

# NEGATION SCOPING AND FOCUS IN MANDARIN BIASED QUESTIONS: A VERUM ACCOUNT

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February 24, 2021  
DGfS

# THE PUZZLE

- A negative yes/no question in Mandarin has 4 readings, depending on the prosody.

(1) lili        bu        yang        mao        ma  
Lily        NEG        keep        cat        Q

- a. ‘Doesn’t Lily keep a cat?’
  - b. ‘Does Lily not keep a cat?’
  - c. ‘Lily keeps a cat.’
  - d. ‘Lily doesn’t keep a cat.’
- **Goal of the project:** To provide a compositional analysis for all 4 readings by using Romero & Han’s (2004) VERUM operator.

# THE ROADMAP

1. Negative yes/no questions in English: 2 readings
2. Romero & Han's (2004) VERUM operator: the mechanics
3. Negative yes/no questions in Mandarin: application of VERUM
4. Unexpected assertion reading: a “ghost” negation

# I. NEGATIVE YES/NO QUESTIONS IN ENGLISH

(2) The two readings:

a. Isn't there a vegetarian restaurant around here?  **$p$ -reading**  
Speaker epistemic bias:  $p$                       Seeking confirmation for  $p$

b. Is there **not** a vegetarian restaurant around here?  **$\neg p$ -reading**  
Speaker epistemic bias:  $p$   
New contextual bias:  $\neg p$                       Seeking confirmation for  $\neg p$

- For some speakers, (2a) is ambiguous between the  $p$ -reading and the  $\neg p$ -reading.
- (see Ladd 1981, Romero & Han 2004).

## LADD'S OBSERVATION

- Ladd (1981) attributed the reading difference to a difference in negation scoping:

READING	SEEKING CONFIRMATION FOR	NEGATION SCOPING	LADD'S NAME FOR THE READING
$p$ -reading	$p$	$\neg[p]$	Outside-NEG reading
$\neg p$ -reading	$\neg p$	$[\neg p]$	Inside-NEG reading

Table 1: Negation scoping

## ROMERO & HAN (2004)

- Romero & Han (2004) took Ladd's intuition about negation scoping, and fleshed out a compositional analysis.
- Negation scopes relative to a VERUM operator:

READING	LOGICAL FORM
$p$ -reading	$Q [\neg [\text{VERUM} [p]]]$
$\neg p$ -reading	$Q [\text{VERUM} [\neg p]]$

Table 2: Negation and VERUM

## 2.

### WHAT IS THE VERUM OPERATOR?

- A silent epistemic operator situated below Q that helps create bias for a question.

- **Formal Definition:**

$$(3) \llbracket \text{VERUM}_i \rrbracket^{gx/li} = \lambda p_{\langle s,t \rangle} \lambda w. \forall w' \in \text{Epi}_x(w) [\forall w'' \in \text{Conv}_x(w') [p \in \text{CG}_{w''}]]$$

(Romero & Han 2004)

- **Input:** a proposition  $p$ .
- **Output:** ‘it is for sure that we should add  $p$  to the Common Ground (CG).’

$$(4) \text{VERUM} [_{IP} \text{John drinks}]$$

= ‘It is for sure we should add to CG that John drinks.’

## HOW DOES VERUM CREATE BIAS?

- A question without VERUM: **neutral**

(5) Q [ $p$ ]

$$= \{p, \neg p\}$$

- A question with VERUM: **biased**

(6) Q [VERUM [ $p$ ]]

$$= \{\text{'it is for sure we should add } p \text{ to CG'}, \text{'it is not for sure we should add } p \text{ to CG'}\}$$

- Only  $p$  is mentioned in the partition. No mention of  $\neg p$ .



## ADDING NEGATION

- Negation can scope above VERUM or below it.

(7) Q [ $\neg$  [VERUM [ $p$ ]]]

= {‘it is not for sure we should add  $p$  to CG’, ‘it is for sure we should add  $p$  to CG’}

(8) Q [VERUM [ $\neg p$ ]]

= {‘it is for sure we should add  $\neg p$  to CG’, ‘it is not for sure we should add  $\neg p$  to CG’}

# ENGLISH VS MANDARIN

- In English:
  - VERUM is usually silent.
  - The scoping relation between VERUM and negation is hard to observe at PF.
- In Mandarin:
  - I argue that VERUM can be pronounced.
  - The scoping relation between VERUM and negation is easily observable at PF.

