Epistemic indefinite restrictors as discourse particles: conjectural & recall questions[1]

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1 'Recall' Questions

We will study a particle *jyano* in Bengali[2] that is notoriously hard to translate into English.

It has many lives/uses (see the Appendix in Section 5), but today we will zoom in on one use. This use of *jyano* stems from its attachment to a DP.

(1) kon ek-ta chatro **jyano** boi-ta rekhe gelo?
WH one-CL student JYANO book-CL keep.IMPV go.PST.PRF
'Which student left the book here?' (very inadequate translation)

Most accurate representation of (1) is the following:
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.

[1]Thanks to Arka Banerjee for extensive judgement corroboration as well as many productive discussions. Thanks to the late Rahul Balusu for inspiring me to study epistemicity in the nominal domain.

[2]Also known as Bangla (Indo-Aryan; India, Bangladesh).

(2) 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 (1) and (2) 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*:

(3) 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 (3) 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 4).

Roadmap: §1 *jyano* declaratives and questions; §2 Understanding *jyano*; §3 Proposal; §4 Recall questions $\neq$ 'remind-me' questions; §5 Typological musings

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

Declaratives

↓ = falling contour; ↑ = rising contour; ✣ = incomplete[3], almost #

(4) **Ami** chabi-ta ka-ke ek-ta **jyano** di-lam↓ 1P
I key-CL WH-DAT one-CL JYANO give-1P.PRS.PRF
✣ 'I wonder who I gave the keys to.'
✓ 'I knew at some point who I gave the keys to, now I do not recall.'

(5) **Tumi** chabi-ta ka-ke ek-ta **jyano** di-le↓ 2P
you key-CL WH-DAT one-CL JYANO give-2P.PRS.PRF
✣ 'I wonder who you gave the keys to.'
✓ 'I knew at some point who you gave the keys to, now I do not recall.'

(6) **Mina** chabi-ta ka-ke ek-ta **jyano** di-lo↓ 3P
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*-questions**[4]

(7) **Ami** chabi-ta ka-ke ek-ta **jyano** di-lam↑ 1P
I key-CL WH-DAT one-CL JYANO give-1P.PRS.PRF
✗ 'I wonder who I gave the keys to.'
✓ 'Can you tell me who I gave the keys to (I knew at some point, now I do not recall)?'

[3] Thanks to Arka Banerjee for this nomenclature.

[4] A rising intonational contour on a declarative with no change in syntactic form can form neutral questions in languages like Bangla, Hindi, and many other South Asian languages (see Bhadra 2020, Bhatt and Dayal 2020).

(8) **Tumi** chabi-ta ka-ke ek-ta **jyano** di-le↑ 2P
you key-CL WH-DAT one-CL JYANO give-2P.PRS.PRF
✗ 'I wonder who you gave the keys to.'
✓ 'Can you tell me who you gave the keys to (I knew at some point, now I do not recall)?'

(9) **Mina** chabi-ta ka-ke ek-ta **jyano** di-lo↑ 3P
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.
- 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 (9), 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?

2 *Jyano*, examined

In the nominal domain, *jyano* only attaches to **epistemic indefinites**.

(10) *Chatro-ta/*ekta chatro/*Mina/*prottyek chatro/*oi
student-CL/one student/Mina/every student/that
chatro/*koyekta chatro/*shorbadhik duto chatro jyano chole
student/few student/at-most two student JYANO leave
ge-lo
go-3P.PRF
*The student/*one student/*Mina/*every student/*that student/*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).

(11) 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)).

2.1 Properties of EI-N+*jyano*

The EI in (12), in brackets, shows pure ignorance, while the addition of the particle *jyano* (13) to the DP containing the EI immediately signals derived ignorance:

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

(13) [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 (15), or for the speaker to name the referent (16) (Alonso-Ovalle and Menéndez-Benito 2010).

Speaker:

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

Addressee:

(15) # Kon-ta-y?
WH-CL-LOC
'In which?'

