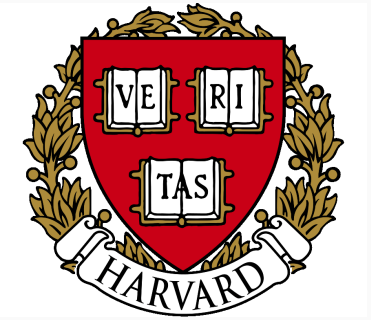

Veridicality mismatches in Javanese

Tanya Bondarenko (Harvard • tbondarenko@fas.harvard.edu)

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Introduction

Introduction

- Spector & Egré (2015) proposed a generalization that restricts possible meaning pairs <**V + declarative, V + interrogative**>:

(1) **Spector & Egré (2015)'s Generalization:**
A responsive predicate is veridical with respect to its interrogative complement (like *know* + question = knowing the true answer to the question) if and only if it is veridical with respect to its declarative complements as well (*know* + declarative entails – in fact presupposes – that the declarative is true).
(Spector & Egre 2015: 1732)

Introduction

- **Motivation:** there are many lexical entries for clause-embedding verbs that we could in principle conceive of, but do not seem to find.

(2) $[\![\textit{shknow}]\!] = <\lambda p_{st}.\lambda x.$ x knows p, $\lambda Q_{st,t}.\lambda x.$ x wonders Q$>$

a. John *shknows* that it is raining
   = John knows that it is raining.

b. John *shknows* whether it is raining
   = John wonders whether it is raining.

Introduction

- Some counterexamples to the generalization have been noted (see Elliott et al. 2017, Theiler et al. 2018, Roelofsen & Uegaki 2021, Özyıldız 2019, Uegaki 2022, Özyıldız & Uegaki 2023).
- For example, relevance predicates (Elliott et al. 2017):

(3) a. Mary cares that John left.
$\rightsquigarrow$ John left **(veridical)**.

b. Mary cares which student left.
$\not\rightsquigarrow$ Mary believes a true answer to the question *"Which student left?"* **(non-veridical)**.

Introduction

Questions:

- ★ How do veridicality mismatches arise?
- ★ What do they tell us about possible sources of veridical inferences?

Introduction

This talk:

★ Discusses a new case of veridicality mismatching from Javanese:

- ▷ **non-veridicality with declaratives**
  'know'/'remember' + P $\not\rightarrow$ P is true;
- ▷ **veridicality with interrogatives**
  'know'/'remember' + Q $\rightarrow$ know/remember the true answer to Q.

Introduction

★ Proposes that this mismatch arises due to two factors:

- ▷ declarative clauses in the language are never true arguments of verbs;
- ▷ propositional content associated with the verbs under consideration must be a proposition (cannot be question-meaning).

Introduction

What this will tell us about veridicality:

- In certain cases, veridical inferences are contributed directly by the answerhood operator (Dayal 1996, a.m.o.) and not by the predicate;
- The notion of veridicality needs to be relativized to the argument of a predicate—either an individual argument or an event argument (see also Bondarenko 2022, Uegaki 2022).

★ **Also:** Javanese data potentially provides an argument in favor of the Question-to-Proposition Reduction Approach.

Introduction

Roadmap:

1. Basic facts about Javanese complementation
2. Non-veridical readings with declaratives
3. Veridical readings with questions
4. Proposal
5. Supporting evidence
6. The presupposition of ‘know’
7. Concluding remarks

Basic facts about Javanese complementation

Basic facts about Javanese complementation

- **Declarative clauses** in Javanese (Austronesian)[1] can be introduced by two complementizers, *nek* and *yen*.
- While there are some differences between them, none have so far seem to matter for veridicality.

(4) Djoko ngêrti **nek** / **yen** Esti ménang pêrtandhingané.
Djoko know **C** / **C** Esti win race.DEF
'Djoko knows that Esti won the race.'

[1] I am incredibly grateful to Ismartilah Drummond, who provided all the judgements reported here. Most of the data comes from 2019, some of it is from 2023.

Basic facts about Javanese complementation

Polar embedded questions can be formed by two main strategies:

- by using a Q-particle *apa* (lit. 'what, or') before the COMP, (5);
- by adding *apa ora* 'or not' at the end of the embedded clause, (6).

(5) Djoko ngêrti **apa nek** / **yen** Esti ménang pêrtandhingané
Djoko know **Q C** / **C** Esti win race.DEF
'Djoko knows whether Esti won the race.'

(6) Djoko ngêrti **nek** / **yen** Esti ménang pêrtandhingané **apa ora**.
Djoko know **C** / **C** Esti win race.DEF **Q NEG**
'Djoko knows whether Esti won the race or not.'

- Again, the two strategies seem to behave in the same way as far as veridicality is concerned.

Basic facts about Javanese complementation

Embedded Wh-questions can be formed by putting a wh-word into the in situ position of the embedded clause:[2]

(7) Tuti ngêrti **nek** / **yen** aku tuku **apa**.
Tuti know **C** / **C** I buy **what**
'Tuti knows what I bought.'

(8) Djoko ngêrti **nek** / **yen sapa** (sing) entuk hadiyahé
Djoko know **C** / **C** **who** (REL) got prize.DEF
'Djoko knows who got the prize.'

[2]Passivizing the embedded predicate is sometimes possible/in certain cases might be preferred, and that can affect the choice of the complementizer. I will not be using sentences with embedded passivization here.

