Encoding QUD congruence in Mandarin Chinese

Michael Yoshitaka ERLEWINE

National University of Singapore

mitcho@nus.edu.sg

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I investigate the semantics of **shì 是 in its *focus marker* use** (Teng, 1978; Huang, 1982a,b; Shi, 1994; Cheng, 2008; Paul and Whitman, 2008; Li, 2008; Xu, 2010; Hole, 2011, a.o.).

(1) **Can cooccur with narrow focus in declaratives:**

(**Shì**) [māo]$_F$ tōu-le   yú.
SHI   cat   steal-**PRF** fish

≈ 'The CAT stole the fish.'
Described as "emphasis" or "cleft" or "contrastive focus"...

(2) **Also appears in questions:**

(**Shì**) *shéi* tōu-le   yú (ne)?
SHI   who steal-**PRF** fish **NE**

≈ 'Who stole the fish?'

- *Shì* marks a clause as **congruent to an accepted Question Under Discussion (QUD)**, without a stronger true answer.
  - This is (essentially) the semantics of English *it*-clefts in Velleman, Beaver, Destruel, Bumford, Onea, and Coppock (2012).
- **Constituent questions with *shì*** seem to have **a stronger existence requirement**, explained by congruence with an accepted QUD.
- **QUD congruence is evaluated at the clause edge**, not at *shì*.
  - This explains various restrictions on the distribution of *shì*, in contrast to 'only.'

Shì 是 has two other uses which will not be discussed here.

1. The copula *shì*, although I return to this connection at the end;
2. The *shì...de* construction; see Paul and Whitman (2008); Cheng (2008); Li (2008) for comparisons of *shì...de* and the "bare *shì*" that I describe.

Roadmap

Shì in declaratives

Shì always cooccurs with narrow focus on a constituent in its scope:

(3)   Zúotiān   wǎnshàng **shì** [Zhāng Sān]$_F$ lái-le.
yesterday evening   SHI Zhang San   come-PRF
literally '*shi* [Zhang San]$_F$ came last night.'

The *shì* focus construction has often been described as a "cleft" and translated into English *it*-clefts since at least Huang (1982a, ch. 4).

Shì introduces exhaustivity

The addition of *shì* introduces *exhaustivity*: the proposition in its scope is the only true proposition among its focus alternatives. This effect appears similar to that of 'only.'

(4) **Both 'only' *zhǐ(yǒu)* and *shì* express exhaustivity:**

    a. Zúotiān   wǎnshàng **zhǐyǒu** [Zhāng Sān]$_F$ lái-le.
       yesterday evening   only   Zhang San   come-PRF
       'Only [Zhang San]$_F$ came last night.'
       ⤳ No one else came last night.

    b. Zúotiān   wǎnshàng **shì** [Zhāng Sān]$_F$ lái-le.
       yesterday evening   SHI   Zhang San   come-PRF
       literally '*Shì* [Zhang San]$_F$ came last night.'
       ⤳ No one else came last night.

Exhaustivity can be tested by setting up contradictions (Szabolcsi, 1981):

(5)   **A test for exhaustivity:**

    a.   ✓ Zhāng Sān lái-le,   Lǐ Sì (yě) lái-le.
            Zhang San come-**PRF**, Li Si also come-**PRF**

            'Zhang San came, and Li Si (also) came.'

    b.   # **Zhǐyǒu** [ZS]$_F$ lái-le,   (yě) **zhǐyǒu** [LS]$_F$ (yě) lái-le.
          only   ZS   come-**PRF**, also only   LS   also come-**PRF**

          # 'Only [Zhang San]$_F$ came and (also) only [Li Si]$_F$ (also) came.'

    c.   # **Shì** [Zhāng Sān]$_F$ lái-le,   (yě) **shì** [Lǐ Sì]$_F$ (yě) lái-le.
          SHI   Zhang San   come-**PRF**, also **SHI** Li Si   also come-**PRF**

Shì and *zhǐ* 'only' both express exhaustivity. How do they differ?

Note that the behavior of English *it*-clefts and 'only' differ, as made clear under negation:

(6) **Cleft vs 'only' under negation (Büring and Križ, 2013):**
   a. ✓ She invited Fred, but she **didn't** invite **only** Fred.
   b. # She invited Fred, but **it wasn't** Fred she invited.

The exhaustivity inference of *only* is negated in (6a), whereas the prejacent is negated in the cleft (6b) (see a.o. Halvorsen, 1978; Horn, 1981; Büring and Križ, 2013).

