam-LOC
tuke-che tumi konodini/kokhonoj jaante na!
copy-3P.PERF you never know NEG
Intended: 'Hey! What are you saying! You never knew which student cheated on the exam!'
→ challenge attempted against *jyano*'s presuppositional contribution, and failed

Insofar as EIs can be restricted by such particles, this two-dimensional variation can be applied cross-linguistically.

2.2 Incompleteness with a CQ parse

A wide range of work has located CQ interpretations as stemming from evidentials (inferential or uncertainty markers): Japanese (Hara 2006), Gitksan, St'át'imcets and NeiePkepmxcín (Littell et al. 2010, Peterson and Sauerland 2010), Italian (Eckardt and Beltrama 2019), Basque (Trotzke and Monforte 2019), Shipibo-Konibo (Valenzuela 2003) and Cheyenne (Murray 2010).

Some examples with inferential evidentials; St'át'imcets *k'a* (Littell et al. 2010), and German *wohl* (Göbel 2018, Eckardt 2020, among others):

St'át'imcets

a. *swat ku=lhwál-ci-ts-as ti=ts'úqwaz'=a*
who DET=leave-APPL-1sg.OBJ-3ERG DET=fish=EXIS
 'Who left me this fish?'

b. *swát=as=k'a ku=lhwál-ci-ts-as ti=ts'úqwaz'=a*
who=SBJN=INFER DET=leave-APPL-1sg.OBJ-3ERG DET=fish=EXIS
 'I wonder who left me this fish.'

(32)

Littell et al. (2010):(2)

(33) Wo *wohl* der Schlüssel ist?
 where *wohl* the key is
 'Where might the key be, I wonder.' Eckardt (2020):(2)

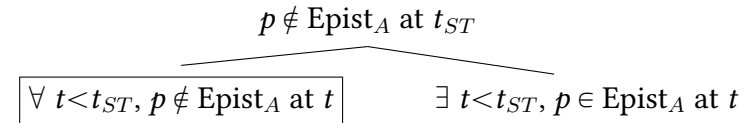
The tradition of 'wonder' as a representative of conjecture carries a distinct assumption:

- the speaker never knew the answer
- the *p* corresponding to the unique true answer to the question never existed in Epist_{sp} ; or as Eckardt (2020) suggests, *p* never existed in (what I would write as) $\text{Epist}_{sp} \oplus \text{Epist}_{addr}$
- inferential evidentials signaling this meaning cross-linguistically makes great sense, since the conjecture would be entailed by the epistemic bases of the participant(s)

Thus, 'wonder'/conjecture is a result of pure ignorance.

In *theory*, nothing prevents conjecture within a derived ignorance setup, where the speaker forgot the true answer and is now conjecturing about possibilities.

But the phenomenon of CQs disallows past knowledge: thus, crucially a **temporal dimension is inherently present in CQs as well**:



I suggest this fact is the reason for the judgement of 'incompleteness' associated with *wonder*/CQ-translations for *jyano*-declaratives ((11)).

Consequently, *jyano* is predicted to never be felicitous in any environment that licenses a CQ meaning:

From Eckardt (2020):(50):

Context: The job committee is meeting behind closed doors. A and B are waiting outside for the decision to be announced. Neither of them has insider knowledge. A asks B:

(34) Wer *wohl* den Job bekommt?
 who *wohl* the job gets
 'I wonder who will get the job.'

(35) ke chakri-ta pabe *jyano*↓
 who job-CL get JYANO

- ✗ 'I wonder who will get the job.'
- ✓ 'I knew at some point who will get the job, now I do not recall.'

Thus, derived ignorance and a conjectural question meaning is predicted to be in complementary distribution.

Comparing Eckardt (2020)'s pragmatic profile of CQ-signaling verb-final *wohl* questions and other CQs cross-linguistically to utterances with *jyano*:

- (36) a. the speaker does not expect the addressee to know the answer:
 ✓*jyano* ↓ ✗*jyano* ↑
- b. the speaker does not request an answer.
 ✓*jyano*-↓ ✗*jyano*-↑
- c. the addressee can remain silent without violating the rules of discourse.
 ✓*jyano*-↓ ✗*jyano*-↑
- d. the speaker invites the addressee to speculative discourse about the topic.
 ✓*jyano*-↓ ✗*jyano*-↑

This profile then brings us directly to recall questions.

