Wh-in-Situ and QR in Mandarin Generic Sentences

J.-H. Wei, T.-H. Jonah Lin, and H.-Y. Catherine Huang

Ming-Ya English Center, National Tsing Hua University, and University of Arizona

1. Introduction[1]

Wh-question formation can involve overt wh-movement in syntax, as in the English example (1), where the wh-phrase *who* originates in the object position of the sentence and moves to the sentence-initial position to be interpreted.

(1) Who does John like?

Alternatively, a wh-question can be formed without overt wh-movement, as in the Mandarin example (2), where the wh-phrase *shei* 'who' stays in-situ.

(2) Zhangsan   xihuan   shei?
     Zhangsan   like   who
      'Who does Zhangsan like?'

An important question that emerges is how the in-situ wh-phrase in examples such as (2) gets interpreted in syntax. There are two approaches in the literature on Mandarin wh-questions. Huang (1982) proposes that Mandarin in-situ wh-phrases undergo LF movement (also see Soh 2005). He attributes the distinction between overt wh-movement and wh-in-situ to a parametric difference, according to which some languages apply the wh-movement rule in overt syntax and some languages apply it in LF. Tsai (1994), on the other hand, argues that wh-phrases need to be divided into those which are nominal and those which are non-nominal. He proposes that only non-nominal wh-phrases move in LF, as in (3a), whereas nominal wh-phrases get unselectively bound by a base-generated Q-operator in CP, as in (3b).

(3) a.   Chain formation: $[x'' \Delta [x' \ldots wh \ldots]] \rightarrow [x'' wh_i [x' \ldots t_i \ldots]]$
     b.   Merge operation: $[x'' \Delta [x' \ldots wh \ldots]] \rightarrow [x'' Op[Q] [x' \ldots wh \ldots]$

Among Tsai's (1994) evidence that he presents to support his theory is the following phenomenon. Tsai observes that the sentence (4) is grammatical, where an in-situ wh-adverb *zenmeyang* 'how' occurs in a complex NP. Tsai proposes that the sentence is grammatical because the wh-adverb *zenmeyang* 'how' in this sentence denotes a means/instrument and therefore is nominal; as a result, unselective binding applies and island effects are avoided, as there is no movement, either in overt syntax or in LF.[2]

(4) Ni   bijiao   xihuan   [[ta   zenmeyang   zhu *e*]   de   cai]?
     you   more   like   he   how   cook PNM   dish
      'What is the means *x* such that you like better [the dishes [which he cooks by *x*]]?'

---

[2] The abbreviations used in this paper are: CL: classifier; PFV: perfective aspect; PNM: prenominal modification marker.

However, there is a phenomenon that has hitherto been neglected which would poses problems for Tsai's (1994) theory. That is, the immunity to island effects of the so-called nominal wh-phrases in Mandarin sentences, in fact, is not as neat as Tsai (1994) assumes. Consider the following two examples, (5a) a generic sentence and (5b) an episodic sentence. The in-situ wh-adverb *zenmeyang* 'how' occurs in both examples.

(5) a. [[*e* zenmeyang   tiaowu]   de   nanren]] bijiao   miren?
          how   dance   PNM   man   more   attractive
          'What is the manner *x* such that men who dance in *x* are more attractive?'
     b. *Zuotian [[*e* zenmeyang   tiaowu]   de   nanren] qin-le   Yilin?
          yesterday   how   dance   PNM   man   kiss-PFV Yilin
          Intended: 'What is the manner *x* such that men who danced in *x* yesterday kissed Yilin?'

The wh-adverb *zemeyang* 'how' in these two examples is non-nominal in Tsai's (1994) definition, because it assumes the manner reading rather than the means/instrument reading. However, the generic sentence (5a) is grammatical and exhibits no island effect, whereas the episodic sentence (5b) is ungrammatical. Thus the decisive factor for the wh-adverb to be free from island effects appears *not* to be the nominal/non-nominal distinction, but the generic/episodic distinction. This is further confirmed by the following observation: if we reshape the grammatical example (4) into an episodic sentence, as in (6), we get an ungrammatical example, the same as the (5a)-(5b) distinction.

(6) *Ni   zuotian   chi-le   [[ta   zenmeyang   zhu]   de   cai]?
      you   yesterday eat-PFV   he   how   cook   PNM   dish
      'What is the means *x* such that you ate [the dishes [which he cooks by *x*]] yesterday?'