(16) Jodu ei bari-r [kon ek-ta ghor-e **jyano**] lukiyeche,
Jodu this house-GEN WH one-CL room-LOC JYANO hide-3P.PRF,
aar sheta hocche showa-r ghor-e!
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 (17):

(17) Mina-ke [kon ekta daktar-ke **jyano**] biye korte hobe,
Mina-DAT WH one dr.-DAT JYANO wedding do.IMPV has-to,
#ami jani-na kake /✓amar mon-e nei kake.
#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:

(18) Rahul nijer bibhage e [kake **jyano**] pochondo kore-na.
Rahul own department in WH JYANO like 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:

(19) Kon ekta bibhage **jyano** porashona kor-le nishchit
WH one-CL department-LOC JYANO study do-COND certainly
chakri pawa jay.
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 (20), and is amenable to reinforcement (21):

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

(21) [Kon ekta boi **jyano**] pore ge-lo, amar mon-e nei
WH one book JYANO fall go-3P.PRF my mind-LOC NEG
kon-ta.
WH-CL
'Some book (I used to know which one, but now do not recall) 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.**

(22) 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:[5]

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:

(23) 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:

[5]See Ramchand (1997) for a detailed analysis of Bengali indeterminate pronouns ('k-words') that relates to their NPI, FCI, and WH uses. Throughout, I gloss k-words as WH for simplicity.

(24) 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:[6]

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

Table 3:

Unlike 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

[6]All 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 Appendix in Section 5).

to any domain widening.

The derived ignorance effect is also incompatible with epistemic modals, both possibility and necessity:

(25) a. *Rahul nishchoi ei bari-ta-r kon ekta ghor-e **jyano** luki-ye ache.
Rahul must this house-CL-GEN WH one room-CL hide-IMPV COP
Intended: 'Rahul must be hiding in some room of this house (I knew at some point which one, but now cannot recall).'

b. *Rahul bodhoy ei baritar kon ekta ghore **jyano** lukiye ache.
Rahul might this house-CL-GEN WH one room-CL hide-IMPV COP
Intended: 'Rahul might be hiding in some room of this house (I knew at some point which one, but now cannot recall).'

Cross-linguistically, EIs have been shown to be sensitive to the extent to which the indefinite requires the worlds introduced by the modal[7] to vary with respect to the identity of the individual satisfying the existential claim – a property known as *modal variation*.

Modal variation can be partial or total.

The derived ignorance effect is compatible with both:

(26) 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 *jyano*, 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)?

[7] Either assumed to be covertly present in non-modalized sentences or overtly present with scope over EIs.

3 Proposal

3.1 Declaratives

The answer lies in analyzing ***jyano* 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 Fintel 1999):

LF: □ [algún(P)(Q)]
The Modal Variation component:
$\exists w', w'' \in \mathscr{D}_w[\{x : P(w')(x)\ \&\ Q(w')(x)\} \neq \{x : P(w'')(x)\ \&\ Q(w'')(x)\}]$
(where $\mathscr{D}_w$ 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 *jyano* indicate the necessity of a temporal dimension.

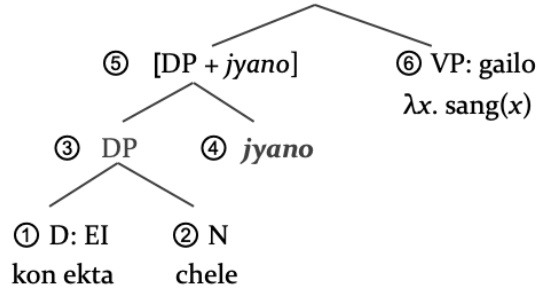
The solution: the modal variation component in the meaning of the EI has to instead be modal *and temporal variation*, which then interacts with the presupposition of *jyano*, resulting in a restriction of world-time pairs in the epistemic alternatives of the speaker (forming the derived ignorance/forgetting 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 (13) is represented in the tree, which is used to show each step of the computation (27).

