Derive the biased reading of A-not-A questions in Mandarin

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Pragmatic properties of A-not-A questions

{SHI/HUI/probable-not-SHI/HUI/probable} Qs are positively biased. The bias can be cancelled by *daodi*.

(1) a. Ann saw Lisi bought many paintbrushes yesterday. Today, Ann asks John who knows Lisi well: (2a)/(2b)/(2c)
b. Ann has no idea what Lisi's hobby is. Today, Ann asks John who knows Lisi well: (2c), #(2a)/#(2b)

(2) a. Lisi shi-bu-shi xihuan huahua?
Lisi SHI-not-SHI like painting
'Doesn't Lisi like painting?'

b. Lisi hui/ke-bu-hui/keneng xihuan huahua?
Lisi HUI/probable-not-HUI/probable like painting
'Doesn't Lisi probably like painting?'

c. Lisi xi-bu-xihuan huahua?
Lisi like-not-like painting
'Does Lisi like painting?'

(3) Ann thought Lisi likes painting. But Lisi dropped the painting class yesterday. Ann now is not sure if Lisi likes painting. Ann asks John who knows Lisi well:

Lisi daodi shi-bu-shi xihuan huahua?
Lisi on.earth SHI-not-SHI like painting
'Does Lisi like painting at all?'

Syntactic properties of A-not-A questions

Biased A-not-A is triggered above TP (Outer A-not-A), while the neutral A-not-A is inside of TP (Inner A-not-A) (Law, 2006).

(4) a. Lisi shi-bu-shi jingchang kan dianshi?
Lisi SHI-not-SHI often watch TV
'Doesn't Lisi often watch TV?'
b. *Lisi jingchang shi-bu-shi kan dianshi?

(5) a. Lisi jingchang kan-bu-kan dianshi?
Lisi often watch-not-watch TV
'Does Lisi often watch TV?'
b. *Lisi kan-bu-kan jingchang dianshi?

High negation questions also necessarily convey that the speaker is epistemically biased. The negator is outside of TP as well.

Proposal

- Mandarin has a scale of epistemic modals, in which SHI represents the strongest possibility: ⟨**SHI**, **HUI**, ***keneng***, ...⟩

- $[\![Ep]\!] = \lambda p \lambda w. \forall w' \in Dox_x(w)[p(w') = 1]$ (Goodhue 2019)
'The addressee x believes p.'
- $[\![\text{A-not-A}]\!] = \lambda p \lambda q.[q = p \vee q = \neg p]$, a Hamblin's set

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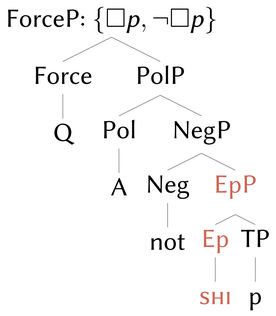
- Felicity Condition for the use of questions (Goodhue 2019):
A question Q is felicitous only if Q is at least as useful as other questions Q'.
- Strategies for comparing the utility of questions (Goodhue 2019):
  - **Gain information strategy**:
  Q_1 is more useful than Q_2 iff Q_1 partition's cells produce epistemic states that are more informed relative to p than the cells of Q_2 do.
  - **Determine agreement strategy**:
  Q_1 is more useful than Q_2 iff Q_1 partition's cells make it easier to determine whether the addressee agrees with the speaker about p than the cells of Q_2 do.
- Outer A-not-A questions are at least as useful as other Qs only if the speaker is biased for p.
Outer A-not-A questions are felicitous only if the speaker is biased for *p*.

OUTER A-NOT-A Q:

ForceP: $\{\Box p, \neg \Box p\}$



- If the questioner has a prior expectation toward p, her goal will be to determine whether or not she and the addressee agree on p, thus adopting **Determine agreement strategy**.
- The answer set of the outer A-not-A question is an unbalanced partition: $\neg \Box p$ - the addressee lacks belief either way or the addressee believes $\neg p$. In other words, agree p or not agree p.
- The outer A-not-A question is more useful under this strategy.

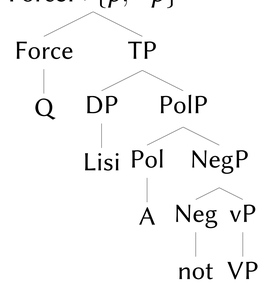
Implications

- Biased A-not-A questions are a type of high-negation questions.
- Goodhue's speech operator has a lexical realization in Mandarin.
- Ye's focus analysis cannot account for other Eps.
- A semantic evidence for that the higher A has reality only in PF.

Proposal Cont.

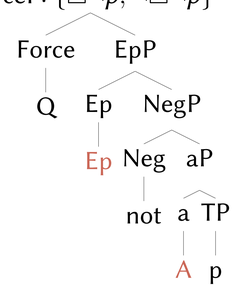
INNER A-NOT-A Q:

ForceP: $\{p, \neg p\}$



ALTERNATIVE STRUCTURE FOR OUTER A-NOT-A Q:

ForceP: $\{\Box \neg p, \neg \Box \neg p\}$



- If the questioner lacks belief about p either way, her goal will be to gain information about p from the addressee, thus adopting **Gain information strategy**.
- Either p or $\neg p$ would be a perfect answer to increase the questioner's information.
- Under such situations, the questioner would prefer to ask a question with balanced partition $\{p, \neg p\}$, such as the canonical polar question and the inner A-not-A question.
- The answer set of the outer A-not-A question is an unbalanced partition. Like before, the questioner asks a biased question to see if the answerer agrees on ***p*** because of Determine agreement strategy.
- But this structure predicts the questioner must have a prior expectation toward $\neg p$ to use this question, which is not attested in Mandarin.
- I conclude that the high position A only has reality in PF while the lower position A is realized in LF.

- *daodi* is an exhaustive partition operator that takes a partition as input and produces a balanced partition:
$[\![daodi]\!] = \lambda Q : \forall c \in Partition(C, Q). \forall c'[\exists p, q[p \vee q \in c'] \rightarrow ((p \wedge \neg q \in c_1) \& (\neg p \wedge q \in c_2) \& (p \wedge q \in c_3) \& (\neg p \wedge \neg q \in c_4) \& (p \vee q \notin c))]$,
in which c is a cell of the partition, and C is the context set.

(6) Ann ate hotpot, cakes, and ice cream. After a few minutes, the pain started in her stomach. She then went to the hospital. The doctor asked: "What did you eat?" Ann replied: "Cakes and something else." The doctor was not satisfied with this answer, so she continued: *What **daodi** did you eat?*

Goodhue, D. (2019). *High negation questions and epistemic bias.*
Ye, S. (2020). *From maximality to bias: Biased A-not-A questions in Mandarin Chinese.*