(7) **Negating *shì* vs *zhǐ* 'only':**

   a. ✓ ZS yāo   LS lái,   dàn (ZS) **bù zhǐ** yāo   [LS]$_F$ (lái).
        ZS invite LS come, but ZS NEG only invite LS   come
        'ZS invited LS to come, but he didn't invite only [LS]$_F$.'

   b. # ZS yāo   LS lái,   dàn (ZS) **bú shì** yāo   [LS]$_F$ (lái).
        ZS invite LS come, but ZS NEG SHI invite LS   come
        'ZS invited LS to come, but it's not [LS]$_F$ that he invited.'

☞ SHI(p) asserts the prejacent p, unlike ONLY(p) which presupposes it.

That *zhǐ* 'only' has the semantics of English *only* (as in Horn, 1969) has been shown by Tsai (2004). Here I will use *it*-cleft translations for *shì*.

If the focus is in an embedded clause, *shì* can be in the higher or lower clause:

(8) **Higher and lower *shì*:**

Zhāng Sān (**shì**) shuō [Lǐ Sì (**shì**) dú-le   [liǎng]$_F$ běn shū].
Zhang San SHI say   Li Si SHI read-PRF two   CL   books

≈ 'Zhang San (SHI) says that Li Si (SHI) read [two]$_F$ books.'

The placement of *shì* in different clauses is sensitive to the Question Under Discussion (QUD; Roberts, 1996/2012):

(9) **Embedded clause congruent to QUD:**

Q: (Shàng ge xuéqī,) Lǐ Sì dú-le   jǐ   běn shū?
     last   CL term,   Li Si read-PRF how.many CL   books
    'How many books did Li Si read (last term)?'

A: I don't know, but...

    Zhāng Sān (#**shì**) shuō [LS (✓**shì**) dú-le   [liǎng]$_F$ běn shū].
    Zhang San SHI say   LS   SHI read-PRF two   CL   books
    Lower *shì* translation: 'ZS says that it's [two]$_F$ books that LS read.'

Evidence for QUD sensitivity

The availability of *shì* in different positions is sensitive to the Question Under Discussion (QUD; Roberts, 1996/2012):

(10) **Matrix clause congruent to QUD:**

Q: Zhāng Sān shuō [Lǐ Sì dú-le   jǐ   běn shū]?
Zhang San says   Li Si read-**PRF** how.many **CL**   books

'How many books does Zhang San say Li Si read?'

A: ...

Zhāng Sān (✓**shì**) shuō [LS (#**shì**) dú-le   [liǎng]$_F$ běn shū].
Zhang San   **SHI** say   LS   **SHI** read-**PRF** two   **CL**   books

Higher *shì* translation: 'It's [two]$_F$ books that ZS says that LS read.'

☞ **SHI**(p) requires p to be congruent to the QUD.

13

Roadmap

(11) **Proposed semantics for *shì*:**
$\textsc{shi}(p)$ asserts the *prejacent p* and presupposes that:

   a. *p* is congruent to an accepted Question Under Discussion;

   b. there is no stronger true answer.

(12) $[\![\textsc{shi}]\!] = \lambda p_{\langle s,t \rangle} \, . \, \lambda w : \exists Q \in \text{QUD} \cap \text{Acc}$

$$\forall p' \in Q[(p' \Rightarrow p) \rightarrow \neg p'(w)] \, . \, p(w)$$

QUD is the current QUD stack and Acc are accepted moves
(Roberts, 1996/2012)

This is essentially the semantics associated with English *it*-clefts,
according to Velleman et al. (2012). It goes beyond the semantics of
narrow focus alone, which may mark congruence with a (proposed or
accepted) QUD.

I generally follow the Roberts (1996/2012) framework for information structure here, but clarify one detail: proposal of a question does not impose its acceptance.

(13) A: Who came last night?   ← **accepted QUD**

      B: I'm not sure but...   ← (implicit) acceptance of QUD

(14) A: Who came last night?   ← **rejected QUD**

      B: Nobody.   ← refusal of proposed QUD

☞ In particular, presuppositions of questions (e.g. the existence of an answer) are not reflected in the Common Ground until the question is accepted.

Proposed vs accepted QUDs

☞ *Shì* makes reference to *accepted* QUDs.

This reflects the fact that *shì* is somewhat degraded in immediate, direct answers to (*shì*-less) questions. The answer move simultaneously accepts and resolves the QUD, but the QUD is not pre-accepted.