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



(27) a. $[\![①]\!]^{w,t}$ = Assertion: $\lambda P_{<w,t>}\lambda Q_{<w,t>}\exists x[\lambda P_{<w,t>}(x)$ & $\lambda Q_{<w,t>}(x)]$
MTV presupposition: $\exists$<*w'*,*t'*>,<*w"*,*t"*> $\in$ Epist$_{sp}$<*w*,*t*>$[\{x : P_{<w',t'>}(x)$ & $Q_{<w',t'>}(x)\} \neq \{x : P_{<w'',t''>}(x)$ & $Q_{<w'',t''>}(x)\}]$
(temporal accessibility unrestricted)

b. $[\![②]\!]^{w,t}$ = $\lambda x.$ boy$_{<w,t>}(x)$

c. $[\![③]\!]^{w,t}$ = Assertion: $\lambda Q_{<w,t>}\exists x[boy_{<w,t>}(x)$ & $Q_{<w,t>}(x)]$
Presupposition: $\exists$<*w'*,*t'*>,<*w"*,*t"*> $\in$ Epist$_{sp}$<*w*,*t*>$[\{x :$ boy$_{<w',t'>}(x)$ & $Q_{<w',t'>}(x)\} \neq \{x :$ boy$_{<w'',t''>}(x)$ & $Q_{<w'',t''>}(x)\}]$
(temporal accessibility unrestricted)

d. $[\![④/$***jyano***$]\!]^{w,t}$ = Assertion: $\lambda R_{<et,t>}.\lambda Q_{<et>}.R(Q) \wedge \neg\exists$ <*w'*,t_{ST}> $\in$ Epist$_{sp}$<*w*,*t*>$[R_{<w',t_{ST}>}(Q)=1]$
Presupposition: $\exists$ <*w'*,*t'*> $\in$ Epist$_{sp}$<*w*,*t*>$[\{x :$ boy$_{<w',t'>}(x)$ & $Q_{<w',t'>}(x)\}]$, **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. $[\![⑤]\!]^{w,t}$ = Assertion: $\lambda Q_{<w,t>}\exists x[boy_{<w,t>}(x)$ & Q$_{<w,t>}$ (x)] $\wedge \neg\exists$ <*w'*,t_{ST}> $\in$ Epist$_{sp}$<*w*,*t*>$[\lambda Q_{<w',t_{ST}>}\exists x.boy_{<w',t_{ST}>}(x)$ & Q$_{<w',t_{ST}>}(x)]$
EI-N + derived ignorance combined presupposition:
$\exists$<*w'*,*t"*>,<*w"*,*t"'*> $\in$ Epist$_{sp}$<*w*,*t*>$[\{x :$ boy$_{<w',t''>}(x)$ & $Q_{<w',t''>}(x)\} \neq \{x :$ boy$_{<w'',t'''>}(x)$ & $Q_{<w'',t'''>}(x)\}] \wedge \exists$ <*w'*,*t'*> $\in$ Epist$_{sp}$<*w*,*t*>$[\{x :$ boy$_{<w',t'>}(x)$ & $Q_{<w',t'>}(x)\}]$, **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:

(28) 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

(29) 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/kokhonoi 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 modified by such particles, this two-dimensional variation can be applied cross-linguistically.

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.

Taken together with the Bengali facts about restrictions on EIs, interesting typological questions within the arise spectrum of distinctions in knowledge/ignorance that natural languages encode, especially in comparison with distinct knowledge types in Slovak, Romanian EIs, for example (Richtarcikova 2013, Farkas 2002, Falaus 2009, among others).

The semantics in (27) can account for all the available meanings in declaratives, across all 3 persons in (4)-(6).

3.2 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 NeìePkepmxcín (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):

(30) 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.'

Littell et al. (2010):(2)

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

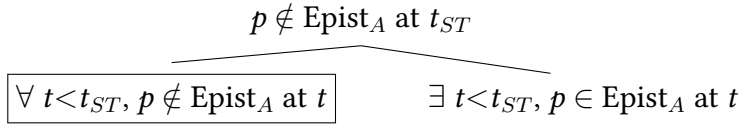
The tradition of 'wonder' as a representative of conjecture carries a distinct assumption:

- 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 (4)-(6).

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:

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

(33) 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*:

(34) 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.

3.3 Recall questions

(9) repeated below:

(35) **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 (27).
- 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.