Non-veridical Readings with Declaratives

Non-veridical Readings with Declaratives

- Factive verbs like English *know* and *remember* usually presuppose the truth of their complement.
- This makes their use illicit in the ignorant speaker scenario:

(9) #I don't know whether Djoko drew mountains or not, but Parto knows/remembers that Djoko drew mountains.

Non-veridical Readings with Declaratives

- In Javanese no such effect arises when matrix verbs *ngêrti* 'know' and *kèlingan* 'remember' take *nek*/*yen*-clauses:

(10) aku ora ngêrti nek djoko nggambar gunung apa ora, ning
I NEG know C Djoko draw mountain or not but
parto **ngêrti/kèlingan** nek/yen djoko nggambar gunung.
Parto **know/remember** C Djoko draw mountain
'I don't know whether Djoko drew mountains or not, but Parto knows/remembers that Djoko drew mountains.'

Non-veridical Readings with Declaratives

- The fact that factive verbs presuppose their complements also normally makes it illicit to assert that someone knows p, while another person knows not p.

(11) #Djoko knows that Esti won the race, but Budi knows that Esti didn't win the race.

(12) Djoko thinks that Esti won the race, but Budi thinks that Esti didn't win the race.

Non-veridical Readings with Declaratives

- No such infelicity arises with Javanese "factive" verbs:

(13) **Context:** Neither Heni nor Wita have been at the race. Heni is searching for someone who knows whether Esti won the race or not, and he asks Wita.

Heni: aku arep nggoleki wonge sapa sing ngêrti nek Esti ménang
I want find person who REL know C Esti win
pêrtandhingané apa ora. apa kowe ngêrti nek Esti ménang
race.the or not Q you know C Esti win
pêrtandhingané apa ora?
race.the or not
'I want to find a person who knows whether Esti won the race or not. Do you know if Esti won the race or not?'

Non-veridical Readings with Declaratives

Wita: aku ora ngêrti, aku ora nonton (pêrtandhingané). ning Djoko
I not know I not watch (race.the) but Djoko
ngêrti nek Esti ménang pêrtandhingané, dene Budi ngêrti nek
know C Esti win race.the CONJ Budi know C
Esti ora ménang pêrtandhingané.
Esti not win race.the

'I don't know, I didn't watch (the race). But Djoko knows that Esti won the race, and Budi knows that Esti didn't win the race.' (So maybe we should ask someone else.)

Non-veridical Readings with Declaratives

- Moreover, the speaker can be one of the attitude holders:

(14) aku ngêrti yen Esti mangan kuwehe, ning Djoko ngerti
I know C Esti eat cake but Djoko know
/kèlingan nek/yen Esti ora mangan kuwehe
/remember C Esti not eat cake.
'I know that Esti ate cake, but Djoko knows/remembers that Esti didn't eat cake.'

Non-veridical Readings with Declaratives

★ **Take-away:**

- Javanese verbs *ngêrti* 'know' and *kèlingan* 'remember' are non-veridical with respect to declarative embedding:
  'know'/'remember' + P $\not\rightarrow$ P is true

(Discussion of how this 'know' is different from 'think' is to follow.)

Veridical Readings with Questions

Veridical Readings with Questions

- We might have expected that given the lack of veridicality with declarative embedding, interrogative embeddings will be non-veridical as well:

(15) **Expectation (is not borne out):**

a. *ngêrti* 'know' + Q = believe some answer to Q

b. *kèlingan* 'remember' + Q = recall some answer to Q

- However, this does not seem to be the case: only the "true answer" readings are available.

Veridical Readings with Questions

#No one knows the true answer to Q, but S Vs Q.

- Saying that the attiude holder stands in a *ngêrti/kèlingan* relationship to the question is incompatible with the true answer to this question being unknown.

(16) #Saka pitakoné Esti mangan apa, ora ana sing ngêrti
from question.the Esti eat what NEG there REL know
/kelingan jawabané sing bener,
/remember answer.the REL true
Budi ngêrti /kèlingan nek Esti mangan apa.
Budi know /remember C Esti eat what
Intended: 'No one knows/remembers the true answer to the question *"What did Esti eat?"*, Budi knows/remembers (some answer to) what Esti ate.'

Veridical Readings with Questions

#S Vs Q, but S doesn't know the true answer to Q.

- And the attitude holder has to know the correct answer:

(17) #Budi ngêrti /kèlingan nek Esti mangan apa,
Budi know /remember C Esti what ate
ning Budi ora ngêrti /kèlingan jawabané sing bener saka
but Budi NEG know /remember answer.the REL true from
pitakoné nek Esti mangan apa.
question C Esti eat what
Intended: 'Budi knows/remembers (some answer to) what Esti ate, but Budi doesn't know/remember the true answer to the question *"What did Esti eat?"*.'

Veridical Readings with Questions

#P. S Vs Q, but S Vs ¬P.

- Another illustration: if Esti ate the cake, and Djoko remembers what Esti ate, he cannot remember that she didn't eat the cake.

(18) #Esti mangan kuwehé. Djoko kèlingan yen Esti mangan apa,
Esti eat cake Djoko remember C Esti eat what
ning Djoko kèlingan yen Esti ora mangan kuwehé.
but Djoko remember C Esti not eat cake
Intended: 'Esti ate the cake. Djoko remembers what Esti ate (= some answer to what Esti ate), but Djko remembers that Esti didn't eat the cake.'

