Case study: Mandarin Chinese *wh*-in-situ

1 Review: two strategies for scope-taking

(1) John *only* studies [syntax]$_F$.

*Only* quantifies over a set of alternatives which vary in the F-marked position. This quantification takes scope in the position where *only* is. Two ways of doing this:

(2) **Covert movement:**

\[
\begin{array}{c}
\text{only-phrase} \\
\text{only} \\
\text{syntax}_F \\
\lambda x \\
\text{VP} \\
\text{John} \\
\text{studies} \\
x
\end{array}
\]

Should behave like (covert) $\bar{A}$-movement: long-distance, island-sensitive, extraction asymmetries, weak crossover, (pied-pipes?)...

(3) **In-situ interpretation via Rooth/Hamblin alternative computation:**

Each node has its focus-semantic value $[\cdot]_f$ with ordinary value $[\cdot]_o$ in a box.

\[
\begin{array}{c}
\text{only} \\
\text{VP} \\
\{ 1 \iff J \text{ studies syntax } \} \\
1 \iff J \text{ studies semantics...} \\
\{ J \} \\
\text{John} \\
\{ \lambda y. y \text{ studies syntax } \} \\
\{ \lambda y. y \text{ studies semantics...} \} \\
\{ \lambda x. \lambda y. y \text{ studies } x \} \\
\text{studies} \\
\{ \text{syntax}_F \} \\
\{ \text{syntax, semantics...} \}
\end{array}
\]

No movement: no island-sensitivity, no positional asymmetries, but still can be long-distance.
As we’ve seen, the availability of these two different strategies also extends to the interpretation of \textit{wh}-questions: \textit{wh}-words can move (overtly or covert) or they can be interpreted \textit{in situ} via alternative computation (Hamblin, 1973).

2 Mandarin Chinese (Huang, 1982)

\textit{Overt movements behave as we expect: island-sensitive.}

(4) \textbf{Relative clause island:}

a. \textit{\text{Wo mai-le} [\text{[RC Zhangsan xie } t] \text{de shu}].}
\textbf{I buy-ASP} Zhangsan \textbf{write} \text{de book}
\textquoteleft I bought books that Zhangsan wrote.'

b. * \textit{Zhangsan, wo mai-le [\text{[RC } t \text{xie } t] \text{de shu}].}
\textbf{Zhangsan, I buy-ASP} write \textbf{de book}
\textit{Intended: 'Zhangsan, I wrote the book that }t\textit{ wrote.'}

c. * [\text{[RC Wo mai-le [\text{[RC } t \text{xie } t] \text{de shu}] \text{de neige ren]} \text{lai-le}].}
\textbf{I buy-ASP} write \textbf{de book} \textbf{de that} \textbf{person come-ASP}
\textit{Intended: 'The man, [that I bought the books [that }t\textit{ wrote]] came.'}

So far, things look a lot like English.

\textit{But Mandarin Chinese is a \textit{wh}-in-situ language.}

(5) \textbf{\textit{Wh}-questions (in-situ) are not sensitive to relative clause and CNP islands:}

a. \textit{✓ Ni mai-le [\text{[RC shei xie } t] \text{de shu}]?}
\textbf{you buy-ASP} who \textbf{write} \textbf{de book}
\textquoteleft Who is the }x\textit{ such that you bought books that }x\textit{ wrote?'}
\textit{\text{= *'Who did you buy the book [\text{[RC that }t\text{ wrote}]']'}}

b. \textit{✓ Ni xihuan [\text{[RC wo piping shei] de wenzhang}]?}
\textbf{you like} I \textbf{criticize who de article}
\textquoteleft Who is the }x\textit{ such that you like the articles in which I criticize }x\textit{?'}
\textit{\text{= *'Who do you like the articles [\text{[RC where I criticize }t\text{]']}'}}

Assuming the \textit{wh}-words need to move covertly to the matrix CP to take scope (as assumed by Huang, and reflected in his translations), these \textit{wh}-questions should violate the Complex NP constraint. And yet they’re fine.
(6) **Sentential subject island: active for overt movements but not wh-in-situ:**
   a. $[SS \text{Lisi da-le neige ren}] \text{shi wo hen bu-gaoxing}$
      Lisi hit-ASP that person make me very not-happy
      ‘That Lisi hit that person made me very unhappy.’
   b. $?? \text{Neige ren, [SS Lisi da-le t] shi wo hen bu-gaoxing}$
      that person Lisi hit-ASP make me very not-happy
      ‘That person, that Lisi hit made me very unhappy.’
   c. $?? [RC [SS Lisi da-le t] shi wo hen bu-gaoxing] \text{de neige ren}$
      Lisi hit-ASP make me very not-happy de that person
      ‘the man [that Lisi hit t] made me very unhappy.’
   d. $✓ [SS Lisi da-le shei] shi ni hen bu-gaoxing?$
      Lisi hit-ASP who make you very not-happy
      ‘Who is the x such that the fact that Lisi hit x made you very unhappy?’
      $= *\text{Who did [that Lisi hit t] make you very unhappy?’}$