The contrast between (4) and (5a) on the one hand, and (6) and (5b) on the other, therefore, indicates that what has been regarded as the nominal/non-nominal distinction may in fact be a distinction between generic and episodic contexts. In the former contexts, there is immunity to island effects; in the latter, island effects show up.

In this paper, we argue for an account for the generic/episodic distinction based on the QR of bare NPs in Mandarin. It is argued that Mandarin bare NPs in generic contexts have inherent universal force and undergo QR in LF. The wh-adverb contained in such NPs, such as *zenmeyang* 'how' in (4) and (5a), is pied-piped along the way to the TP-adjunction position. We adopt the proposal of Fiengo et al. 1988, according to which an element which is an island ceases being an island when it moves to an A'-position. Thus the pied-piped wh-adverb can further move to Spec of CP from within the containing NP and gets interpreted. This paper is organized as follows. In section 2 we show that bare NPs in generic contexts in Mandarin exhibit wide-scope properties, which indicates QR in LF. In section 3 we introduce the theory of Lin 2013, which argues that QR in Mandarin is affected by the finiteness of the clause, and that the generic sentence has a tense that is on a par with the tense of the nonfinite clause. In section 4, we show that sentences such as (4) and (5a) are derived as a result of the two factors, namely that bare NPs are quantifiers undergoing QR and that generic sentences pattern with nonfinite clauses. Section 5 is the conclusion.

2. QR and Mandarin Bare NPs

May (1977) proposes that QR is responsible for the ambiguity of sentences such as (7), which has the LF representations in (8a) and (8b) after QR.

(7) Some man likes every woman.

(8) a. $[_{TP}$ [every woman]$_j$ $[_{TP}$ [some man]$_i$ $[_{TP}$ t_i likes $t_j]]]$
     b. $[_{TP}$ [some man]$_i$ $[_{TP}$ [every woman]$_j$ $[_{TP}$ t_i likes $t_j]]]$

While quantifiers in English exhibit scope ambiguity, Mandarin quantifiers have been shown to exhibit no such scope ambiguity. It has been observed that the scope of quantifiers in Mandarin is determined by the c-command relations of quantifiers in the surface structure (Huang 1982, Aoun and Li 1993). Thus, the sentence (9) only has the subject-wide-scope reading but not the object-wide-scope reading.

(9) Mouge   nansheng ai-shang-le   meiyige   nüsheng.
    Some   boy   like-up-PFV   every   girl
    'Some boy falls in love with every girl.' (∃>∀, *∀>∃)

In spite of this, however, we observe that when bare NPs in Mandarin assume the universal reading, they exhibit wide scope phenomena. This indicates that they have inherent universal force and undergo QR in LF. We will see four circumstances in which they exhibit wide scope.

The first circumstance involves the intensional context. Carlson (1977) points out that when an English quantifier occurs in the embedded clause of an intensional verb, it interacts with the intensional verb in scope. The sentence (10), for example, is ambiguous: on one reading, it is Jill's belief about the class of all professors such that anyone who is a professor is believed by Jill to be insane. The semantic representation of this reading is (11a), where the intensional verb scopes over the quantifier. On the other reading, Jill has a particular number of professors in mind that Jill believes to be insane. The representation of this reading is (11b), where the quantifier scopes over the intensional verb.

(10) Jill believes (that) every professor is insane.

(11) a.   Jill believes (all {x: x professor} (x is insane))
     b.   all {x: x professor} (Jill believes (x is insane))

Importantly, Carlson (1977) notes that bare plural NPs in English do not show such scope ambiguity. If the embedded subject in (10) is changed to a bare plural, only the narrow-scope reading is obtained. See (12) and (13a-b). This indicates that bare plurals in English are non-quantificational.[3]

(12) Jill believes (that) professors are insane.

(13) a.   Jill believes (G {x: x professor} (x is insane))
     b.   *G{x: x professor} (Jill believes (x is insane))

Interestingly, the Mandarin bare NPs pattern with English quantifiers rather than English bare plurals. They may assume the wide-scope reading when embedded in the complement clause of an intensional verb. For example, the sentence (14) has an intensional verb *xiangxin* 'believe' and a bare NP *laoshi* 'teacher' as the embedded subject; this sentence is ambiguous in that either the intensional verb or the bare NP may take the wide scope, as in (15a-b).