Veridical Readings with Questions

- **Polar embedded questions** behave just like Wh-Questions: *ngêrti* and *kelingan* are veridical with them.

(19) **Context:** Esti participated in a race; I (the speaker) don't know its result, but know that Djoko thinks that Esti won the race, and Budi thinks that Esti didn't win the race.

(20) #Djoko ngêrti /kèlingan apa nek Esti ménang
Djoko know /remember Q C Esti win
pêrtandhingané, lan Budi ngêrti /kèlingan (uga) apa nek
race.the CONJ Budi know /remember (too) Q C
Esti ménang pêrtandhingané, bocahe sing siji salah.
Esti win race.the boy.E REL one wrong
Intended: 'Djoko knows/remembers (some answer to) whether Esti won the race, and Budi also knows/remembers (some answer to) whether Esti won the race, one of the boys is wrong.'

Veridical Readings with Questions

- Cf. the felicitous declarative embedding in the same context:

(21) Djoko ngêrti /kèlingan nek Esti ménang pêrtandhingané,
Djoko know /remember C Esti win race.the
ning Budi ngêrti /kèlingan nek Esti ora ménang
CONJ Budi know /remember C Esti NEG win
pêrtandhingané, bocahe sing siji salah.
race.the, boy.E REL one wrong
'According to what Djoko knows/remembers, Esti won the race, according to what Budi knows/remembers, Esti didn't win the race, one of the boys is wrong.'

Proposal

Proposal

I propose that the veridicality mismatches that we observe in Javanese arise due to the following factors:

- ★ *Nek/yen*-clauses are modifiers of embedding verbs specifying the content associated with the mental state/event.
- ★ The content of eventualities denoted by *ngêrti* 'know' and *kèlingan* 'remember' must be a proposition, cannot be a question.

Proposal

- ★ **Declarative embedding is non-veridical**, because *ngêrti* 'know' and *kèlingan* 'remember' don't place restrictions on the content associated with the mental state/event.[3]
- ★ **Interrogative embeddings is veridical**, because in order for a question to combine with these verbs, the answerhood operator (Dayal 1996) must be inserted, and it is the source of veridicality.

[3] This is not completely true for *ngêrti* 'know', as we will see.

Proposal

- I assume that eventualities (events & states, D_s) are particulars which are a subset of the domain of individuals ($D_s \subset D_e$), and that some of the individuals are entities with propositional content.

  (Moltmann 1989, Kratzer 2006, Moulton 2009, Moltmann 2013, 2014, Moulton 2015, Bogal-Allbritten 2016, Kratzer 2016, Elliott 2017, Moltmann 2020, a.o.).

(22) CONT(ENT) FUNCTION (after Elliott 2017):
CONT is a partial function that takes an entity $x \in D_e$ (where $D_s \subset D_e$) and returns x's unique content $Q \in D_{st,t}$.

- CONT returns *a set of propositions*—the meaning of a question.

Proposal

- I propose that *ngêrti* 'know' and *kelingan* 'remember' are simple predicates of mental states.
- The only restriction that they place on the states they describe is that propositional content associated with this state is a singleton set.[4]

(23) $[\![\textit{ngêrti}]\!]^s = \lambda s'\colon \exists!p[p \in \textsc{Cont}(s')].\ \text{think}(s')_s$

(24) $[\![\textit{kèlingan}]\!]^s = \lambda s'\colon \exists!p[p \in \textsc{Cont}(s')].\ \text{remember}(s')_s$

[4] As we'll see later, *ngêrti* will specify one more restriction on its content.

Proposal

- The complementizers (*nek/yen*) take a set of propositions as their argument, and return a predicate of eventualities whose propositional content equals this set of propositions.

(25) $[\![\textit{nek}]\!]^s = \lambda P_{st,t}.\lambda s.\ \textsc{Cont}(s) = P$

- With a declarative clause, $\textsc{Cont}$ returns a singleton set:

(26) $[\![\textit{nek}$ Esti won$]\!]^s =$
$\lambda s.\ \textsc{Cont}(s) = \{\{s' : \text{Esti won the race in } s'\}\}$

Proposal

- With interrogative clauses, the CONT function returns sets with more than one member:

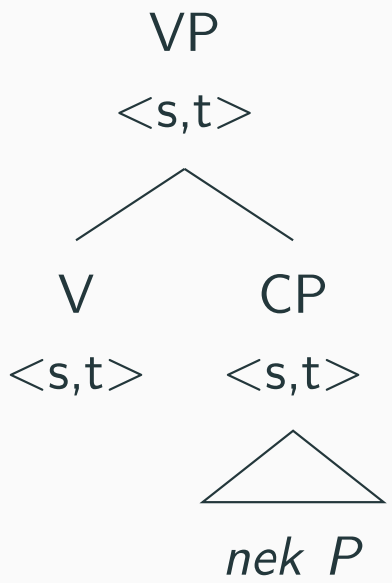
(27) *Polar Question*
$[\![$*nek* Q Esti won$]\!]^s =$
λs. CONT(s) =
{{s': Esti won the race in s'},{s': Esti didn't win the race in s'}}

(28) *WH-Question*
$[\![$*nek* Esti ate what$]\!]^s =$
λs. CONT(s) =
{{s': Esti ate the cake in s'},{s': Esti ate the mango in s'}...}

Proposal

- Verbs will always combine with clauses by Predicate Modification, and the result will be a predicate of events described by the verb whose CONTENT is the meaning of the embedded clause P.