(7) **Adjunct island: active for overt movements but not wh-in-situ:**
   a. $\text{Zhejian shi [gen [S neige ren mei lai]] wu guan.}$
      this matter with that person not come not have relation
      ‘This matter has nothing to do with that person not coming.’
   b. *$\text{Zhejian shi [gen [S t mei lai]] wu guan.}$
      that person this matter with not come not have relation
      ‘That person, this matter has nothing to do [with t not coming].’
   c. $✓ [RC \text{Zhejian shi [gen [S t mei lai]] wu guan] \text{de neige ren}}$
      this matter with not come not have relation de that person
      ‘That person [that this matter has nothing to do [with t not coming]].’
   d. $✓ \text{Zhejian shi [gen [S shei mei lai]] you guan.}$
      this matter with who not come have relation
      ‘Who is the x such that this matter has something to do with x’s not coming.’
      $= *\text{Who does this matter have something to do with t not coming?’}$

(8) **Left branch constraint: active for overt movements but not wh-in-situ:**
   a. $\text{Wo renshi Zhangsan de muqin.}$
      I know Zhangsan ross mother
      ‘I know Zhangsan’s mother.’
   b. *$\text{Zhangsan (de), wo renshi t (de) muqin.}$
      Zhangsan ross, I know ross mother
      ‘Zhangsan, I know [his] mother.’
   c. $✓ [RC \text{wo renshi t (de) muqin] de neige ren}}$
      I know ross mother de that person
      ‘the person that I know [his] mother’
   d. $✓ \text{Ni renshi shei de muqin.}$
      you know who ross mother
      ‘Whose mother do you know?’
      $= *\text{Whose do you know t mother?’}$
Mandarin does not allow preposition stranding for overt movements:

a. Wo gen Zhangsan bu shou.
   I with Zhangsan not familiar
   ‘I am not familiar with Zhangsan.’

b. * Zhangsan, wo gen t bu shou.
   Zhangsan, I with not familiar
   ‘Zhangsan, I am not familiar with.’

c. * [RS Wo gen t bu shou] de neige ren
   I with not familiar de that person
   ‘that person I am not familiar with.’

d. ✓ Ni gen shei bu shou?
   you with who not familiar
   ‘Who are you not familiar with?’

3 Analysis

3.1 Huang’s analysis

Huang’s idea is that (a) wh-in-situ is always interpreted via covert movement and (b) there are systematic differences between conditions on overt and covert movement.

“In short, it has been shown that the following principles do not obtain in LF, though they do in Syntax: the CNPC, the Wh Island Condition, the Sentential Subject Constraint, the Subject Condition, the general ban on preposition stranding, the ban on extraction from an adjunct clause or phrase (in NP or in S; the special ban on stranding a non-subcategorized preposition in English falls under the last category), as well as the Left Branch Condition.” (p. 502)

For example, in English, overtly moved *wh and wh-in-situ (in multiple questions) behave differently with respect to island-sensitivity:

(10) Overtly moved vs in-situ *wh in English: (Huang cites [Hankamer 1975])

a. * In order to foil this plot, we must find out [which senator; the agent has bats [RC that are trained to kill t_i]].

b. In order to foil this plot, we must find out [which agent has bats [RC that are trained to kill which senator]].

c. * Who, do you like books [RC that criticize t_i]?

d. Who likes books [RC that criticize who]?
3.2 Our analysis

There is another option for interpreting *wh*-in-situ. Alternative computation can be used to evaluate *wh*-in-situ without movement (Hamblin, 1973), predicting no island sensitivity.

Let’s push this approach as far as possible for Mandarin and see what happens.

(11) The semantics of *who*:
   Ordinary semantic value: \([who]^0\) is undefined
   Focus-semantic value: \([who]^f = \{x_e : x \text{ is human}\}\)

(12) The semantics of interrogative C (Beck and Kim 2006, see also Shimoyama 2001)
   \([\text{C TP}]^0 = [\text{TP}]^f\)

(5a') Ni mai-le [[RC shei xie t] de shu]? you buy-ASP who write de book
‘Who is the x such that you bought books that x wrote?’

Does this also extend to in-situ *wh* in English multiple *wh*-questions (10)? Come to colloquium on Friday to find out!
4 Adjunct *wh*-questions

The Mandarin examples above were all based on (simple) *wh*-arguments like ‘who’ and ‘what.’ It turns out the behavior of *wh*-adjunct questions are different.