The same has been observed for English *it*-clefts (exx based on Velleman et al., 2012, 449):

(15)   A: What did Mary eat?

         B: {$^{\checkmark}$Mary ate PIZZA., $^{?}$It was a PIZZA that Mary ate.}

(16)   A: What did Mary eat?

         C: I thought she said she was gonna get a pizza, but I might be wrong.

         D: And did she also order a salad?

         B: Guys, I was there. And C's right;

              {$^{\checkmark}$Mary ate PIZZA., $^{\checkmark}$it was a PIZZA that Mary ate.}

Explaining exhaustivity

The exhaustivity of *shì* observed above is modeled as a requirement for a *maximal* true answer to the QUD.

(17) Context: Zhang San and Li Si came last night.

  Q: Zuótiān   wǎnshàng, shéi lái-le?
      yesterday evening,   who come-**PRF**

      'Who came last night?'

  A1: ✓ [Zhāng Sān]$_F$ (lái-le).
          Zhang San   come-**PRF**

        'Zhang San came.'   *partial answer but acceptable reply*

  A2: ✓ [Zhāng Sān hé   Lǐ Sì]$_F$ (lái-le).
         Zhang San and Li Si   come-**PRF**

        'Zhang San and Li Si came.'   *maximal true answer*

Explaining exhaustivity

The exhaustivity of *shì* observed above is modeled as a requirement for a *maximal* true answer to the QUD.

(18)   Context: Zhang San and Li Si came last night.

Q: Zuótiān   wǎnshàng, shéi lái-le?
     yesterday evening,   who come-**PRF**

     'Who came last night?'

A1:   # **Shì** [Zhāng Sān]$_F$ (lái-le).
      SHI   Zhang San   come-**PRF**

      'It's Zhang San that came.'   *partial answer*

A2:   ✓ **Shì** [Zhāng Sān hé   Lǐ Sì]$_F$ (lái-le).
      SHI   Zhang San and   Li Si   come-**PRF**

      'It's Zhang San and Li Si that came.'   *maximal true answer*

Explaining existence

Clefts are also commonly described as having an existential presupposition, detectable under negation (Dryer, 1996; Rooth, 1999, a.o.):

(19) **It's not** [John]$_F$ that came.
  ⤳ Someone came.

(20) **Bú shì** [Zhāng Sān]$_F$ lái-le.
  NEG SHI Zhang San come-**PRF**
  'It's not Zhang San that came.'
  ⤳ Someone came.

The existential inference simply reflects the presuppositions of the congruent, accepted QUD, which requires the existence of a true answer.

Shì can also be licensed in discourses without an explicit preceding QUD:
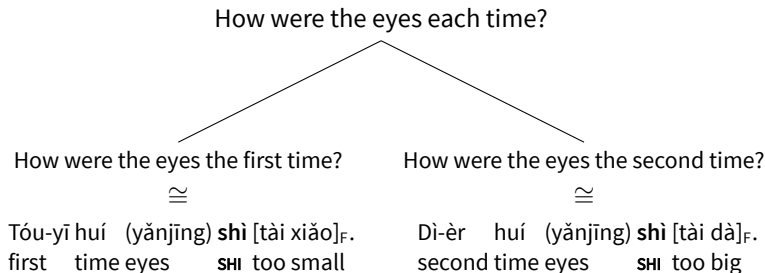
(21) **Example from Lü (1980, p. 374):**

Zhè   yǎnjīng yǐjīng   huà-le   liǎng huí,
these eyes   already draw-**PRF** two   times,

   tóu-yī huí **shì** tài xiǎo, dì-èr   huí **shì** tài dà.
   first   time **SHI** too small, second time **SHI** too big.

'These eyes have already been drawn twice. The first time they
were too small$_F$ and the second time they were too big$_F$.'

The mention of the eyes being drawn twice before raises the following family of implicit questions (Roberts, 1996/2012, a.o.):

How were the eyes each time?

