

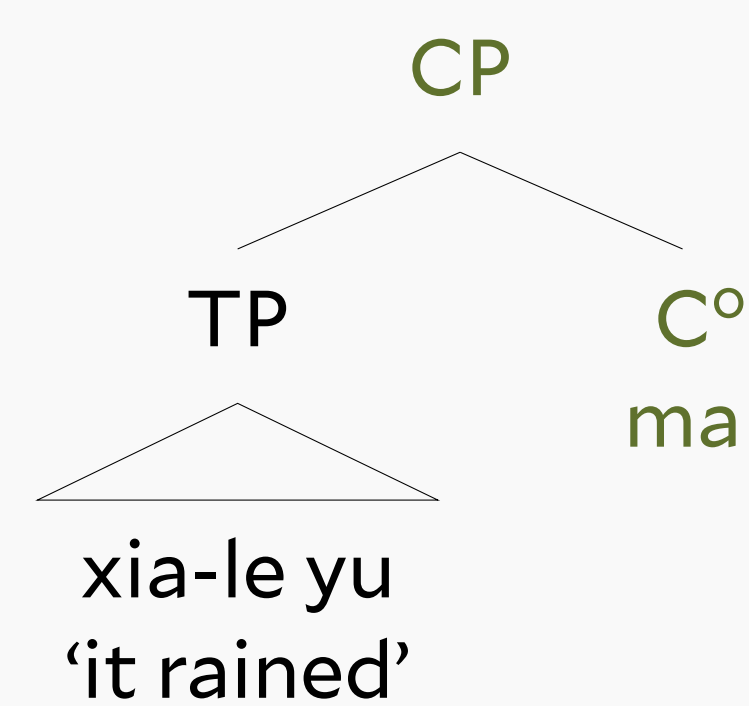
Yes-no question marker

Mandarin *ma* signals yes-no questions:

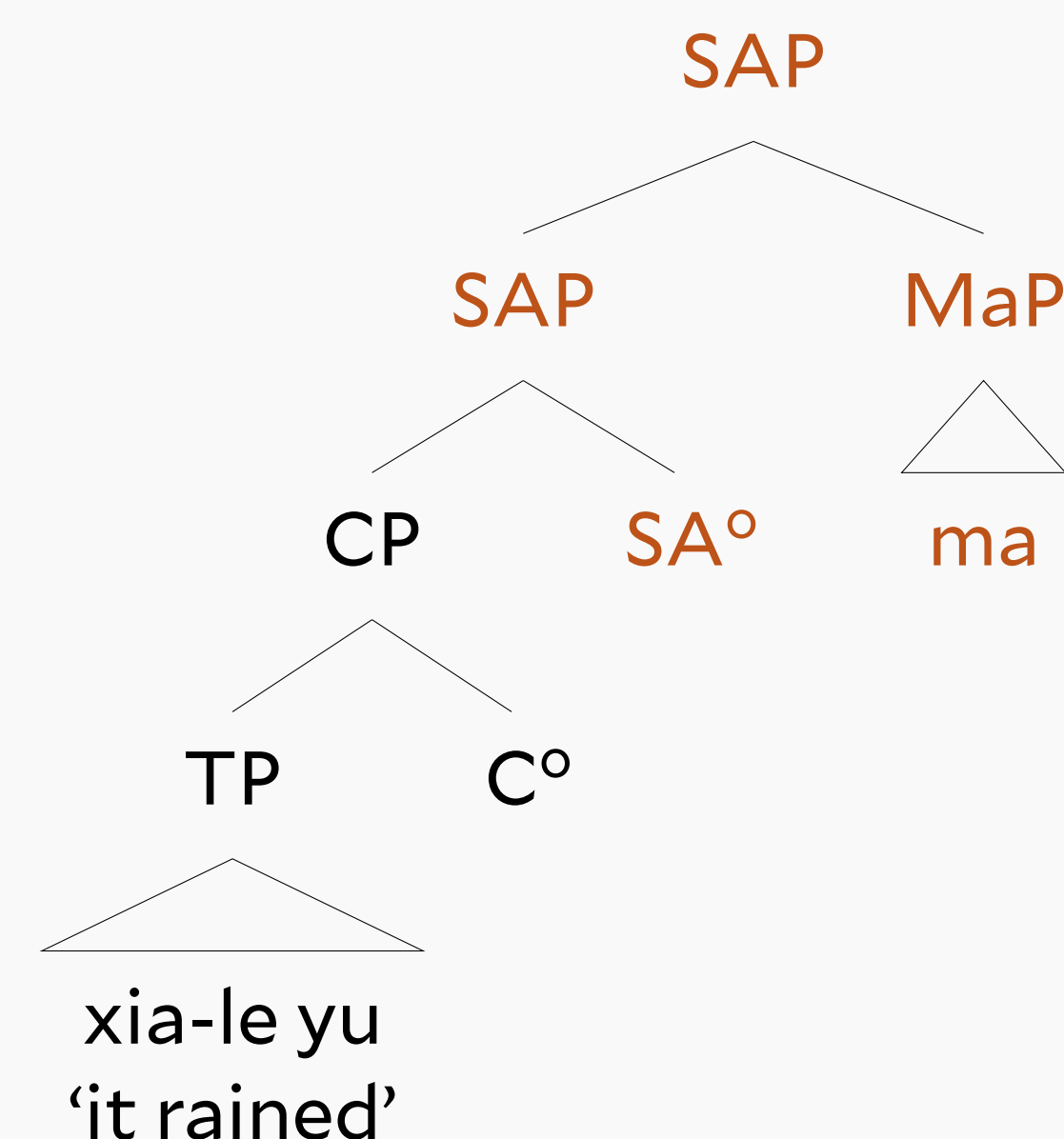
- (1) Xia-le yu. (2) Xia-le yu *ma*?
fall-PFV rain fall-PFV rain MA
'It rained.' 'Did it rain?'