(14) Zhangsan xiangxin laoshi   hen congming.
     Zhangsan believe   teacher   very intelligent
     'Zhangsan believes that teachers are intelligent.'

(15) a.   Zhangsan believes (G{x: x teacher} (x is intelligent))
     b.   G{x: x teacher} (Zhangsan believes (x is intelligent))

---

[3] 'G' in (13a-b) is the generic operator.

The best way to capture the wide-scope reading of bare NPs in sentences such as (14), therefore, is to assume that they have quantificational force and under QR.

The second circumstance where a bare NP shows wide-scope properties is when it is a VP-internal oblique argument interacting with the object in scope. The English sentences (16a-b) are ambiguous: the object may scope over the oblique (locative or dative) argument, or the reverse (see Bruening 2001 among others.) Presumably these are instances of QR targeting *v*P.

(16) a. John put a book on every desk. (∃>∀, ∀>∃)
   b. John gave a book to every child. (∃>∀, ∀>∃)

Again, Mandarin bare NPs exhibit the same phenomenon. The sentences (17a-b) are Mandarin sentences corresponding to the English examples (16a-b). They show scope ambiguity. In particular, the bare NP (the locative or dative argument) may scope over the existential quantifier (the object).

(17) a. Zhangsan fang-le   yixie   hua   zai   zhuozi-shang.
       Zhangsan put-PFV some   flower at   table-on
       'Zhangsan put some flowers on [every] table.'
       ('some flowers' > 'table', 'table' > 'some flowers')
   b. Zhangsan song-le   yi-ben   shu gei xiaohai.
       Zhangsan send-PFV one-CL   book to   children
       'Zhangsan sent one book to [every] child.'
       ('one book' > 'child', 'child' > 'one book')

If the scope ambiguity in the English examples (16a-b) is the result of QR of the universal quantifiers, the scope ambiguity of (17a-b) can be taken as evidence that bare NPs in Mandarin have quantificational force and undergo QR.

The third circumstance is when a bare NP occurs in another containing NP and interacts with some other element in scope (May 1977).[4] First consider the English example of inverse scope in (18).

(18) A representative from every state voted for the bill. (∀>∃)

In (18), although the existential quantifier *a representative* is structurally higher than the universal quantifier *every state*, the sentence allows the interpretation where the universal quantifier takes scope over the existential quantifier. This is possible because the universal quantifier *every state* undergoes QR and adjoins to the NP of which the existential *a representative* is the head element. Mandarin bare NPs exhibit scope properties similar to the phenomenon of inverse scope in English. Look at the example (19).

(19) [Liang-ge shouwei kanshou *e*]   de   chukou
      two-Cl   security guard   PNM   exit
      '[Every] exist that two securities guard'
      ('exit' > 'two securities')

In the relative clause construction (17), the bare NP *chukou* 'exist' may assume wide scope over the existential *liangge shouwei* 'two securities'.[5] If one simply looks at the surface structure of the construction, this would be difficult to explain, because neither element c-commands the other in the surface structure. However, if we assume that the bare NP *chukou* 'exit' undergoes QR in LF and

---

[4] The NPs referred to in this paper are in fact DPs. We used the term 'NP' simply for ease of exposition.
[5] The NP in (19) may also assume the reading in which the numeral *liangge shouwei* 'two securities' assumes wider scope than the bare NP *chukou* 'exit'. We ignore this reading.

adjoins to the highest node of the containing NP, then its wide scope receives a natural explanation: it QRs to a position where it c-commands the existential *liangge shouwei* 'two securities' and thus scopes over it. This again indicates that bare NPs in Mandarin have universal force and undergo QR.

The fourth circumstance is when a bare NP interacts scopally with a frequency adverb. The sentence (20) can be interpreted in such as way that the frequency adverb scopes over the bare NP, or the bare NP scopes over the frequency adverb. Again, to the extent that such scope interaction is a result of QR (Stepanov and Stateva 2009), the scope ambiguity of (20) can be regarded as evidence for QR of Mandarin bare NP.

(20) Zhangsan jingchang gen xuesheng chi   fan.
     Zhangsan often   with student   eat   meal
     'Zhangsan often dines with every student.'
     ('often' > 'students' ; 'students' > 'often')

To summarize, the scope phenomena shown above strongly suggest that bare NPs in Mandarin have quantificational force, and undergo QR in LF.