(29) $[\![\text{VP}]\!] = \lambda s'.[\![\text{V}]\!](s') \wedge \textsc{Cont}(s')=P$

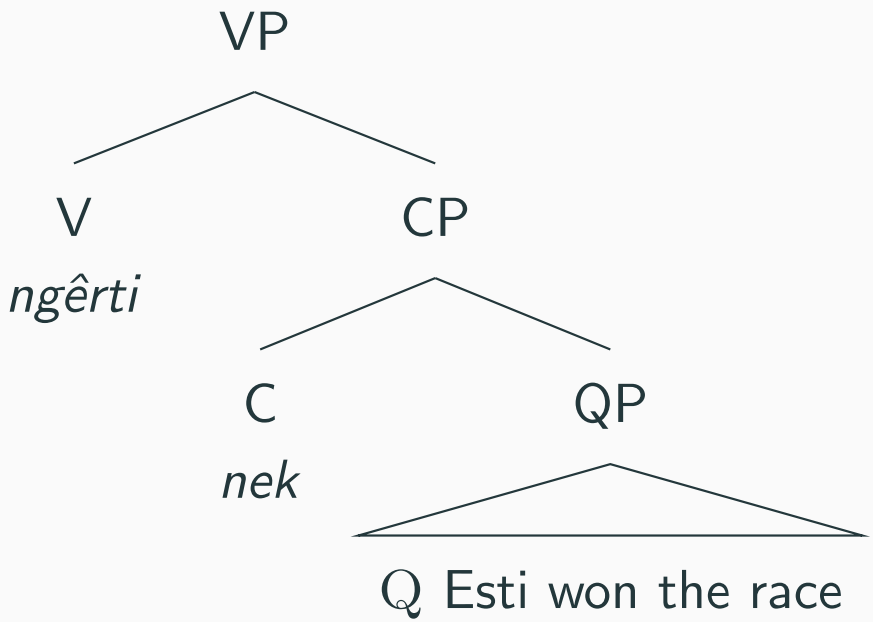


Proposal

- Verbs *ngêrti* 'know' and *kelingan* 'remember' will not be able to combine with questions directly due to the presupposition that the CONTENT of their state is a singleton set.

(30) $[\![$*ngêrti nek* Q Esti won the race$]\!]^s =$
λs': $\exists!$p[p $\in$ CONT(s')]. think(s')$_s$ $\wedge$ CONT(s') =
{{s': E. won the race in s'},{s': E. didn't win the race in s'}} $= \varnothing$

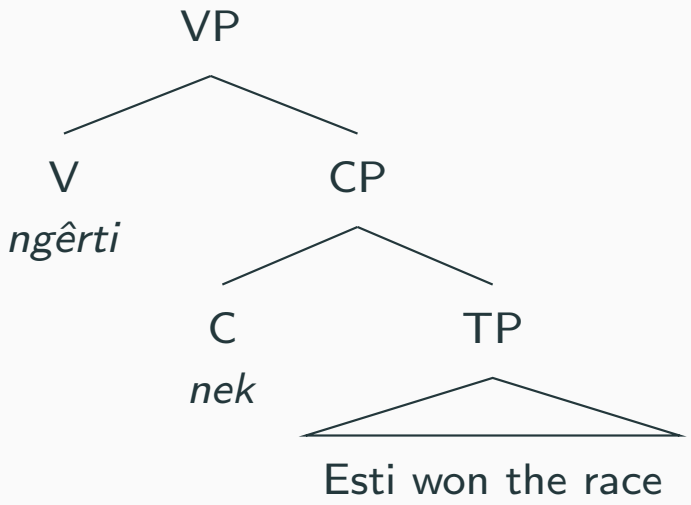
(31)



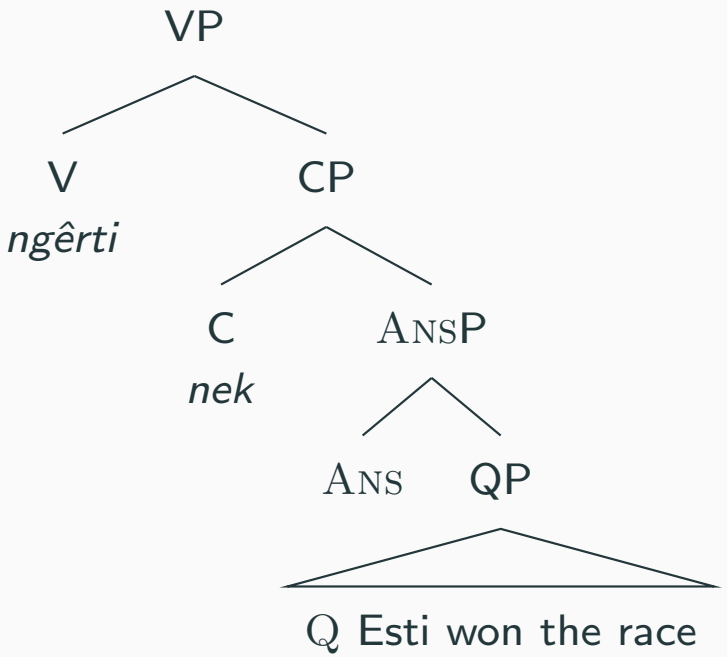
Proposal

- This selectional restriction will require insertion of the ANS operator in cases of question-embedding, which introduces veridicality, and thus creates a mismatch with the declarative embedding.