(36) $$\text{Mina chabi-ta} \left\{ \begin{array}{c} Shyam - ke \\ Jodu - ke \\ Madhu - ke \\ Asha - ke \\ Vicky - ke \end{array} \right\} \text{dilo}$$

With the addition of *jyano* to (36), since *jyano*'s meaning encodes epistemic statements, two possible readings could arise:

(37) 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

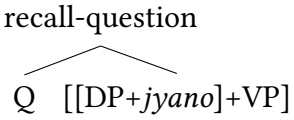
Recall questions with *jyano* usually only admit a weakly exhaustive interpretation. For example:

(38) 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 (35).
✓ '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?

(39) John forgot who came to the party.



(40) $[\![[[\text{DP+}jyano]\text{+VP}]]\!]^{w,t}$ =
Assertion: $\exists x$[person$_{<w,t>}(x)$ & Mina-gave-keys-to$_{<w,t>}$ (x)] $\wedge$ $\neg\exists$ $<w', t_{ST}>$ $\in$ Epist$_{sp}$<*w,t*>[$\exists x$.person$_{<w', t_{ST}>}(x)$ & Mina-gave-the-keys-to$_{<w', t_{ST}>}(x)$]

EI-N + derived ignorance combined presupposition:
$\exists$<*w',t"*>,<*w",t"'*> $\in$ Epist$_{sp}$<*w,t*>[{x: person$_{<w', t''>}(x)$ & Mina-gave-keys-to$_{<w', t''>}(x)$} $\neq$ { x: person$_{<w'', t'''>}(x)$ & Mina-gave-keys-to$_{<w'', t'''>}(x)$}] $\wedge$ $\exists$ <*w',t'*> $\in$ Epist$_{sp}$<*w,t*>[{x: person$_{<w', t'>}(x)$ & Mina-gave-keys-to$_{<w', t'>}(x)$}], **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:

(41) $[\![$Q + [[DP+*jyano*]+VP]$]\!]^{w,t}$ =
Assertion:

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

Presupposition (that each of the possible alternatives in the answer set take for granted):
$\exists <w',t''>,<w'',t'''> \in \text{Epist}_{sp}<w,t>[\{\text{x: person}_{<w',t''>}(x) \,\&\, \text{Mina-gave-keys-to}_{<w',t''>}(x)\} \neq \{\text{ x: person}_{<w'',t'''>}(x) \,\&\, \text{Mina-gave-keys-to}_{<w'',t'''>}(x)\}] \wedge \exists <w',t'> \in \text{Epist}_{sp}<w,t>[\{\text{x: person}_{<w',t'>}(x) \,\&\, \text{Mina-gave-keys-to}_{<w',t'>}(x)\}]$, **where *t'* < t_{ST}, *t''* = t_{ST}, *t'''* = t_{ST}**

(42) Context update (à la Farkas and Bruce 2010):
$T_o = push(<whQ; \{p, q, r, s, t\}>, T_i)$

Addressee's response:

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

Note that although the addressee chooses an answer from the set offered in (41) (as is expected by the speech act), 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 (28)

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.

4 Recall questions are distinct from 'Remind-me' questions

(3) repeated below:

(44) 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 (44)
- this 'before' has a restriction: it has to be in the same discourse. Each discourse comes with it 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)):

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

(46) $[\![\text{CG}]\!]^{\sigma}$ ($q^{<st,t>}$)(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:

(47) 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:

(48) 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 (48) 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 (48).

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

(49) 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

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

(51) # Apnar naam-ta ki Regine jyano?
your.HON name-CL Q Regine JYANO
Intended: 'Which of the two propositions: your name is Regine, your name is not Regine, 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 $\text{Epist}_{sp}<w,t>$.

Additionally, unlike 'remind-me' questions, recall questions i) do not require Epist_{sp} $<w,t>$ to have been updated in the same discourse (52),(53) and ii) do not require overtly uttered linguistic antecedents for the referents of the EI's claim (53).

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

(52) 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:

(53) 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 (53) 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.

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

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:

(54) 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).

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?

Thank you!

5 Appendix: Other lives of *jyano*

- A flavor of **deontic modality** comes from *jyano* interpreted as a modifier of the VP:

(55) 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 or other verbal projections:

(56) 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:

(57) 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.'

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