2.3 Recall questions

(12) repeated below:

- (37) **Mina** chabi-ta ka-ke ek-ta **jyano** di-lo↑
 Mina key-CL WH-DAT one-CL JYANO give-3P.PRS.PRF

- ✗ 'I wonder who Mina gave the keys to.'
- ✓ 'Can you tell me who you gave the keys to (I knew at some point, now I do not recall)?'

I propose recall questions arise due to the **presupposition projection of derived ignorance**.

- *jyano* attaches to a DP containing an EI as usual, and the semantics proceeds as in (29).
- A Q operator merges above the proposition and places the issue corresponding to the at-issue content on the Table
- The presupposition of the EI-N+*jyano* complex is outside the scope of the Q, given its non-at-issue status
- The semantics of Q places the call on the addressee to choose from the set of answers, because these are bonafide requests for information.

(38)

$$\text{Mina chabi-ta} \left\{ \begin{array}{l} \textit{Shyam} - \textit{ke} \\ \textit{Jodu} - \textit{ke} \\ \textit{Madhu} - \textit{ke} \\ \textit{Asha} - \textit{ke} \\ \textit{Vicky} - \textit{ke} \end{array} \right\} \textit{dilo}$$

With the addition of *jyano* to (38), since *jyano*'s meaning encodes epistemic statements, two possible readings could arise:

- (39) a. I knew at a past time for which of the members of the set of alternatives it is true that Mina gave the keys to them, but I now cannot recall.
 ≈ weak exhaustivity reading

- b. For each member in the set of alternatives, I knew at a past time whether or not Mina gave the keys to them, but now I cannot recall.
 ≈ strong exhaustivity reading

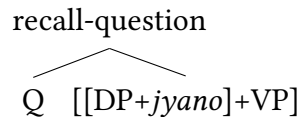
Recall questions with *jyano* usually only admit a weakly exhaustive interpretation. For example:

- (40) Context: There are 5 housekeepers in a large, palatial house – Shyam, Jodu, Madhu, Asha, Vicky. Mina left the house keys with one of them in front of her friends Rahul and Jay. Days later, Jay asks Rahul the question in (37).
 ✓ ‘Which one (out of the 5 housekeepers) did Mina leave the keys with? (I knew the answer but I can’t recall right now)’
 ✗ ‘For each of the 5 housekeepers, I used to know whether or not Mina gave the keys to them, but I cannot recall (each piece of) that information now.’

Is there something that causes incompatibility between the act of forgetting/losing knowledge and strong exhaustivity?

What about the behavior of the verb *forget*? Does it admit both flavors of exhaustivity?

- (41) John forgot who came to the party.



- (42) $\llbracket \llbracket \llbracket \text{DP} + \text{jyano} \rrbracket + \text{VP} \rrbracket \rrbracket^{w,t} =$
 Assertion: $\exists x[\text{person}_{\langle w,t \rangle}(x) \ \& \ \text{Mina-gave-keys-to}_{\langle w,t \rangle}(x)] \ \wedge$
 $\neg \exists \langle w', t_{ST} \rangle \in \text{Epist}_{sp} \langle w, t \rangle [\exists x. \text{person}_{\langle w', t_{ST} \rangle}(x) \ \& \ \text{Mina-gave-the-keys-to}_{\langle w', t_{ST} \rangle}(x)]$
 EI-N + derived ignorance combined presupposition:
 $\exists \langle w', t'' \rangle, \langle w'', t''' \rangle \in \text{Epist}_{sp} \langle w, t \rangle [\{x: \text{person}_{\langle w', t'' \rangle}(x) \ \& \ \text{Mina-gave-keys-to}_{\langle w', t'' \rangle}(x)\} \neq \{x: \text{person}_{\langle w'', t''' \rangle}(x) \ \& \ \text{Mina-gave-keys-to}_{\langle w'', t''' \rangle}(x)\}] \ \wedge \ \exists \langle w', t' \rangle \in \text{Epist}_{sp} \langle w, t \rangle [\{x: \text{person}_{\langle w', t' \rangle}(x) \ \& \ \text{Mina-gave-keys-to}_{\langle w', t' \rangle}(x)\}], \ \mathbf{where} \ t' < t_{ST}, \ t'' = t_{ST}, \ t''' = t_{ST}$