(32) **Declarative Embedding**
no ANS, non-veridical



(33) **Interrogative Embedding**
ANS, veridical



Proposal

- Note: Ans doesn't change the type of the constituent, it just smashes it into a singleton set.

(34) $[\![\text{Ans}]\!]^s = \lambda Q_{st,t}.\lambda p_{st}.\ p{=}\text{Max-Ans}(Q,s)$

(35) $\text{Max-Ans}(Q,s) =_{def}$
the unique $p \in Q$ $[p(s) \wedge \forall q{\in}Q\ [q(s) \rightarrow p{\subseteq}q]]$

(36) $[\![\textit{nek}\ \text{Ans}\ Q\ \text{Esti won the race}]\!]^s =$
$\lambda s'.\ \text{Cont}(s') = \lambda p_{st}.\ p{=}\text{Max-Ans}(Q\ \text{Esti won the race},s)$
$= \lambda s'.\ \text{Cont}(s') = \{\text{Max-Ans}(Q\ \text{Esti won the race},s)\}$

Proposal

(37) $[\![$*ngêrti nek* ANS Q Esti won the race$]\!]^s =$
λs': $\exists!$p[p $\in$ CONT(s')]. think(s')$_s \wedge$ CONT(s') =
{MAX-ANS(Q Esti won the race)(s)}
✓ *presupposition satisfied,* CONT*(s) is a singleton set!*

(38) MAX-ANS(Q Esti won the race)(s) =

a. {s': Esti won the race in s'}
if in the evaluation situation s Esti won the race;

b. {s': Esti didn't win the race the race in s'}
if in the evaluation situation s Esti didn't win the race.

Proposal

- **Interrogative embedding is veridical:** Parto believes the true answer to the question *"Did Esti win the race?"*

(39) $[\![$Parto *ngêrti nek* ANS Q Esti won the race$]\!]^s = 1$ iff

a. $\exists$s'[think(s')$_s$ $\wedge$ HOLDER(s')=Parto $\wedge$
CONT(s')={{s': Esti won the race in s'}}]
if in s it is true that Esti won the race

b. $\exists$s'[think(s')$_s$ $\wedge$ HOLDER(s')=Parto $\wedge$
CONT(s')={{s': Esti didn't win the race in s'}}]
if in s it is not true that Esti won the race

Proposal

- **Declarative embedding is non-veridical:** Parto believes that Esti won the race no matter what the actual state of affairs is.

(40) $[\![$Parto *ngêrti nek* Esti won the race$]\!]^s = 1$ iff
$\exists$s'[think(s')$_s \wedge$ $\textsc{Holder}$(s')=Parto $\wedge$
$\textsc{Cont}$(s')={{s': Esti won the race in s'}}]

(no matter what the state of affairs in the situation s is)

Supporting evidence

Supporting evidence

Nek/yen clauses behave like modifiers, not arguments:

1. They cannot be subjects.
2. They cannot be substituted by nominal proforms.
3. They can occur in predicative positions in copular constructions.
4. They also have uses where they behave like adverbial clauses: they are used in conditionals.
5. They can co-occur with internal arguments.

Supporting evidence

Nek/yen clauses cannot be subjects:

(41) masalah-é jêlas
problem-DEF clear
The problem is clear.

(42) *[Nek/yen Esti sing kudu mènèhi cêramah] wis jêlas.
C Esti REL must give presentation already clear
Intended: That Esti should be the one to present is already clear.

Supporting evidence

- Note that questions also cannot occur in the subject position, (43), and thus there is no evidence to think that they are nominalized and arguments of verbs.

(43) *[Nek/yen muridé sing êndi sing kudu mènèhi
C student.DEF REL WH REL must presentation
cêramah] wis jêlas.
give already clear
'Which student should give the presentation is already clear.'

- Consultant's repair for (42) & (43) is to add a subject and change the word order: *Everyone is clear [nek/yen Esti/which student should present]*.

Supporting evidence

Nek/yen clauses are not subsitutable by nominal proforms:

- Both verbs can combine with nouns, and then the proform *iki* 'this' can be used to refer back to the noun.

(44) Djoko ngêrti pêrtandingan-é.
Djoko knows race-DEF
'Djoko knows the race.'

(45) Budi kèlingan hadiyah-é.
Budi remembers present-DEF
'B. remembers the present.'

(46) *(Referring back to an NP)*

Budi ngêrti /kèlingan **iki**.
Budi knows /remembers **this**

'Budi knows/remembers this.'

Supporting evidence

- Such a proform cannot be used when the antecedent is an embedded clause. This is illustrated below with declarative embedding (cf. grammaticality of the English translation):

A: Apa Budi ngêrti [nek Esti ménang pêrtandingan-é]?
Q Budi know C Esti win race-DEF
Does Budi know that Esti won the race?

B: Ya, Budi ngêrti **(*iki)**.
yes Budi knows **(this)**
'Yes, Budi knows this.'

Supporting evidence

- The same is true for embedded questions: *iki* ‘this’ cannot refer back to them:

A: Apa Budi ngêrti murid-é sing êndi sing ménang
Q Budi know student-DEF REL WH REL win
pêrtandingan-é?
race-DEF
Does Budi know which student won the race?

B: Ya, Budi ngêrti **(*iki)**.
yes Budi knows **(this)**
‘Yes, Budi knows this.’

