Exhaustivity in Mandarin *shi* . . . *(de)* clefts: Experimental evidence

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Exhaustivity in Clefts:

(1) Shi [Xiaogao he Xiaopang]ₐ chidao le.
   SHI Xiaogao and Xiaopang late ASP
   ‘It is Xiaogao and Xiaopang who were late.’

**Exhaustivity:** Besides Xiaogao and Xiaopang, no one else was late.
Questions:

1. What is the status of exhaustivity in Mandarin *shi ... (de)* clefts?
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1. What is the status of exhaustivity in Mandarin *shi* . . . *(de)* clefts?
2. Is exhaustivity encoded in presupposition, assertion, or implicature?
How are we going to address Question 1:

- SD clefts vs. Sentences without any focus marking:

  (2) Shi [Xiaogao]ₕ chidao le.
  SHI Xiaogao late ASP
  “It is Xiaogao who was late.”

  (3) Xiaogao chidao le.
  Xiaogao late ASP
  “Xiaogao was late.”

- If SD clefts carry exhaustivity,

  Clefts > acceptability to exhaustive inference Sentences without focus marking

- → Experiment 1
How are we going to address Question 2:

Three proposals in general:

- **Assertion proposal** (e.g. É Kiss 1998)
- **Conversational Implicature Proposal** (e.g. Horn 1981, DeVeaugh-Geiss et al. 2015)
- **Presupposition Proposal** (e.g. Halvorsen 1978, Percus 1997, Büring and Križ 2013)
Assertion Proposal

Clefts = “Only” (É Kiss 1998 among many others):

(4) “Only”:

Only Zhangsan met Lisi.

Presupposition: Zhangsan met Lisi.

Assertion: No other people met Lisi.

(5) Clefts:

Shi [Zhangsan]_F jiandao Lisi de.

SHI Zhangsan meet Lisi DE

Presupposition: Someone met Lisi.

Assertion: The ‘someone’ equals Zhangsan; Except Zhangsan, there are no other people who met Lisi.’

(Lee 2005: 95)

If yes to Assertion Proposal:

Clefts = strength of exhaustivity “Only” (→ Experiment 1)
Conversational Implicature Proposal

Clefts = Plain Focus Sentences

(6) Plain Focus Sentence:
A: (Among Mary, Peter, and Susan,) who was late?
B: [Mary]$_F$ was late.
**B implies that** no other people was late.

(7) Clefts:

Shi [Zhangsan]$_F$ chidao le.
SHI Zhangsan  late  ASP

“It was Zhangsan who was late.”

**Presupposition**: Someone was late.
**Assertion**: Zhangsan was late.
**Implicature**: No other people was late.

(Horn 1981, Onea and Beaver 2009; see also Byram-Washburn et al. 2013, Destruel et al. 2015, DeVeaugh-Geiss et al. 2015 on experimental evidence)
How are we going to test Conversational Implicature Proposal:

- Cancelation of Conversational Implicatures (Grice 1989; see Mayol and Castroviejo 2013 for a recent discussion):

  (8) Some students were late. 
  \[\sim \rightarrow \text{Not all of them were late.}\]

  (9) Some students were late. In fact, all of them were late. \[\rightarrow \text{Not all of them were late.}\]

- If yes to Conversational Implicature Proposal:
  Clefts = cancelability of exhaustivity Plain Focus Sentence 
  (\[\rightarrow \text{Experiment 2}\]
Experiment 1

Inference judgment task:
- First introduced to a fictional character David
- Read a short lead-in
- Listened to a pre-recorded eliciting sentence
- Rate David’s inference from 1 to 5 (1 = completely unacceptable)
Example

Wang Ming went to buy some drinks for his friends. After he came back, he told David:

(10) Wang Ming:

Bianlidian li, shi hongcha maiwan le.
Convenient store LOC SHI black tea sold out ASP

“In the store, it was the black tea that was sold out.”

(11) David thought:

Zheme shuo, biede yinliao meiyou maiwan.
So speak other drink not sold out.

“So, other drinks were not sold not.”

Is David’s inference acceptable?

1 (completely unacceptable) ~ 5 (completely acceptable)
Design

Three types of sentences as elicitation:

- *Shi . . . (de)* clefts (SD)
- *Zhiyou “only” (ZY)* sentences
- Simple sentences without any focus

Predictions:

- If Yes to exhaustivity in clefts:
  \[ \text{Clefts} > \text{acceptability to exhaustive inference Simple Sentences} \]
- If Yes to Assertion Proposal:
  \[ \text{Clefts} = \text{strength of exhaustivity “Only”} \]
Method

The three types of sentences were tested on 12 scenarios:

- Six lists
- Pseudo-randomized with three types of filler items
- All verified as grammatical by two native Mandarin speakers
Participants

- Sixty-one participants from Beijing
- (age: 23 to 58, mean 31)
- Sixty completed the task
Results

Figure: Acceptance to exhaustive inference (means with confidence intervals 95%)

Simple sentence $\ll ***$ SD Clefts $\ll ***$ ZY “only” sentence
($\ll$: acceptability to an exhaustive inference, Linear Mixed Model; *** stands for statistical significant differences)
Discussion

- Question 1: Yes to exhaustivity in SD clefts:
  \[ \text{Clefts} >_{\text{strength of exhaustivity}} \text{Simple Sentences} \]

- Question 2: No to Assertion Proposal:
  \[ \text{Clefts} \neq_{\text{strength of exhaustivity}} \text{“Only”} \]
Experiment 2

Felicity judgment task:

- Read a short background
- Read a question posed by David’s friend
- Listen to David’s response in the scenario
- Judge whether David’s response was acceptable on a scale from 1-5 (same as Experiment 1)
Example

Wang Ming asked David: Do you know, between Mo Yan and Yu Hua, who has won the prize?