There have been three theoretical proposals for *ma*:

- (3) **CP proposal** (e.g., Cheng 1991)
Ma types clauses as [+Q].



- (4) **SAP proposal** (Kim 2019)
Ma intensifies speech acts.



- Experiment results support a refinement of the **PerspP** proposal.
- I show this using a **novel paradigm for eliciting semantic judgments**.

Empirical motivation for PerspP

ENGLISH EMBEDDED INVERTED QUESTIONS (EIQs) (McCloskey 2006)

- EIQs $\neq$ direct quotations: the former allow variable binding (6).
 - Unlike rogatives, responsiveness do not allow EIQs in declaratives (7).
 - Responsives can be shift: they do allow EIQs under questions (8).
- (6) a. [Every male physicist]_i wonders [will he_i be awarded a Nobel Prize]_↑. (McCloskey 2006: 89)
b. [Every male physicist]_i wonders, ["Will he_{j/j*}i be awarded a Nobel Prize?"]_↑
- (7) # Sue remembers [was Henry a communist]_↑. (Dayal 2023: 20)
- (8) Does Sue remember [was Henry a communist]_↑? (Dayal 2023: 20)

Refining Persp⁰ for *ma*

LEXICAL DIFFERENCES IN RESPONSIVES (DAYAL 2023)

- Unlike *remember*, *forget* allows EIQs in declaratives.
- Relevant distinction for EIQs: *quasi subordinator* (QS) vs. *non-quasi subordinator* (NQS) ($\neq$ rogative vs. responsive).

	QS: $\Diamond \neg \text{know}(x, Q)$	NQS: $\Box \text{know}(x, Q)$
Rogative: [+Q]	<i>want to know, wonder</i>	
Responsive: [$\pm$ Q]	<i>forget</i>	<i>know, remember</i>

Table 1. Question embedding predicates of different types

A QS allows its subject (x) to not know the answer to its complement (Q):

- (9) **Ignorance** (9a) + **resolution** (9b) $\leadsto$ EIQ (Dayal 2023)
a. $\llbracket \text{Persp}^0 \rrbracket = [\lambda Q. \lambda x: \Diamond \neg \text{know}(x, Q). Q]$
b. A positive answer to the matrix question must lead to a resolution of the embedded question.