3. QR and Tense in Mandarin

Next we move to another issue that is also crucial for our proposal, namely QR of quantifiers and the finiteness of Mandarin clauses.

We have seen in section 2 that a Mandarin sentence like (9) does not exhibit scope ambiguity. According to Huang (1982), this is because the scopes of quantifiers in Mandarin sentences are determined by their surface c-command relations. In Lin 2013, however, it is argued that QR in Mandarin sentences are in fact crucially affected by the finiteness of the clause, and that a finite tense blocks QR from adjoining to TP, thus resulting in absence of scope interaction between quantifiers that are otherwise present in English (e.g. (8)-(7)). To see how QR interacts with tense, consider the following examples, which involve nonfinite complement clauses.

(21) Zhangsan yaoqiu   [mouge   nansheng bangzhu meige   nüsheng].
     Zhangsan demand   some   boy   help   every   girl
     'Zhangsan demands that some boy help every girl.' (∀>∃, ∃>∀)

(22) Zhangsan mingling mouge   nansheng [PRO   bangzhu meige   nüsheng].
     Zhangsan order   some   boy   help   every   girl
     'Zhangsan ordered some boy to help every girl.' (∀>∃, ∃>∀)

In these examples, the object of the embedded nonfinite clause may take scope over the embedded subject. This contrasts sharply with objects of finite clauses such as (9), which cannot take wide scope over the subject. Thus, in Mandarin, there is a finite/nonfinite contrast with respect to QR.

Lin (2013) adopts Manzini's (1992) proposal that the finite TP is an island because of the "denotational" properties of the head T. To implement this theory, Lin proposes that the finite tense, being pronominal in nature (Partee 1973), is semantically specific and exhibits the specificity effect. A specific DP blocks movement and binding, as in (23)-(24); this is known as the specificity condition (e.g. Chomsky 1973, Fiengo and Higginbotham 1981).

(23) *Who$_i$ did you see [the picture of t_i]?

(24) Fred read [the stories about him / *himself]

Lin (2013) proposes that the TP that a finite tense projects constitutes a specificity island to QR. An object quantifier in a finite TP, therefore, can only adjoin to vP but not to TP, because adjunction to TP amounts to moving out of the TP, if we adopt the segment-based definition of c-command and domination of May (1985) and Kayne (1994). This results in the narrow scope of the object quantifier. See (25a-b). But in a nonfinite clause, the TP that is projected is not a specificity island, as the head T of the TP doesn't denote a specific time interval. The object quantifier can adjoin to vP or TP, or even to the higher vP (but not the higher TP if it is finite). See (26a-c).

(25) a. $[_{TP} ... T_{\textbf{Finite}} ... [_{vP} QP_i [_{vP} ... t_i ...]]]$
     b. $*[_{TP} QP_i [_{TP} ... T_{\textbf{Finite}} ... [_{vP} ... t_i ...]]]$

(26) a. $[_{TP} ... [_{vP} ... [_{TP} ... T_{\textbf{Nonfinite}} ... [_{vP} QP_i [_{vP} ... t_t ...]]]$
     b. $[_{TP} ... [_{vP} ... [_{TP} QP_i [_{TP} ... T_{\textbf{Nonfinite}} ... [_{vP} ... t_t ...]]]$
     c. $[_{TP} ... [_{vP} QP_i [_{vP} ... [_{TP} ... T_{\textbf{Nonfinite}} ... [_{vP} ... t_t ...]]]$

One thing that is of direct relevance to the present concern is that Lin (2013), when discussing Fox and Sauerland (1996), suggests that generic sentences should be treated on a par with nonfinite clauses, because the tense of a generic sentence does not really denote a specific time interval as the tense of an episodic sentence does. This will be important in the following discussion.

4. The Proposal: QR and LF Wh-Movement

Now we can look at the generic/episodic contrast. Take (4) and (6) as examples, repeated below as (27a-b).