### 3.

## NEGATIVE YES/NO QUESTIONS IN MANDARIN

(9) Mandarin negative yes/no question:

a. mali bu shi xihuan he cha ma?

Mary NEG SHI like drink tea Q

‘Doesn’t Mary like to drink tea?’

*p*-reading

b. mali shi bu xihuan he cha ma?

Mary SHI NEG like drink tea Q

‘Does Mary not like to drink tea?’

$\neg$ *p*-reading

## WHAT IS SHI?

- *shi* 是 is homophonous with the copula verb *shi*, written with the same character.
- But *shi* is not the copula verb.
- Hole (2012): *shi* is the verum focus marker.
- I argue that *shi* is the pronounced VERUM operator.

## SHI = VERUM: ARGUMENT I

(10) *shi* creates bias in positive yes/no questions:

a. ni      baba    jingchang    zuo      fan      ma?  
you      dad      often          make    meal    Q

‘Does your dad cook a lot?’

**Neutral question**

b. ni      baba    *shi*      jingchang    zuo      fan      ma?  
you      dad      **VERUM**    often          make    meal    Q

‘Does your dad really cook a lot?’

**Biased question**

## SHI = VERUM: ARGUMENT 2

(II) *shi* conveys verum focus in an assertion:

a. wo    mama    ba    dianshiji    xiu    hao    le.  
I        mum    BA    TV            fix    good    PERF

‘My mum fixed the TV.’

b. wo    mama    **SHI**    ba    dianshiji    xiu    hao    le.  
I        mum    **VERUM**    BA    TV            fix    good    PERF

‘My mum DID fix the TV.’

**Verum focus**

# COMPOSITIONAL ANALYSIS

- Key ingredients:
  - *shi* = VERUM
  - *ma* = Q
    - *ma* is head of CP, even though it is sentence-final.
    - Complement of *ma* has moved to SpecCP.
    - (See Chao 1968, Ernst 1994)
- Assumptions:
  - PF-LF mismatch is a result of syntactic movement.
  - Lexical items are interpreted at their base positions at LF.

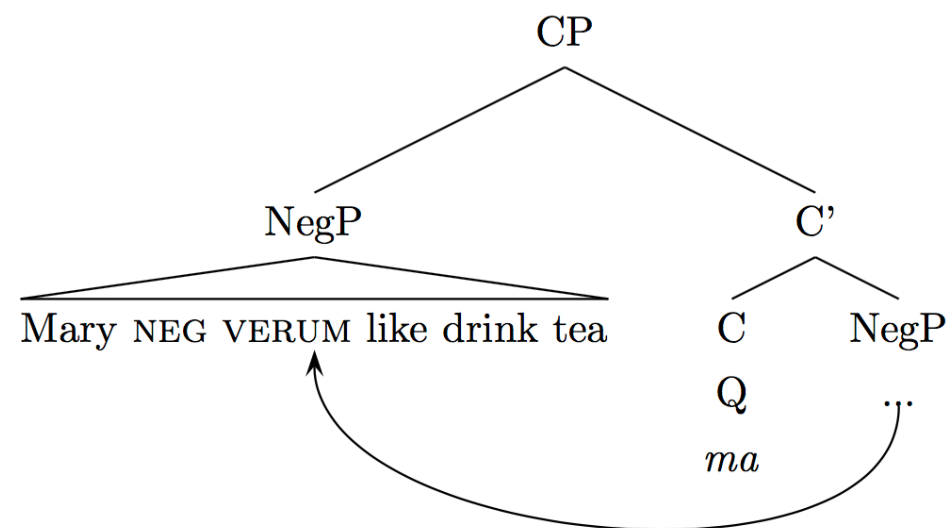


Figure 1: Syntax of the question particle *ma*

## DERIVING THE $p$ -READING

(12)  $p$ -reading:

a. PF:    mali      bu          shi          xihuan    he          cha ma?  
Mary    NEG        VERUM    like        drink      tea Q  
'Doesn't Mary like to drink tea?'