Supporting evidence

Embedded clauses can be predicates in copular constructions:[5]

- Both declarative and interrogative clauses can be predicates that occur in copular constructions—they can be predicated of nouns like 'idea' and 'question' respectively.

(47) idé-né Esti [yen dhèwèké gawé eksperimen].
idea-DEF Esti C they did experiment
Esti's idea is that they did an experiment.

(48) pitakona-né Esti [apa yen dhèwèké gawé eksperimen].
question-DEF Esti Q C they did experiment
'Esti's question was whether they did an experiment.'

[5] The complementizer *nek* has some additional restrictions when used in copular constructions which need further study, but there are definitely cases where it can head the clause in the post-copular position as well.

Supporting evidence

Nek/yen clauses have a life as adverbial clauses:

- These clauses can be used as conditional antecedents, (49)-(50).

(49) [Yen/nek Parto tuku sapi], aku seneng.
C Parto buy cow I happy
'If Parto buys a cow, I will be happy.'

(50) Aku seneng, [yen /nek Parto tuku sapi].
I happy C Parto buy cow
'I will be happy if Parto buys a cow.'

- However, *yen/nek* clauses $\neq$ English *if*-clauses: see appendix.

Supporting evidence

Nek/yen clauses can co-occur with internal arguments:

- As we see in (51), these clauses can co-occur with DPs that are internal arguments, and specify the content of the explaining event.

(51) **Context:** we come in and see people celebrating, and wonder why is everyone so happy. Budi explains: Esti won the race.

Budi n-êrang-aké [situasi-né]
Budi ACT-clear-CAUS situation-DEF
[nek Esti ménang pêrtandingan-é].
C Esti win race-THE

'Budi explained the situation (of people celebrating), (saying) that Esti won the race. '

Supporting evidence

★ **Take-away:**

- *Nek/yen*-clauses seem to be clauses that cannot be nominalized and interpreted as internal arguments of verbs.
- Distribution of *nek/yen*-clauses suggests that they are predicates of individuals or events.
- There is no evidence that interrogative *nek/yen*-clauses integrate with verbs differently from declarative *nek/yen*-clauses: both seem to behave like adjuncts.
  → **So an analysis that would derive veridicality mismatch by appealing to a difference in argument structure is implausible.**

The presupposition of ‘know’

The presupposition of ‘know’

- We have seen that Javanese *ngêrti* ‘know’ is not veridical.
- **This raises the question:** does *ngêrti* just mean ‘think’?
  Why then is it usually translated as ‘know’?

★ ngêrti P has a weak presupposition:
the Common Ground must not contain ¬P.

The presupposition of ‘know’

 # P, but S ngêrti ¬P

- It’s not possible to assert that p is true, and then say that someone stands in a *ngêrti* relationship to $\neg p$ (cf. (53) with ngira ‘think’).

(52) #Esti mangan kuwehé,
Esti eat cake
ning Djoko **ngêrti** nek / yen Esti ora mangan kuwehé
but Djoko **know** C / C Esti not eat cake.
Intended: ‘Esti ate the cake, but Djoko knows that Esti didn’t eat the cake.’

(53) Esti mangan kuwehé,
Esti eat cake
ning Djoko **ngira** nek / yen Esti ora mangan kuwehé
but Djoko **think** C / C Esti not eat cake.
‘Esti ate the cake, but Djoko thinks that E. didn’t eat the cake.’

The presupposition of ‘know’

- Adding an epistemic modal saves the sentence: as soon as p is not totally settled, it’s possible to stand in the *ngêrti* relationship to $\neg p$.

(54) **Mbokmenawa** Esti mangan kuwehé,
possibly Esti eat cake
ning Djoko **ngêrti** nek/yen Esti ora mangan kuwehé
but Djoko **know** C Esti not eat cake.
‘Esti possibly ate the cake, but Djoko knows that Esti didn’t eat the cake.’

The presupposition of 'know'

This presupposition projects:

- Embedding *ngêrti* into the antecedent of a conditional still results in infelicity (cf. (56) with 'think').

(55) # Esti mangan kuwehé.
Esti eat cake.def
[nek Djoko **ngêrti** nek Esti ora mangan kuwehé], Budi seneng
C Djoko **know** C Esti NEG eat cake Budi happy
Intended: 'Esti ate the cake. If according to Djoko's knowledge Esti didn't eat the cake, then Budi is happy.'.

(56) Esti mangan kuwehé.
Esti eat cake.def
[nek Djoko **ngira** nek Esti ora mangan kuwehé], Budi seneng
C Djoko **think** C Esti NEG eat cake Budi happy
'Esti ate the cake. If Djoko thinks that Esti didn't eat the cake, then Budi is happy.'.

The presupposition of 'know'

- *Kèlingan* 'remember' does not share this weak presupposition that *ngerti* 'know' has: one can assert *p*, and then felicitously report that someone remembers *not p*, (57).

(57) Djoko munggah gunung,
Djoko climb mountain
ning Budi **kèlingan** yen Djoko ora munggah gunung
but Budi **remember** C Djoko not climb mountain
'Djoko climbed the mountain, but Budi remembers that Djoko didn't climb the mountain.'

The presupposition of 'know'

Proposal:

- *ngêrti* comes with a presupposition that the single proposition in the set $\textsc{Cont}$(s') is not *known* to be false.
- Potential implementation: if interpretation is relativized to the Common Ground (CG), construed as a set of situations compatible with the joint knowledge of conversation participants, then *ngêrti* could presuppose that the intersection of CG and the single proposition in the set $\textsc{Cont}$(s') is not an empty set.