Assuming propositions to be relativized to world-time pairs as well, and a Q that denotes a set of propositions that are possible complete answers to the question:

(43) $[[Q + [[DP+jyano]+VP]]]^{w,t} =$
Assertion:

$$\left\{ \begin{array}{l} \lambda \langle w,t \rangle . \text{person}_{\langle w,t \rangle}(\text{Shyam}) \ \& \ \text{Mina-gave-the-keys-to}_{\langle w,t \rangle}(\text{Shyam}) \ \wedge \\ \neg \exists \langle w',t_{ST} \rangle \in \text{Epist}_{sp} \langle w,t \rangle [\exists x . \text{person}_{\langle w',t_{ST} \rangle}(\text{Shyam}) \ \& \ \text{Mina-gave-the-keys-to}_{\langle w',t_{ST} \rangle}(\text{Shyam})], \\ \lambda \langle w,t \rangle . \text{person}_{\langle w,t \rangle}(\text{Jodu}) \ \& \ \text{Mina-gave-the-keys-to}_{\langle w,t \rangle}(\text{Jodu}) \ \wedge \\ \neg \exists \langle w',t_{ST} \rangle \in \text{Epist}_{sp} \langle w,t \rangle [\exists x . \text{person}_{\langle w',t_{ST} \rangle}(\text{Jodu}) \ \& \ \text{Mina-gave-the-keys-to}_{\langle w',t_{ST} \rangle}(\text{Jodu})], \\ \vdots \\ \vdots \end{array} \right\}$$

Presupposition (that each of the possible alternatives in the answer set take for granted):⁴

$$\exists \langle w',t'' \rangle, \langle w'',t''' \rangle \in \text{Epist}_{sp} \langle w,t \rangle [\{x: \text{person}_{\langle w',t'' \rangle}(x) \ \& \ \text{Mina-gave-keys-to}_{\langle w',t'' \rangle}(x)\} \neq \{x: \text{person}_{\langle w'',t''' \rangle}(x) \ \& \ \text{Mina-gave-keys-to}_{\langle w'',t''' \rangle}(x)\}] \ \wedge \ \exists \langle w',t' \rangle \in \text{Epist}_{sp} \langle w,t \rangle [\{x: \text{person}_{\langle w',t' \rangle}(x) \ \& \ \text{Mina-gave-keys-to}_{\langle w',t' \rangle}(x)\}], \ \mathbf{where} \ t' < t_{ST}, \ t'' = t_{ST}, \ t''' = t_{ST}$$

Addressee's response:

(44) Jodu-ke diye-chilo.
Jodu-DAT give-PAST.3P
'(She) had given (the key) to Jodu.'

although the addressee chooses an answer from the set offered in (43), they do not have to necessarily interact with the latter part of the propositions corresponding to epistemic statements by the speaker

– unless they want to challenge the assertive component, as shown above in (30)

Thus, the presupposition of derived ignorance that is triggered in the interaction of EI-N and *jyano* projects through the question environment, leading to a recall question, where the addressee helps the speaker recall information that the speaker overtly signals was once present but is now lost.

⁴There are non-trivial questions that arise when we think about whether the presupposition of *jyano* has universal projection or not in a question, or it admits existential projection (cf. Schwarz and Simonenko 2018, Theiler 2021). For the purposes of this talk, I am assuming universal projection; but I am continuing to explore the interaction of the EI and *jyano*'s presupposition projection in questions, and any possibilities related to local accommodation.

3 Recall questions are distinct from ‘Remind-me’ questions

(10) repeated below:

- (45) Wie ist **noch mal** Ihr Name?
 how is again your name
 ‘What is your name **again?**’

Sauerland and Yatsushiro (2017):(2)

Sauerland and Yatsushiro (2017) observe some properties of such questions:

- there has to be an explicit (overt/linguistic) antecedent for the question nucleus
- ‘repetitive’ particles like *noch mal*, Japanese *kke* require this past event of the question nucleus having been uttered *before* the event of uttering (45)
- this ‘before’ has a restriction: it has to be in the same discourse. Each discourse comes with its own CG and its own set of participants.
- The ‘remind-me’ presupposition does not require that the speaker ever knew the answer, it only requires that the answer existed in the CG before
- The ‘remind-me’ presupposition arises when *again* takes scope over a morpheme embodying the CG (Sauerland and Yatsushiro 2017:(44,43)):

(46) IMP-2[again[CG [what is your name?]]]