MY PROPOSAL FOR *MA*: REFINED PERSP⁰

- (10) **Ignorance** + **knowledge** $\leadsto$ *ma*
 $\llbracket \text{ma} \rrbracket = [\lambda Q. \lambda x: \Diamond \neg \text{know}(x, Q) \wedge \Diamond \text{know}(\text{addressee}_c, Q). Q]$

Novel semantic judgment elicitation paradigm

EXPERIMENT SETUP

The proposals predict different effects of matrix **predicate type** ($\times 2$), **illocutionary force** ($\times 2$), and **subject person** ($\times 3$) on embedded *ma*.

- (2 $\times$ 2 $\times$ 3) conditions $\times$ 4 items = 48 tokens.
- 12 Beijing Mandarin speakers (ages 22–24, $\mu = 23.67$) participated.

FORCED-CHOICE TASK

- Choose (b) if the two sentences in (a) can be naturally conveyed using the one sentence in (b) (= **the target sentence**).
- Choose (a) otherwise.

EXAMPLE STIMULUS

- (11) a. Xiaohong_i xiang zhidao yi jian shi. Na jiu shi ta_i de fenshu shi-bu-shi bi wo_j gao.
[Xiaohong_i wants to know one thing. That thing is whether her_i score is higher than mine_j.]
b. Xiaohong_i xiang zhidao, [ta_i de fenshu bi wo_j gao
Xiaohong want know 3SG POSS score than 1SG high
ma?]
MA
'Xiaohong_i wants to know, was her_i score higher than mine_j?'

Pronoun references were made clear through accompanying contexts.

Predictions and results

PREDICTIONS

- CP: *ma* is generally embeddable.
- SAP: *ma*'s embeddability follows the felicity conditions of asking.
- PerspP: *ma*'s embeddability follows (9) and mirrors English EIQs.
- Refined PerspP (RPP): *ma*'s embeddability follows (10).

	CP		SAP		PerspP		RPP	
	QS	NQS	QS	NQS	QS	NQS	QS	NQS
'I ...'	1	1	1	0	1	0	1	0
'You ...'	1	1	0	1	1	0	0	0
'Xiaohong ...'	1	1	1	1	1	0	1	0
'Do I ...?'	0	0	0	0	0	0	0	0
'Do you ...?'	1	1	0	0	0	1	1	1
'Does Xiaohong ...?'	1	1	1	1	0	1	1	1

Table 2. Predictions for *ma*'s embeddability by different proposals

Questioning one's own knowledge state is odd: 'Do I ...?' items were fillers.

RESULTS

	QS	NQS
'I ...'	.83	.02
'You ...'	.21	.35
'Xiaohong ...'	.73	.15
'Do I ...?'	.06	.23
'Do you ...?'	.75	.77
'Does Xiaohong ...?'	.67	.63

Table 3. Acceptability rates of embedded *ma* (= proportion of choosing (b))

- The results align best with the RPP proposal.
- Open question: **Why do English EIQs and Mandarin *ma* vary?**
- Hypothesis: different question-asking strategies in competition.

Concluding remarks

- Ma* is not a Q morpheme or SA intensifier but may be a PQP.
- Ma* also requires **knowledge** in addition to **ignorance**.

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Dayal, Veneeta. 2023. The interrogative left periphery: How a clause becomes a question. *Linguistic Inquiry*.
McCloskey, James. 2006. Questions and questioning in a local English. In Raffaella Zanuttini, Héctor Campos, Elena Herburger & Paul Portner (eds.), *Crosslinguistic research in syntax and semantics: Negation, tense, and clausal architecture*, 87–126. Washington, DC: Georgetown University Press.