(27) a. Ni   bijiao   xihuan   [[ta   zenmeyang   zhu]   de   cai]?
         you   more1   ike   he   how   cook   PNM   dish
         'What is the means x such that you like better [the dishes [which he cooks by x]]?'
     b. *Ni   zuotian   chi-le   [[ta   zenmeyang   zhu]   de   cai]?
         you   yesterday eat-PFV   he   how   cook   PNM   dish
         'What is the means x such that you ate [the dishes [which he cooks by x]] yesterday?'
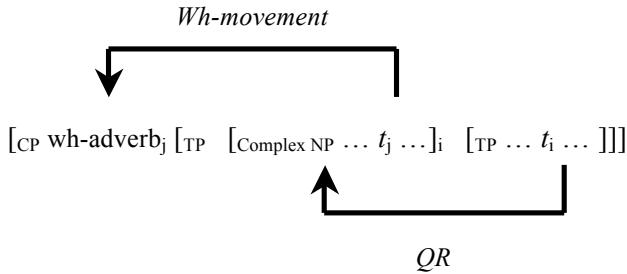
The phenomenon, to recap, is that a wh-adverb in Mandarin is immune to island effects when the containing NP is a bare NP in a generic sentence, as in (27a), but it is not immune to island effects if the containing bare NP occurs in an episodic sentence, as in (27b). We propose that (27a) is grammatical because the bare NP that contains the wh-adverb undergoes QR to TP. In (27a), the bare NP object occurs in a stative predicate. A stative predicate is inherently generic (Chierchia 1995); further, the object of a stative predicate assumes a universal interpretation (Carlson 1977 and Diesing 1992). Thus the bare NP object in (27a) has universal force and undergoes QR. We pointed out above that Lin (2013) proposes that generic sentences pattern with nonfinite clauses in permitting QR to TP. Thus, in (27a), the object bare NP adjoins to TP. At this point we adopt the theory of Fiengo et al. (1988), which proposes that an element that is a syntactic island may become transparent to movement if it moves to an A'-position. See for instance the following contrasts (Fiengo et al. 1988, (40a-b) and (42a-b)).[6]

(28) a. *Who do you think that [[pictures of t] are on sale]?
     b. ?Who do you wonder [[which pictures of t] [are on sale]]?

(29) a. *Vowel harmony, I think that articles about t have been published.
     b. ?Vowel harmony, I think that articles about t, you should read carefully.

---

[6] We are grateful to C.-T. James Huang for bringing our attention to the work of Fiengo et al. (1988).

Thus, after the bare NP raises and adjoins to TP, the wh-adverb is free to move from it to Spec of CP and gets interpreted there, without giving rise to any island effect. Look at the following examples for illustration.

(30)

Wh-movement

$$[_{CP} \text{ wh-adverb}_j \ [_{TP} \ \ [_{Complex\ NP} \ \dots \ t_j \ \dots]_i \ \ [_{TP} \ \dots \ t_i \ \dots \ ]]]$$

QR

Next we look at (27b). It is ungrammatical because the bare NP that contains the wh-adverb occurs as the object argument of the episodic event of eating. Thus it is interpreted as existential rather than universal, licensed either by the default existential closure or by choice function binding (Diesing 1992, Reinhart 1997). As a consequence, the bare NP remains where it is and doesn't undergo QR in LF. The wh-adverb, therefore, is still confined within the complex NP and thus is ungrammatical if it moves to Spec of CP.

Two further pieces of evidence show that the proposed theory is on the right track. The first piece of evidence is as follows. In (27a), the bare NP that contains the wh-adverb occurs as the object of a generic sentence and is construed as universal. But there are generic sentences in which the object argument is not construed as universal but existential, e.g. habitualizing sentences in the sense of Krifka et al. (1995). The prediction will be that, in such sentences, a bare NP containing a wh-adverb results in ungrammaticality. The prediction is borne out. Compare (31a) with (31b); also compare (31b) with (31c).

(31) a. Zhangsan xihuan   [zenmeyang   niang   de   jiu]?
         Zhangsan like   how   brew   PNM   wine
         'What is the manner *x* such that Zhangsan likes wine brewed in *x*?'
     b. *Zhangsan he   [zenmeyang   niang   de   jiu]?
          Zhangsan drink   how   brew   PNM   wine
         Intended: 'What is the manner *x* such that Zhangsan drinks wine brewed in *x*?'
     c. Zhangsan he [yong   gu-fa   niang   de   jiu].
         Zhangsan drink with   ancient-method brew   PNM   wine
         'Zhangsan drinks wine brewed in the traditional way.'