(47) $[[CG]]^\sigma (q^{<st,t>})(e) = 1$ iff event e is a discourse, the speaker σ is participating in e , and the complete answer to q is part of a common ground of e

e is a discourse, p = again + CG + ‘what is your name?’, q = ‘what is your name?’

Some crucial differences exist between ‘remind-me’ questions and recall questions, primarily because the particles have distinct properties.

Firstly, *jyano* differs from repetitive particles in restricting DPs, instead of propositions/events.

- i.e. the derived ignorance effect reported here is tied to referents of existential claims and not anything larger.

First piece of evidence for DP-association – multiple *wh*-questions:

- (48) a. [Ka-ra **jyano**] eshe [ki] diye ge-lo?
 who-PL JYANO come.IMPV what give.IMPV go-3P.PRF
 ‘Who (whose referent I knew at some point but have now forgotten) came and gave what?’
 → Speaker was familiar with the subject in the past (derived) and not the object (pure), but not anymore.
- b. [Kara **jyano**] eshe [ki **jyano**] diye gelo?
 ‘Who (whose referent I knew at some point but have now forgotten) came and gave what (whose referent I knew at some point but have now forgotten)?’
 → Speaker was familiar with the referents of both the subject and the object in the past (both derived), but not anymore.

The effect triggered by *jyano* is only associated with its direct sister, the DP containing the EI, and does not associate at the propositional level.

Compare this property with German ‘remind-me’ questions:

- (49) Wer hat **noch mal** was zerstört?
who has again what destroyed
‘Who destroyed what again?’

Sauerland and Yatsushiro (2017):(23)

The authors note that the presupposition of (49) is “that the complete answer to the question was contributed to the discourse, not just a partial answer.”

Thus, *noch mal* presupposes that the CG contained the complete answer (a proposition with both *wh*-gaps filled) in the same discourse as (49).

A second piece of evidence for DP-association – family of questions:

- (50) Tumi Dilli na Kolkata ge-chile jyano?
you Delhi or Calcutta go-2P.PAST JYANO
‘Which of [Delhi] and [Calcutta] did you go to (I used to know which one, but have now forgotten)?’ ALT Q

- (51) # Apnar naam-ta Veneeta na Veneeta noy jyano?
your.HON name-CL Veneeta or Veneeta not JYANO
Intended: ‘Which of [your name is Veneeta] and [your name is not Veneeta] is true (I used to know which one is true, but have now forgotten)?’ POL-ALT Q

- (52) # Apnar naam-ta ki Veneeta jyano?
your.HON name-CL Q Veneeta JYANO
Intended: ‘Which of the two propositions: your name is Veneeta, your name is not Veneeta, is true ((I used to know which one is

true, but have now forgotten)?’

POL Q

Alternative questions crucially differ from polar-alt questions and polar questions in behaving like constituent questions (see Nicolae 2013, 2014’s analysis of alternative questions, for example).

In comparison, polar questions as well as polar-alt questions (Biezma and Rawlins 2015, Dayal 2016, Bhadra 2017) necessitate a choice between two propositions, and thus *jyano* rejects these two speech acts.

Note that in theory, nothing blocks a flavor of derived ignorance that is propositional. However, particles to this effect may be scarce because the verb *forget* (which presumably exists universally) lexicalizes propositional lost knowledge.

– do you speak a language that has such a particle separate from *forget*?

Second major distinction between recall questions remind-me questions comes from encoding about knowledge states and how they came to be that way.

As we have seen, derived ignorance is very much a statement of lost knowledge in the **mind of the speaker**, unlike the ‘remind-me’ presupposition: Sauerland and Yatsushiro (2017)(p. 653): ‘the presupposed prior knowledge need not be the speaker’s, but can simply have been contributed to the common ground.’

Thus, in one case the missing information is in the CG, while in the other it had to have existed strictly in $\text{Epist}_{sp} \langle w, t \rangle$.

Additionally, unlike ‘remind-me’ questions, recall questions i) do not require $Epist_{sp} <w,t>$ to have been updated in the same discourse (53),(54) and ii) do not require overtly uttered linguistic antecedents for the referents of the EI’s claim (54).