b. LF:     $[_{CP} Q [_{\neg} [_{VERUM} [_{IP} \textit{Mary likes drinking tea}]]]]$   
=  $[_{CP} Q [_{\neg} [\textit{'it is for sure that we should add to CG that Mary likes drinking tea'}]]]$   
=  $[_{CP} Q [\textit{'it is not for sure that we should add to CG that Mary likes drinking tea'}]]]$   
= { $\textit{'it is not for sure that we should add to CG that Mary likes drinking tea'}$ ,  
 $\textit{'it is for sure that we should add to CG that Mary likes drinking tea'}$ }



## DERIVING THE $\neg p$ -READING

(13)  $\neg p$ -reading:

a. PF:    mali        shi        bu        xihuan    he        cha ma?  
          Mary        VERUM    NEG       like       drink    tea Q

‘Does Mary not like to drink tea?’

b. LF:     $[_{CP} Q [_{VERUM} [_{\neg} [_{IP} \textit{Mary likes drinking tea}]]]]$   
          =  $[_{CP} Q [_{VERUM} [\textit{Mary does not like drinking tea}]]]$   
          =  $[_{CP} Q [\textit{‘it is for sure that we should add to CG that Mary does not like drinking tea’}]]]$   
          = {‘it is for sure that we should add to CG that Mary does not like drinking tea’,  
          **‘it is not for sure that we should add to CG that Mary does not like drinking tea’**}

## SHI CAN BE SILENT TOO

- When VERUM is silent, the two readings are string-identical.
- Disambiguated by sentential prominence.

(14) Sentential prominence on ‘like’  $\rightarrow p$ -reading

mali bu [**XIHUAN** he cha] ma?

Mary NEG **LIKE** drink tea Q

‘Doesn’t Mary LIKE to drink tea?’

Q [NEG [VERUM [**LIKE** drink tea]]]

(15) Sentential prominence on negation  $\rightarrow \neg p$ -reading

mali [**BU** xihuan he cha] ma?

Mary **NEG** like drink tea Q

‘Does Mary NOT like to drink tea?’

Q [VERUM [**NEG** like drink tea]]

- Only constituents within the scope of VERUM can receive sentential prominence.

## 4.

# AN UNEXPECTED ASSERTION READING

- When a *p*-reading question is uttered with a low boundary tone (L%) instead of a high boundary tone (H%), it is interpreted as an assertion for *p*.

(16) Question vs. assertion reading:

a. Wulan bu (shi) xiang xue huahua ma? H%

Ulaan NEG VERUM want learn draw Q

‘Doesn’t Ulaan want to learn drawing?’

***p*-reading question**

b. Wulan bu (shi) xiang xue huahua ma. L%

Ulaan NEG VERUM want learn draw Q

‘Ulaan wants to learn drawing.’

**Ghost NEG assertion**

## WHY “GHOST” NEG?

- The ghost NEG assertion is so named because the negation in the sentence seems to be semantically vacuous, hence “ghostly” in nature.
- With negation, one would expect the utterance to assert  $\neg p$ , but it asserts  $p$  instead.
- More interestingly, when negation is omitted, the sentence still asserts  $p$ .

## WHY “GHOST” NEG?

(17) The ghost NEG appears to be semantically vacuous:

a. Wulan **bu** (shi) xiang xue huahua ma. L%  
Ulaan **NEG** VERUM want learn draw Q  
'Ulaan wants to learn drawing.' **Ghost NEG assertion**

b. Wulan (shi) xiang xue huahua ma. L%  
Ulaan VERUM want learn draw Q  
'Ulaan wants to learn drawing.' **Dogmatic assertion**

- The two *ma*-assertions have the same meaning, with or without ghost negation.

# A UNIFORM ANALYSIS

- Both ghost NEG assertions and dogmatic assertions are self-answering questions.
- Pronounced biased VERUM question + elided VERUM answer = *ma*-assertion

(18) Self-answering questions:

- a. Ghost NEG assertion:  $[Q [\neg [VERUM [p]]]] + [\cancel{VERUM [p]}]$
- b. Dogmatic assertion:  $[Q [VERUM [p]]] + [\cancel{VERUM [p]}]$

# THE QUESTION COMPONENT

(19) The pronounced biased question:

a. Ghost NEG assertion: [Q [ $\neg$  [VERUM [Ulaan wants to learn drawing]]]]

Partition created: {‘it is not for sure that we should add to CG that Ulaan wants to learn drawing’,  
‘it is for sure that we should add to CG that Ulaan wants to learn drawing’}

b. Dogmatic assertion: [Q [VERUM [*Ulaan wants to learn drawing*]]]