(31a) is structurally similar to (27a). (31b) differs from (31a) in that it has the verb to *he* 'drink', which takes an existential object. As predicted, this sentence in ungrammatical, because the object bare NP, being existential, is interpreted in its surface position (through existential closure or choice function binding). There is no QR, no loss of islandhood, and thus no grammatical movement of the wh-adverb to Spec of CP occurs. Note incidentally that if the wh-adverb is replaced by a manner expression, as in (31c), the sentence is fully grammatical. This indicates that what causes the ungrammaticality of (31b) is the interpretation and licensing of the wh-adverb contained in the bare NP object.

The second piece of evidence is about a universal bare NP in an episodic sentence. A bare NP in Mandarin may assume the universal reading in some episodic contexts, for example the sentences (17a-b) in section 2. In such examples, the object bare NP can only QR to *v*P, because of the finite tense of the clause. But if the bare NP becomes transparent to movement when it adjoins to an A'-position, namely *v*P, then we predict that the wh-adverb contained in the bare NP may legitimately move out to Spec of CP. This prediction is borne out. Look at the following example:

(32) Zhangsan hui song yi-ben   shu gei [zenmeyang   nian shu de   haizi]?
     Zhangsan will send one-CL   book to   how   read book PNM   children
     'What is the manner x such that Zhangsan will send a book to [every] child who studies in x?'

In this sentence, the (universal) bare NP occurs as the dative argument of the ditransitive verb *song* 'send', and indeed, the sentence is grammatical, with the wh-adverb taking the sentential scope.[7] This once again provides support to the analysis that this paper proposes.[8]

5. Conclusion

In this paper, we have argued that Mandarin bare NPs have quantificational force and undergo QR. We also argued that a generic sentence has a tense that is similar to a nonfinite tense, and thus does not block QR. As a consequence, a bare NP that contains a in-situ wh-adverb undergoes QR to TP, and in the TP-adjunction position the wh-adverb further moves to Spec of CP, the containing bare NP having lost its island status. On the contrary, in an episodic sentence, the bare NP is existential and doesn't undergo QR. This prevents the wh-adverb from undergoing legitimate wh-movement to Spec of CP because the movement would cause island violation.

There are still questions that need to be investigated, though. For example, we do not claim that the nominal/non-nominal contrast in Tsai's (1994) theory has been completely dispensed with; it is still necessary for examples such as (33), where a wh-argument occurs in an existential bare NP in an episodic sentence. It is clearly licensed through binding.

(33) Zhangsan yiwei   Lisi zuotian   kan-le   [shei   xie   de   shu]?
     Zhangsan thought   Lisi yesterday read-PFV   who   write   PNM   book
     'Who is the person x such that Zhangsan thought Lisi read books that x wrote?'

---

[7] There are complications, though. It is in fact not easy to construct grammatical sentences with a universal bare NP containing a wh-adverb occurring in an episodic sentence; for example, we find it difficult to construct such a sentence based on (17a). This may have to do with the semantics of particular verbs. That the semantic properties of verbs play a crucial role in such sentences can be seen clearly in the following examples. First look at (ia). The bare NP object in (ia) assumes the universal reading, because of the sense of exhaustiveness of the second element of the compound verb guang 'empty'. But (ia) is ungrammatical. However, (ib) shows that the compound verb *he-guang* 'drink-empty' (along with the perfective aspect *-le*) does not permit the use of the wh-adverb *zenmeyang* 'how' to start with.

(i) a. *Zhangsan he-guang-le   [zenmeyang   niang   de   jiu]?
      Zhangsan drink-empty-PFV   how   brew   PNM   wine
      Intended: 'What is the manner x such that Zhangsan drank up [all the] wine brewed in x?'
   b. *Zhangsan zenmeyang   he-guang-le   naxie   jiu?
      Zhangsan how   drink-empty-PFV   those   wine
      Intended: 'How did Zhangsan drink up those [amounts of] wine?'