How were the eyes the first time?   How were the eyes the second time?
              ≅   ≅

Tóu-yī huí (yǎnjīng) **shì** [tài xiǎo]$_F$.   Dì-èr huí (yǎnjīng) **shì** [tài dà]$_F$.
first time eyes   SHI too small   second time eyes   SHI too big

An alternative hypothesis is that *shì* in (21) above is licensed simply due to contrastive focus, not QUD congruence. Focus can be licensed simply by contrastive phrases:

(22) **Contrasting DPs in Rooth (1992):**
[$_{DP}$ An [American]$_F$ farmer] was talking to [$_{DP}$ a [Canadian]$_F$ farmer]…

(23)   **Narrow focus on contrasting constituents:**

(Yǒu) [_DP_ yī-ge   [měiguó]_F_ nóngfū] shuō
EXIST   one-**CL** American farmer   say

  [_CP_ (yǒu) [_DP_ yī-ge   [jiānádà]_F_ nóngfū] lái-le]...
        EXIST   one-**CL** Canadian farmer   come-**PRF**

'An [American]_F_ farmer said a [Canadian]_F_ farmer came...'

F-marking on the contrasting 'American' and 'Canadian' here is licensed,
just as Rooth's (1992) system predicts, based on English.

(24)   **However, *shì* is not licensed here:**

   * **Shì** (yǒu) [$_{DP}$ yī-ge   [měiguó]$_F$ nóngfū] shuō
   SHI EXIST   one-CL American farmer   say

     [$_{CP}$ **shì** (yǒu) [$_{DP}$ yī-ge   [jiānádà]$_F$ nóngfū] lái-le]...
       SHI EXIST   one-CL Canadian farmer   come-PRF

Shì is not a simple marker of narrow/contrastive focus; it is not an overt
version of Rooth's (1992) $\sim$ operator.

Roadmap

Shì in questions

Shì also can appear in constituent questions in a position to associate with the *wh*-word or alternative disjunction:

(25)   (**Shì**) *shéi* tōu-le   yú (ne)?
         SHI   who steal-PRF fish NE
       'Who stole the fish?' (=2)

(26)   (**Shì**) *māo háishì gǒu* tōu-le   yú (ne)?
         SHI   cat   or   dog steal-PRF fish NE
       Alternative question: 'Did the cat or the dog steal the fish?'
       (Erlewine, 2014)

Shì strengthens existence

Questions presuppose the existence of a maximal true answer.

☞ Intuitively, *shì* seems to make this requirement stronger.

(27) Wǒ bù zhīdào [zuótiān   wǎnshàng (#**shì**) *shéi* lái-guò   wǒ jiā],
      I   NEG know   yesterday evening   SHI   who come-EXP my house

      shíjìshàng wǒ rènwéi [méi-yǒu rén   lái].
      actually   I   think   NEG-EXIST person come

      'I don't know who came to my house last night; in fact, I think no
      one came.'

Adding *shì* presupposes that someone did come, in a way that is harder to
cancel.

Shì strengthens existence

☞ This is explained by *shì*'s semantics which requires **congruence to an accepted QUD**.

- In (27) without *shì*, the embedding raises the question 'who came to my house last night' and the continuation immediately rejects it.

- In (27) with *shì*, **shì marks congruence to a pre-existing and accepted QUD**, which in turn reflects prior acceptance of the existence of an answer.

Mention-some questions

Mention-some questions are naturally answered with a partial answer, and in fact unnatural as requests for complete answers:

(28) **A mention-some question (Groenendijk and Stokhof, 1984):**
Where do they sell Italian newspapers?

(29) ***Shì* blocks mention-some reading of questions:**

(Wǒ) (#**shì**) (zài) *nǎlǐ* kěyǐ mǎi bàozhǐ?
 I   SHI   at   where can buy newspaper

'Where can I buy a newspaper?'
(*Shì* ok if interpreted as a request for a complete answer.)

☞ This is explained by the lack of a (relevant) maximal true answer for mention-some questions.

Mention-some questions

Yimei Xiang (p.c.) notes that *shì* is similarly incompatible with questions that explicitly encode an expectation for a partial answer.

(30) ***Shì* incompatible with a 'for example' question:**

Zuótiān   wǎnshàng (#**shì**) shéi lái-le,   bǐrúshuō?
yesterday evening   SHI   who come-PRF for example

'Who came last night, for example?'

Expression frustration with *shì* questions

The previous example (29) improves in the following context:

(31)   **A frustrating exchange:**

    A: Can I buy a newspaper at the bookstore?

    B: No.

    A: Can I buy a newspaper at the convenience store?

    B: No.

    A: ✓ Nà,   wǒ **shì** (zài) *nǎlǐ*   kěyǐ mǎi bàozhǐ!?
             then I   SHI at   where can buy newspaper
             'Well then, where [the hell] can I buy a newspaper!?'