Partition created: {‘it is for sure that we should add to CG that Ulaan wants to learn drawing’,  
‘it is not for sure that we should add to CG that Ulaan wants to learn drawing’}

- The dogmatic assertion, without negation, creates the same partition as the ghost NEG assertion:
  - {FOR-SURE-CG<sub>x</sub>p,  $\neg$ FOR-SURE-CG<sub>x</sub>p}

# THE ANSWER COMPONENT

- An elided VERUM answer, in response to the partition created by the pronounced biased question:
- The answer component is identical across the two *ma*-assertions.

(20) [VERUM [*Ulaan wants to learn drawing*]]<sub>elided</sub>

= ‘It is for sure that we add to CG that Ulaan wants to learn drawing.’

- More questions:
  - How do speakers know that there is an elided answer component present at LF?
  - How do speakers know the polarity of the elided VERUM answer?
    - Or how do they know whether it is VERUM [*p*] or VERUM [ $\neg p$ ]?



# THE ELIDED ANSWER

- Presence of elided VERUM answer:
  - Indicated by the low boundary tone, which conveys certainty.
  - Certainty at odds with uncertainty associated with the partition.
- Polarity of elided VERUM answer:
  - Partition created by the pronounced biased question component:  $\{\text{FOR-SURE-CG}_{x,p}, \neg\text{FOR-SURE-CG}_{x,p}\}$ .
  - Only  $p$  is mentioned. The alternative  $\neg p$  is not. Speakers can infer that the answer is also about  $p$ .

# SUMMARY OF SELF-ANSWERING QUESTIONS

## (21) Self-answering questions:

a. Ghost NEG assertion:  $[Q [\neg [\text{VERUM } [p]]]] + [\text{VERUM } [p]]$   
Partition created:  $\{\text{FOR-SURE-CG}_{xp}, \neg\text{FOR-SURE-CG}_{xp}\}$   
Answer:  $\text{FOR-SURE-CG}_{xp}$

b. Dogmatic assertion:  $[Q [\text{VERUM } [p]]] + [\text{VERUM } [p]]$   
Partition created:  $\{\text{FOR-SURE-CG}_{xp}, \neg\text{FOR-SURE-CG}_{xp}\}$   
Answer:  $\text{FOR-SURE-CG}_{xp}$

- Even though the LF are different between the two constructions, they create the same partition and contain identical answer component.

## 5. SUMMARY

- Romero & Han's (2004) VERUM operator can be used to account for Mandarin negative yes/no questions.
- The pronounced Mandarin VERUM operator *shi*, shows scoping pattern at PF that confirms Romero & Han's prediction for the LF location of the silent VERUM operator in English.
- Additionally, the unexpected positive assertion reading of Mandarin negative yes/no question: the ghost NEG assertion, adds further evidence for VERUM.
- Prosody can disambiguate between readings.
  - Boundary tone sets the contrast between questions (H%) and assertions (L%).
  - Sentential prominence cues negation scoping when VERUM *shi* is silent.

# THE 4 READINGS

(22)    lili        bu        yang    mao    ma  
          Lily        NEG     keep    cat    Q

	SENTENTIAL PROMINENCE	BOUNDARY TONE	READING NAME
a. 'Doesn't Lily keep a cat?'	<b>CAT</b>	H%	<i>p</i> -reading question
b. 'Does Lily not keep a cat?'	<b>NEG</b>	H%	$\neg p$ -reading question
c. 'Lily keeps a cat.'	<b>CAT</b>	L%	Ghost NEG assertion
d. 'Lily doesn't keep a cat.'	<b>NEG</b>	L%	$\neg p$ -reading assertion

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*Many thanks to Athulya Aravind, Kai von Fintel, Edward Flemming, Michael Kenstowicz, for advising me on this topic. Discussions with Adam Albright, Fulang Chen, Sherry Yong Chen, Martin Hackl, Sabine Iatridou, Filipe Kobayashi, Hsiuh-Chen Daphne Liao, David Pesetsky, Roger Schwarzschild, and Danfeng Wu have proved to be very helpful as well. I am also grateful for the invaluable feedback from attendees at the MIT summer talk series and Ling-Lunch. All mistakes are my own.*

THANK YOU!