(58) $[\![\textit{ngêrti}]\!]^{s,CG} =$
λs': $\exists!$p[p $\in \textsc{Cont}$(s')] $\wedge$ $\underline{\text{CG} \bigcap \iota\text{p}(\text{p} \in \textsc{Cont}(\text{s}')) \neq \varnothing}$.
think(s')$_s$

The presupposition of ‘know’

Consequence:

- If this proposal is on the right track, then some predicates are able to introduce presuppositions about the embedded clauses that they combine with *indirectly*, by **imposing definedness conditions on the eventuality argument** associated with propositional content.

Concluding remarks

Concluding remarks

Javanese predicates *ngêrti* 'know' and *kèlingan* 'remember' violate Spector & Egré's generalization:

- **non-veridicality with declaratives**
  'know'/'remember' + P $\not\rightarrow$ P is true;
- **veridicality with interrogatives**
  'know'/'remember' + Q $\rightarrow$ know/remember the true answer to Q.

Concluding remarks

- I proposed that his mismatch arises because the answerhood operator **Ans is the source of veridicality**.
- Not all embedded questions are expected to be veridical: $\textsc{Ans}$ will only be inserted if the propositional content associated with some event/entity must be a singleton set.
- **Prediction:** embedded questions will be veridical if the responsive predicate is underlyingly "proposition taking"—requires a singleton set as the propositional content.

Concluding remarks

What seems to be special about Javanese:

- Nek/yen clauses are never internal arguments of verbs, they are always modifiers of the verbal eventuality.
  (and cross-linguistically, such modifier CPs tend to lack presuppositions, e.g. see Uegaki 2022, Bondarenko 2022)
- This allows us to observe the contribution of the Ans operator.

Concluding remarks

Open issue: why do we rarely/never find verbs that would introduce veridical presuppositions about *modifier* CPs?

We can easily define such lexical entries:

(59) $[\![\textit{shngêrti}]\!]^{s,CG} =$
$\lambda s'\colon \exists!p[p \in \textsc{Cont}(s')] \wedge \iota p(p \in \textsc{Cont}(s'))(s)=1.\ \text{think}(s')_s$

Introducing presuppositions about individual arguments, as opposed to about event arguments, is cross-linguistically much more common, and it doesn't follow from anything in our semantics.

Concluding remarks

Sources of veridicality mismatches:

- clauses can compose "via" different arguments of the verbal predicate (Bondarenko 2022, Uegaki 2022, Özyıldız & Uegaki to appear, a.o.), and thus be subject to different restrictions;
- the Ans operator is inserted in cases where the propositional content of a predicate is really just a single proposition, leading to veridicality with question-embedding which is absent with declarative clauses.

Concluding remarks

Q-to-P vs. P-to-Q:

Note that my proposal sneaks Q-to-P through the back door:

- CONTENT of an event **is always a question** (set of propositions).
- "Proposition-taking" verbs are *not* whose CONT is a proposition, but whose CONT is a singleton set *containing* one proposition.
- Thus, *Ans* "reduces" Q to P not in terms of the semantic type, but in terms of changing the meaning.

Concluding remarks

Q-to-P vs. P-to-Q:

But if Q was the basic *meaning* for responsive predicates, predicates like *ngêrti* 'know' and *kèlingan* 'remember' should be impossible:

- If Q is the basic meaning, there is no syntactically inserted Ans needed to combine the verb with the question;
- Then if there is a presupposition observed with question embedding, it has to be coming from the verb.
- If the veridical presupposition is part of the verb, it should be also observed with declarative embedding, contra to the fact.

(60) $[\![\textit{kelingan}]\!]^s =$
λs': $\textsc{Max-Ans}(\textsc{Cont}(\text{s'}),\text{s})(\text{s})=1$. remember(s')$_s$

Concluding remarks

★ **Take-away:**

- We still want to maintain the insight of P-to-Q approaches that question-type is the general type of embedded clauses.
- But some *responsive* predicates are specified as "proposition-taking": the clause they combine with must be a singleton set.
- Ans can sometimes (always?) be contributed by syntax, and be the source of veridicality inferences.

Concluding remarks

Thank you for the attention!

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References

References

Bogal-Allbritten, Elizabeth. 2016. Building meaning in Navajo. University of Massachusetts Amherst dissertation.

Bondarenko, Tatiana. 2022. Anatomy of an Attitude. MIT dissertation.

Dayal, Veneeta. 1996. Locality in Wh-quantification: Questions and relative clauses in Hindi. Dordrecht: Kluwer Academic Publishers.

Elliott, Patrick. 2017. Elements of clausal embedding. UCL (University College London) dissertation.

Elliott, Patrick, Klinedinst, Nathan, Sudo, Yasu, and Uegaki, Wataru, 2017. Predicates of relevance and theories of question embedding. *Journal of Semantics*, 34(3), pp.547-554.

Kratzer, Angelika. 2006. Decomposing attitude verbs. Talk given at the Hebrew University of Jerusalem.

Kratzer, Angelika. 2016. Evidential moods in attitude and speech reports. Talk given at *the 1st Syncart Workshop*.

References

Moltmann, Friederike. 1989. Nominal and clausal event predicates. In *The 25th Annual Regional Meeting of the Chicago Linguistic Society*, vol. 25, 300-314.