The ungrammaticality of sentences such as (ia) and (ib), therefore, must be attributed to the semantic (and/or the aspectual) properties of the verbs or predicates. At the present stage we do not have a full grasp of the relevant questions. We will leave them for future studies.
[8] An alternative is to think of the bare NP that contains the in-situ wh-adverb as undergoing QR all the way directly to Spec of CP, without adjoining to vP or IP first. This is possible because, first, the NP needs to move for resolving type-mismatch, and second, it has the wh-feature inherited from the wh-adverb that it contains. An ordinary kind of QP can only adjoins to vP or IP because there is no appropriate functional category that could readily host it; as a result, it may only adjoin to a non-argument, such as vP or IP. But the bare NP in question, we may assume, inherits the wh-feature from the wh-adverb. As a result, there is not hindrance for it to move to Spec of CP to have two purposes achieve by one single movement, namely the resolution of type-mismatch and the satisfaction of the interpretation of the wh-feature (of the wh-adverb). One problem of this analysis, though, is that there should be some other factors that can block this movement when necessary, but these are not clear yet. We will leave the choice between the two approaches (the one in the text and the one suggested in this footnote) to future study.

Another question that requires a principled explanation is this: How could a bare NP in Mandarin have universal quantificational force and undergo QR in some circumstances, but lack quantificational force and get existentially closed or bound in others? We leave these questions to future studies.

References

Aoun, Joseph and Yen-hui Audrey Li. 1993. *Syntax of scope*. Cambridge, MA: The MIT Press.

Bruening, Benjamin. 2001. QR obeys superiority: frozen scope and ACD. *Linguistic Inquiry* 32: 233-273.

Chomsky, Noam. 1973. Conditions on transformations. In *A Festschrift for Morris Halle*, ed. by Stephen R. Anderson and Paul Kiparsky, 232-286. New York: Holt, Rinehart and Winston.

Diesing, Molly. 1992. *Indefinites*. MA: MIT Press.

Fiengo, Robert and James Higginbotham. 1981. Opacity in NP. *Linguistic Analysis* 7: 395-421.

Fiengo, Robert, C.-T. James Huang, Howard Lasnik, and Tanya Reinhart. 1988. The syntax of Wh-in-situ. In *Proceedings of the Seventh West Coast Conference on Formal Linguistics*, ed. by Hagit Borer, 81-98.

Fox, Danny and Uli Sauerland. 1996. Illusive scope of universal quantifiers. *NELS* 26: 71-85. Amherst: University of Massachusetts, GLSA.

Huang, C.-T. James. 1982. *Logical relations in Chinese and theory of grammar*. Doctoral dissertation, MIT.

Kayne, Richard S. 1994. *The antisymmetry of syntax*. MA: MIT Press.

Krifka, Manfred et al. 1995. Genericity: an introduction. In *The generic book*, ed. by Gregory N. Carlson and Francis Jeffry Pelletier, 1-124. Chicago: The University of Chicago Press.

Lin, T.-H. Jonah. 2013. QR and Finiteness. To appear in *On the architecture of natural language*. Tokyo: Kaitakusha.

Manzini, M. Rita. 1992. *Locality*. Cambridge, MA: MIT Press.

May, Robert. 1977. *The grammar of quantification*. Doctoral dissertation, MIT.

May, Robert, 1985, *Logical form*. MA: MIT Press.

Partee, Barbara. H. 1973. Some structural analogies between tenses and pronouns in English. *The Journal of Philosophy* 70: 601-609.

Reinhart, Tanya. 1997. Quantifier scope: how labor is divided between QR and choice functions. *Linguistics and Philosophy* 20: 335-397.

Soh, Hooi Ling. 2005. Wh-in-situ in Mandarin Chinese. *Linguistic Inquiry* 36.1: 143-155.

Stepanov, Arthur and Penka Stateva. 2009. When QP disobeys superiority. *Linguistic Inquiry* 40.1: 176-185.

Tsai, W.-T.Dylan. 1994. *On economizing the theory of A-bar dependencies*. Doctoral dissertation, MIT.

Proceedings of the 31st West Coast Conference on Formal Linguistics

edited by Robert E. Santana-LaBarge

Cascadilla Proceedings Project   Somerville, MA   2014

Web access and citation information

This entire proceedings can also be viewed on the web at www.lingref.com. Each paper has a unique document # which can be added to citations to facilitate access. The document # should not replace the full citation.

This paper can be cited as:

Wei, J.-H., T.-H. Jonah Lin, and H.-Y. Catherine Huang. 2014. Wh-in-Situ and QR in Mandarin Generic Sentences. In *Proceedings of the 31st West Coast Conference on Formal Linguistics*, ed. Robert E. Santana-LaBarge, 484-492. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document #3052.