Expression frustration with *shì* questions

More generally, *shì* can be used in other contexts where it may seem to the speaker that there is no answer and the speaker is frustrated with this:

(32) ***Shì* in frustrated rhetorical question:**
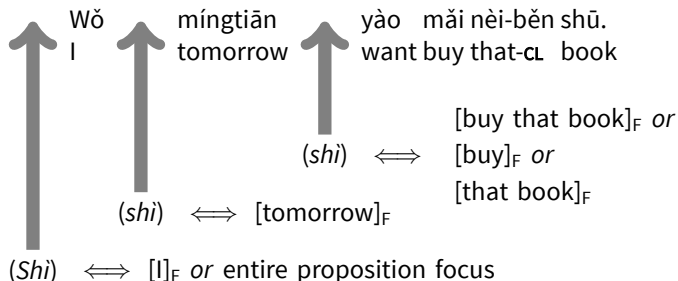
Wǒ **shì** néng zuò *shénme*!?
I   SHI can   do   what

≈ 'What [the hell] can I do?'

☞ In such contexts, the question itself is an existing (implicit) QUD. **Repeating it emphasizes that an adequate answer has not been obtained**.

Roadmap

(33) **Distribution from Huang (1982a, p. 290; 1982b, p. 372):**

Wǒ	míngtiān	yào	mǎi	nèi-běn	shū.
I	tomorrow	want	buy	that-cl	book

(*shì*) $\iff$ [buy that book]$_F$ *or*
[buy]$_F$ *or*
[that book]$_F$

(*shì*) $\iff$ [tomorrow]$_F$

(*Shì*) $\iff$ [I]$_F$ *or* entire proposition focus

Huang (1982a,b) claims that *shì* "immediately precedes" its focus, but this characterization cannot be right when the focus is postverbal.

Shì is a focus-sensitive adverb

(34) **Two types of focus particles in English:**

    a. David **only** drinks [red wine]$_F$.   *adverb*

    b. David drinks **only** [red wine]$_F$.   *focused-constituent-marking*

Shì patterns with the adverb type, always on the clausal spine, not adjoined directly to focused constituents:

(35) *Shì* **cannot be inside PPs:**

Zhāng Sān ✓**shì** [$_{PP}$ duì *****shì** [Lǐsì]$_F$] rēng-le   qiú.
Zhang San SHI   to *SHI Lisi   throw-PRF ball

'Zhang San threw a ball at [Lisi]$_F$.'

Shì is a focus-sensitive adverb

English adverb *only* can associate with multiple foci, but not constituent-marking *only*:

(36)   a. ✓ I **only** saw [the children]$_F$ ask [the adults]$_F$ to be quiet.

       b. * I saw **only** [the children]$_F$ ask [the adults]$_F$ to be quiet.

       c. * **Only** [the children]$_F$ asked [the adults]$_F$ to be quiet.

Mandarin *shì* can associate with multiple foci:

(37)   **Multiple focus with *shì* (Cheng, 2008):**
      Shì [érzi]$_F$ jiào [dàrén]$_F$ bié chǎo, bú **shì** [dàrén]$_F$ jiào [érzi]$_F$ bié chǎo.
      SHI son ask adult   not noisy NEG SHI adult   ask son not noisy
      'The son asked the adult not to make noise, not the other way around.'

☞ *Shì* patterns with adverb *only*, not with constituent-marking *only*.

☞ ***Shì* is a focus-sensitive adverb that must be as as close as possible to its focus** (given a particular syntactic domain; see Erlewine 2015a).

The exact same *Closeness* effect governs the distribution of 'only' *zhǐ/zhǐyǒu* in Mandarin (Erlewine, 2015a).

This type of *Closeness* condition on the position of focus-sensitive adverbs have been independently proposed for German (Büring and Hartmann, 2001) and Vietnamese (Erlewine, 2015b).

Limitations on *shì*

☞ The proposal above fails to account for a range of environments where *shì* is not allowed, although 'only' is.

(38) **Generalization:**
Clauses where *shì* is completely disallowed are *reduced clauses*, not full CPs. E.g. relative clauses, small clause complements, restructuring/control complements, etc.

(39) **Claim:**
That's because the (high) clause edge is required for evaluating QUD congruence.

No *shì* in relative clauses

It's been noted that *shì* is unavailable in relative clauses (Teng, 1979, a.o.):

(40) Wǒ xǐhuān [$_{DP}$ [$_{RC}$ *__**shì**__/__✓__**zhǐyǒu** [Zhāng Sān]$_F$ dú-guo ___ de] nèi-běn shū].
      I   like   **SHI**/ only   Zhang San read-**EXP** **DE** that-**CL** book
      * 'I like the book that it's ZS that bought.'
      ✓ 'I like the book that only Zhang San bought.'