Context: Anu tells Bina that Shyam has lent Jodu 50,875 rupees. Some days later, Bina is talking to Shyam:

- (53) Tumi Jodu-ke koto taka **jyano** dhaar diye-chile?
 you Jodu-DAT WH money JYANO lend give-2P.PST.PRF
 ‘How much money did you lend Jodu (I used to know how much, but can’t recall right now)?’

Context: I read in a newspaper about somebody called Anoushka Shankar who is apparently a world renowned sitar-player. I don’t know much about sitars or Indian classical music anyway, so I forget this information. Many years later, at an high-profile party, I run into Anoushka Shankar! I ask her:

- (54) Apni kon (ekta) badyo-jontro **jyano** baja-n?
 you.HON WH one musical-instrument JYANO play-2P.HON
 ‘Which musical instrument (the referent of which I used to know but cannot recall now) do you play?’

The context for (54) can be substituted with any others where there is not even the written word of a newspaper.

Thus, ‘remind-me’ questions and recall questions are very different animals, and they place distinct restrictions on the discourse.

In the case of recall questions, the content of the derived ignorance effect does not interact with the CG:

- the lost information is lost from $Epist_{sp}$, and not necessarily from DC_{sp}
- a Stalnakerian CG is characterized as a set of propositions mutually believed by the interlocutors.
- Farkas and Bruce (2010) characterize that as intersection of the DCs of all participants
- Since $Epist_{sp}$ and DC_{sp} can be disjoint sets (in extreme cases), the state of the CG with respect to the content of the existential claim does not matter.
- with ‘remind-me’ questions, the CG in the same discourse is of supreme importance.

4 Conclusion

The Bengali particle *jyano* combines with EIs to yield an effect of having forgotten the witness of the existential claim, instead of purely never having known the witness of the existential claim.

In declarative speech acts this leads to statements of ‘derived’ ignorance, while in questions it leads to a ‘recall’ effect of the speaker asking for the addressee’s help in recalling information.

The meaning of *jyano* was modeled as a restrictor of the EI along an added temporal dimension; and modal variation in EI meanings were argued to be modeled as modal and temporal variation instead.

jyano asserts ignorance at speech time and presupposes knowledge at a time prior to speech time. Taken together, it is a representation of lost knowledge.

Recall questions were argued to be *wh*-questions where the derived ignorance presupposition projects, and other types of questions were compared to this genre of questions.

Recall questions triggered by lost knowledge were shown to be a distinct speech act from Sauerland and Yatsushiro (2017)'s 'remind-me' questions triggered by repetitive particles.

Some typological musings

EIs in South Asian languages have received sparse attention. Slade (2015) noted that Sinhala EIs rule out specific identification methods, while Balusu (2018) noted that Telugu EIs are anti-licensed by recognition.

Not much has been discussed about the behavior of EIs in questions. Can they occur in questions without any restrictors or particles? What interpretations do they yield in questions, even without any restriction?

- E.g., German *irgendein* or Spanish *algún* in different types of questions?
- How would the FC vs. MV effects, partial vs. total ignorance properties interact with the knowledge states of interlocutors in a questioning discourse?

In Bengali, EIs just by themselves in questions (i.e. with rising intonation) sound quite strange:

- (55) a. ??[Kon ekta] chatro eshechilo?
Intended: 'Some student came, who was it?'

- b. ??[Ke ekta] boi ta niye gelo?
Intended: 'Someone took the book, who was it?'
- c. ??[Kake ekta] takata dilam?
Intended: 'I gave the book to someone, who was it?'
- d. ??Kothay ekta boi ta dekhlam?
Intended: 'I kept the book somewhere, where was it?'

How does the phenomenon of losing previously-possessed knowledge compare to EI usage with currently present knowledge?

- For e.g., Richtarcikova (2013) observes that Slovak EIs can be compatible with speaker's knowledge. Identifying the witness with such an EI can (i) signal that the identity of the witness is irrelevant, (ii) indicate that the hearer is unable to identify the witness, and (iii) create 'a sense of suspense', after which the speaker proceeds to identify the witness. (Alonso-Ovalle and Menéndez-Benito 2015).

Maybe the Bangla facts further add to these typological distinctions of ignorance and knowledge as encoded in natural languages.

- Is it possible to lose different varieties of sub-propositional knowledge?
- Referents of existentials vs. other quantifiers vs. events vs. manners vs. properties?
 - Do languages naturally encode such phenomena (with devices apart from the verb *forget*)?

Thank you! ধন্যবাদ!

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