Moltmann, Friederike. 2013. Abstract objects and the semantics of natural language. OUP Oxford.

Moltmann, Friederike. 2014. Propositions, attitudinal objects, and the distinction between actions and products. *Canadian Journal of Philosophy* 43((5-6)). 679-701.

Moltmann, Friederike. 2020. Truthmaker semantics for natural language: attitude verbs, modals, and intensional transitive verbs. *Theoretical Linguistics* 46((3-4)). 159-200.

Moulton,Keir. 2009.Natural selection and the syntax of clausal complementation. UMass Amherst dissertation.

Moulton, Keir. 2015. CPs: Copies and compositionality. *Linguistic Inquiry* 46(2). 305-342.

References

Özyıldız, Deniz. 2019. Potential answer readings expected, missing. In *Proceedings of the Workshop on Turkic and Languages in Contact with Turkic* (Vol. 4, No. 1), pp. 74-88.

Özyıldız, Deniz and Uegaki, Wataru. 2023. Talk to be given at *Semantics and Linguistic Theory*. Two kinds of question-embedding strategies and veridicality alternations.

Roelofsen, Floris, and Uegaki, Wataru, 2021. Searching for a universal constraint on the possible denotations of clause-embedding predicates. In *Semantics and Linguistic Theory* (Vol. 30), pp. 542-561.

Spector, Benjamin and Egré, Paul, 2015. A uniform semantics for embedded interrogatives: An answer, not necessarily the answer. *Synthese*, 192, pp.1729-1784.

References

Theiler, Nadine, Roelofsen, Floris and Aloni, Maria, 2018. A uniform semantics for declarative and interrogative complements. *Journal of Semantics*, 35(3), pp.409-466.

Uegaki, Wataru. 2022. Factivity alternation and the 'missing' veridical reading of interrogative complements. Talk given at MIT.

Appendix: nek/yen clauses $\neq$ if-clauses

Appendix: nek/yen clauses $\neq$ if-clauses

There are three pieces of evidence that *nek/yen* clauses are not equivalent to English *if*-clauses, and are not polar questions:

1. They cannot occur with prototypical rogative verbs, and can occur with prototypical anti-rogative verbs.
2. Unlike polar questions, they are bad in *"I V CP: not CP!"* sentences;
3. Interpretation of NPI-like items in *nek/yen* clauses patterns with their interpretation in Upward-Entailing contexts.

Appendix: nek/yen clauses ≠ if-clauses

- These clauses cannot occur with prototypical rogative verbs (‘ask’), and can occur with prototypical anti-rogative verbs (‘think’), cf. English (63).

(61) *Djoko takon [nek/yen aku wis makani asuné].
Djoko asked C I already feed dog.the
Intended: ‘Djoko asked whether I already fed the dog.’

(62) aku ngira [nek/yen djoko nggambar gunung].
I think C Djoko climb mountain
‘I think that Djoko climbed a mountain.’

(63) a. Djoko asked if I already fed the dog.
b. *Djoko thinks if I already fed the dog.

Appendix: nek/yen clauses $\neq$ if-clauses

- Unlike polar questions, these clauses are bad in *"I V CP: not CP!"* sentences. Consider English:

(64)
A: Who knows if Esti won the race (or not)?
B1: I know if Esti won the race (or not)!
She didn't win the race!
B2: #I know that Esti won the race. She didn't win the race!

Appendix: nek/yen clauses ≠ if-clauses

- Same infelicity holds for *nek/yen*-clauses:

(65) **Context:** Tuti wants to find a person who knows the answer to her question.

Tuti: sapa ngêrti nek Esti ménang pêrtandhingané apa ora?
who know C Esti win race.the or not
'Who knows if Esti won the race or not?'

Budi-1: #aku ngêrti [yen/nek Esti ménang pêrtandhingané].
I know C Esti win race.the
dhéwéké ora menang!
3SG not win
Inteded: 'I know if Esti won the race. She didn't win it!'

Budi-2: aku ngêrti [yen/nek Esti ménang pêrtandhingané **apa ora**].
I know C Esti win race.the **or not**
dhéwéké ora ménang!
3SG not win
'I know if Esti won the race or not. She didn't win it!'

Appendix: nek/yen clauses ≠ if-clauses

- Interpretation of NPI-like items in *nek/yen* clauses patterns with their interpretation in Upward-Entailing contexts.
- Javanese has NPI-like items that are formed by reduplicating wh-words, and *apa-apa* ('what-what') means 'everything' in positive contexts, but 'anything' in (S)DE-contexts.

(66) Esti mecahke apa-apa
Esti break what-what
a. 'Esti broke everything.'
b. *'Esti didn't break anything.'

(67) Esti ora mecahke apa-apa
Esti NEG break what-what
a. *'Esti broke everything.'
b. 'Esti didn't break anything.'

Appendix: nek/yen clauses ≠ if-clauses

- If *nek/yen* clauses were polar questions, we would expect *apa-apa* to mean 'anything' in them, but they are compatible only with 'everything' reading (cf. English *if*-clauses):

(68) Budi ngira nek/yen Esti mecahke apa-apa.
Budi think C Esti break what-what
a. 'Budi thinks that Esti broke everything.'
b. *'Budi thinks that Esti broke something.'

(69) Budi knows if Esti broke anything.

★ **Conclusion:** *nek/yen*-clauses cannot, in the absence of additional particles, be interrogative clauses.