(based on Huang, 1982b, p. 374)

But Shi (1994) shows that *shì* is allowed *in embedded clauses* inside relative clauses:

(41) Wǒ rènshi nà-ge [$_{DP}$ [$_{RC}$ ___ yìngshuō [$_{CP}$ **shì** [wǒ]$_F$ bù hǎo] de] rén].
      I   know that-**CL**   assert   **SHI** I   **NEG** good **DE** person
      'I know the person who insists [it is me that is not good].' (Shi, 1994, p. 93)

Captured by the generalization, assuming relative clauses are reduced, but the embeddings are full CPs.

(42) Q: Who stole the motorcycle?

A1: <u>Full CP embedding:</u>

Wǒ rènwéi [*CP* ✓**shì**/✓**zhǐyǒu** [ZS]F tōu-le   nèi-tái mótuōchē].
I   think   SHI/ only   ZS steal-PRF that-CL motorcycle

'I think [that {it's ZS/only ZS} stole the motorcycle].'

A2: <u>Small clause complement:</u>

Wǒ kàn-dào [*SC* ***shì**/✓**zhǐyǒu** [ZS]F tōu   nèi-tái mótuōchē].
I   saw   SHI/ only   ZS steal that-CL motorcycle

* 'I saw [it's Zhang San that stole that motorcycle].'

✓ 'I saw [only Zhang San steal that motorcycle].'

(43) Q: What do/will you drink?

   A1: Wǒ xiǎng [PRO **shì*/[✓]*zhǐ* hē   [kāfēi]_F].
       I   want PRO   SHI/ only drink coffee.

      * ≈ 'I want that it's coffee that I drink.'
      [✓] 'I want to only drink [coffee]_F.'

   A2: Wǒ yīshēng yào   [wǒ **shì*/[✓]*zhǐ* hē   [kāi-shuǐ]_F].
        My doctor   make me   SHI/ only drink boiled-water.

      * ≈ 'My doctor makes it so that it's boiled water that I drink.'
      [✓] 'My doctor makes me drink only [boiled water]_F.'

A slight modification to the proposal so far:

☞ QUD congruence is evaluated in a specific position high in CP; assume it's a CONG feature on declarative and interrogative C.

(44) $[_{CP}$ C[CONG:+] ... $[_{TP}$ ... *shì* [... α_F ...]]]

[CONG:+] has the semantics of SHI described above, and licenses the pronunciation of "*shì*" in the local clause, in the lowest position possible while taking all foci in its scope (Closeness).

Reduced clauses (small clauses, relative clauses, etc.) lack C with [CONG].

However

This is not pretty. This modification seems motivated, but I find it inelegant and upsetting. Suggestions welcome.

One *shì* per clause

☞ This explains the "one *shì* per clause" generalization:

(45) **One *shì* per clause:**

   * **Shì** [Zhāng Sān]$_F$ **shì** dú-le   [zhè-běn shū]$_F$.
    SHI   Zhang San   SHI read-PRF this-CL   book

(46) **No such restriction on 'only':**

   ✓ **Zhǐyǒu** [Zhāng Sān]$_F$ **zhǐ** dú-le   [zhè-běn shū]$_F$.
    ONLY   Zhang San ONLY read-PRF this-CL book

   'Only [Zhang San]$_F$ read only [this book]$_F$.'

Roadmap

Conclusion

- The Mandarin focus particle *shì* marks a clause as **congruent to an accepted Question Under Discussion**, with no stronger true answers.
    - This derives the exhaustivity inference. Dependence on an accepted QUD explains the existence inference.
    - This account explains (apparently strengthened) existence inference of *shì*-marked constituent questions.
    - This is **cleft semantics**, à la Velleman et al. (2012).
- The semantics of *shì* actually operates **at the clause edge**.
- This accounts for a wide range of data on the semantic contribution and distribution of *shì*, and differences between *shì* and 'only.'

A further question: What is the relation between focus *shì* and the copula?

- In this proposal, there need not be any connection between these items in the synchronic grammar of Mandarin.
- **Implication:** Cleft semantics need not be based on the semantics of relativization, definite descriptions, or copular sentences, as previously proposed primarily based on English (see e.g. Percus, 1997; Büring and Križ, 2013).

Thank you! Questions?

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Handout and slides at `https://mitcho.com`.

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