David answered:

(12) Shi MoYan na guo wenxuejiang;
SHI MoYan win ASP Literary Contest;
shishishang, YuHua ye na guo wenxuejiang.
In fact, YuHua also win ASP Literary Contest
“It is MoYan who has won the Literary Contest; in fact, YuHua has also won the context.”

☐
Is what David said acceptable?

1 (completely unacceptable) ~ 5 (completely acceptable)
Design

Constructions:
- *Shi . . . (de) Clefts*
- Plain Focus Sentences

Predictions:
- If yes to Conversational Implicature Proposal: 
  *Shi . . . (de) Clefts* $\prec$ cancelability of exhaustivity Plain Focus Sentences
Constructing Testing Sentences:

All items were verified as grammatical by two native speakers.

The testing and filler scenarios were assigned to 3 lists in a Latin square fashion.
Participants

- Thirty-seven participants from Beijing
- (age: 21-36, mean: 25.7)
- Thirty-five complete questionnaires were included in the analysis.
Results

**Figure:** Cancelling exhaustivity (means with confidence intervals 95%)

SD Clefts $< ***$ Plain Focus Sentences

($<$: acceptability to the cancelation of exhaustivity; Linear Mixed Model, *** stands for statistically significant difference)
Conclusion

- No to Conversational Implicature Proposal:
  SD Clefts $\prec$ cancelability of exhaustivity Plain Focus Sentences
What if exhaustivity is a conversational implicature, but different from Plain Focus Sentence because:

- **Existential presupposition (Horn to appear, Zimmermann and Onea 2011):**
  - Clefts yes
  - *In situ* prosodic Plain Focus Sentences no
  - So the former has a stronger exhaustivity.

- **Focus projection (DeVeaux Geiss et al. 2015):**
  - The domain of alternatives of *in situ* prosodic focus is ambiguous
  - Less optimal for pragmatic enrichment
  - Weaker exhaustivity.
Can they save the Conversational Implicature Proposal?

No: In the experiment, we used Plain Focus Sentences elicited by an overt question (≠ in situ prosodic Plain Focus Sentence):

- For Horn (to appear), Zimmermann and Onea (2011), our Plain Focus Sentence encodes existential presupposition;
- For DeVeaugh-Geiss et al. (2015), our Plain Focus Sentence have a clearly designated QUD and a clearly designated alternatives.

→ Both cannot explain the difference observed.
Back to our questions:

- What is the status of exhaustivity in Mandarin *shi . . . (de)* clefts?
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Back to our questions:

- What is the status of exhaustivity in Mandarin \textit{shi} \ldots (\textit{de}) clefs?
  - Experiment 1 shows that clefs in Mandarin encode exhaustivity;
  - If clefs indeed encode exhaustivity, it encoded in presupposition, assertion, or implicature?
    - The Assertion Proposal cannot explain results of Experiment 1;
    - The Conversational Implicature Proposal cannot explain results of Experiment 2.

- Both clefts and *only* are inquiry terminating constructions.
- Two focus sensitive operators MAX ("no true answer is strictly stronger than \(p\)") and MIN ("There is a true answer at least as strong as \(p\).")
- While *only* presupposes MIN and asserts MAX, clefts assert MIN and presuppose MAX.
Thank you!
References I


Notes I

Figure: Exhaustivity in four types of sentences (means with confidence intervals 95%)
Figure: Cancelling exhaustivity in three structures (means with confidence intervals 95%)
### Table: Example of four permutations of the target sentence in Experiment 3

<table>
<thead>
<tr>
<th>Conjunct 1</th>
<th>Conjunct 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women ban li, bu shi [Zhang Ming]$_F$ chidao le.</td>
<td>Meiren chidao le.</td>
</tr>
<tr>
<td>&quot;In our class, it is not Zhang Ming who was late.&quot;</td>
<td>“Nobody was late.”</td>
</tr>
<tr>
<td>(∀)$\text{Pres}$: $\exists x [LATE(x)]$; $\text{EI}$: $\neg \exists y [LATE(y) \land y \neq \text{Zhangming}]$</td>
<td>(contradict $\exists \text{Pres}$)</td>
</tr>
<tr>
<td>Meiren chidao le.</td>
<td>$\text{Li Jun chidao le.}$</td>
</tr>
<tr>
<td>“Nobody was late.”</td>
<td>“Li Jun was late.”</td>
</tr>
<tr>
<td>(contradict $\exists \text{Pres}$)</td>
<td>(contradict $\text{EI}$)</td>
</tr>
<tr>
<td>Li Jun chidao le.</td>
<td>$\text{Meiren chidao le.}$</td>
</tr>
<tr>
<td>“Li Jun was late.”</td>
<td>“Nobody was late.”</td>
</tr>
<tr>
<td>(contradict $\text{EI}$)</td>
<td>(contradict $\exists \text{Pres}$)</td>
</tr>
<tr>
<td>Women ban li, chidao de (ren) bu shi [Zhang Ming]$_F$.</td>
<td>$\text{Li Jun chidao le.}$</td>
</tr>
<tr>
<td>“In our class, the one who was late is not Zhang Ming.”</td>
<td>“Li Jun was late.”</td>
</tr>
<tr>
<td>(∀)$\text{Pres}$: $\exists x [LATE(x)]$; $\text{EI}$: $\neg \exists y [LATE(y) \land y \neq \text{Zhangming}]$</td>
<td>(contradict $\exists \text{Pres}$)</td>
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Experiment 3 results

Figure: Contradicting existential and exhaustivity (means with confidence intervals 95%)