(13) **Argument and adjunct *wh* in relative clauses in subject position:**

a. ✓ \[RC Shei xie t] de shu zui youqu?
   who write de books most interesting
   ‘Books that *who* wrote are the most interesting?’

b. * \[RC Ta weishenme xie t] de shu zui youqu?
   he why write de books most interesting
   ‘Books that he wrote *why* are the most interesting?’

c. * \[RC Ta zenme xie t] de shu zui youqu?
   he how write de books most interesting
   ‘Books that he wrote *how* are the most interesting?’

Note that questions with meanings very similar to what is intended in (13b–c) can be constructed if *wh*-arguments are used:

(14) a. ✓ \[RC Ta [wei-le shenme yuanyin] xie t] de shu zui youqu?
   he for what reason write de books most interesting
   ‘Books that he wrote for *what reason* are the most interesting?’

b. ✓ \[RC Ta [yong shenme] xie t] de shu zui youqu?
   he using what write de books most interesting
   ‘Books that he wrote using *what* are the most interesting?’

At this point we might wonder if the relevant contrast is between DP vs non-DP *wh*-words. Huang shows that ‘where’ and ‘when’ pattern together with ‘who’ and ‘what.’

(15) a. ✓ \[RC Ta zai nali pai t] de dianying zui hao?
   he at where film de movie most good
   ‘Movies that he filmed *where* are the best?’

b. ✓ \[RC Ta (zai) shenme shihou pai t] de dianying zui hao?
   he (at) what time film de movie most good
   ‘Movies that he filmed *when* are the best?’

But note the use of the locative preposition *zài* on the *wh*-words. It’s possible that *nali* ‘where’ and *shenme shihou* ‘when’ are DPs, so we still aren’t sure, which Huang acknowledges.
4.1 Huang’s analysis

Huang’s rhetoric ultimately adopts the argument/adjunct division as the relevant split, (at least in part) because of parallels to other, overt extraction asymmetries:

(16) **Wh-adjuncts can be harder to extract:**
   a. Of which city did you witness [the destruction]?
   b. * On which table did you like [the books]?

“There is some plausibility in assuming that operators that bind non-argument traces must obey a stricter locality condition than those that bind argument traces.” (p. 542)

(17) **Subjacency** (**Chomsky, 1973**):
   No movement rule may involve X and Y in:
   ...
   X ...
   [α ...
   β ...
   Y ...
   ] ...
   ] ...
   X ...
   where α and β are bounding nodes [= NP and S].
   Huang’s conclusion: applies only in “Syntax” (narrow syntax, before LF).

(18) **Empty Category Principle** (**Chomsky, 1981, ECP**):
   An empty category must be properly governed.
   Huang’s conclusion: applies at Syntax and at LF.

(19) A *properly governs* B if and only if A governs B [A is in a position which could case-license B] and
   (a) A is a lexical category, or
   (b) A is co-indexed with B.

Because Subjacency is not active, LF movement does not have to be successive-cyclic, so it can violate islands (*wh*-argument behavior). But for *wh*-adjuncts, the ECP forces successive-cyclicity, and thus island-sensitivity.

(20) **Derivations for wh-adjunct LF movement, based on p. 552:**
   a. ✓ Ni renwei [ta weishenme lai]?
      you think he why come
      ‘Why do you think he will come?’ (matrix question)
   b. ✓ LF: [S weishenme [S ni renwei [S ta [S lai]]]]
   c. * LF: [S weishenme [S ni renwei [S ta lai]]]

Proper government requires either a lexical head to govern it or the antecedent in a position that governs it. Arguments have a lexical head which case-licenses it (therefore governs), but adjuncts do not, so adjunct traces need their antecedents to be in a position that governs it, which means it must be within the same clause.
4.2 Our analysis

- Wh-arguments do not (need to) move;
- Wh-adjuncts must move to their interpreted position;
- All movement is successive cyclic.

We do not need the separate ECP and Subjacency, applying at different points in the derivation. However, we have to stipulate a difference between wh-arguments and wh-adjuncts.

5 Wh-islands and multiple wh

(21) Ni xiang-zhidao [shei mai-le shenme] you wonder who buy-asp what
    a. ‘Who is the person x such that you wonder [what x bought]?’
    = ***Who do you wonder [what t bought]?’

    b. ‘What is the thing x such that you wonder [who bought x]?’
    = ***What do you wonder [who bought t]?’

    c. ‘You wonder [who bought what]’ (not given by Huang, but possible)

(22) Ni xiang-zhidao [shei weishenme mai-le shu] you wonder who why buy-asp book
    a. * ‘What is the reason x such that you wonder [who bought books for x]?’
    b. ✓ ‘Who is the person x such that you wonder [why x bought books]?’

    a. * ‘In what manner/way x do you wonder [who bought books in way x]?’
    b. ✓ ‘Who is the person x such that you wonder [how x bought books]?’

Discuss!

References


