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Thinking on WH-Movement

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Abstract

Andrew Radford's *Syntax: A Minimalist Introduction* illustrates the features of wh-movement in English, taking that wh-movement is "a type of operator movement, and syntactic units may move from their initial position to another position in the sentence. Chinese version of wh-movement has quite the similar structure to the echo question of English version, but this generalization seems unreliable in Chinese when exceptional operators such as 为什么？and 什么时候？Are brought into light. So this paper tries to explore the similarities and differences of wh-movement in Chinese wh-word questions, illustrating some examples of Chinese as an expansion of the English wh-movement version.

Key words: syntax; Wh-movement; Operator movement; Syntactic units

INTRODUCTION

In *Syntax: A Minimalist Introduction*, Andrew Radford explains to us what **wh-movement** is and illustrates some features of this phenomenon. From his explanations and by comparing English with Chinese, I get a little consideration of this movement, so in this paper I will illustrate some examples of Chinese as an expansion of the English wh-movement version.

Syntactic units, i.e. words and phrases, may move from their initial position to another position in the sentence. This movement may be due to considerations of scope for wh-items, amongst other things. Wh-items are words and phrases used in certain question forms, e.g. *what, when, with whom, which, etc..*

So first of all, I would like to say a few words about what wh-movement is. According to Andrew Radford, wh-movement is "a type of **operator movement**[1] whereby an expression containing a wh-word is moved to the front of a particular clause (Radford, 2000, pp.274-5)." Let's see the following example (1):
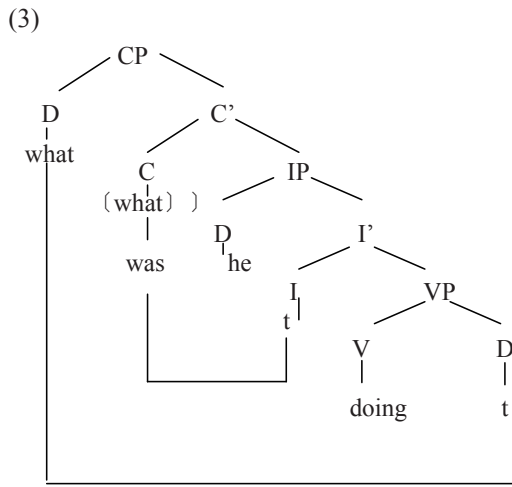
(1) What was he doing?

In this sentence, the inverted auxiliary *was* originates in INFL, and the pronominal determiner *what* originates as the complement of *doing*, so we can get its echo question (2) below:

(2) He was doing what?

COMP in questions is a strong head, so the auxiliary *was* moves from INFL to COMP to fill COMP. An interrogative COMP carries a [wh] specifier feature, and *what* moves to spec-CP as in (3) below:

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[1] Operator movement: operator, this term is used in syntax to denote (for example) interrogative and negative expressions which have the syntactic property that they trigger auxiliary inversion (Andrew Radford, p.267). Operator movement : Movement of an operator expression into spec-CP (i.e. into the specifier position within CP) (Andrew Radford, p.267).

(3)

```
            CP
          /    \
         D      C'
         |     /  \
       what   C    IP
             |    /  \
          (what) D    I'
             |   |   /  \
           was  he  I    VP
                    |   /  \
                    t  V    D
                       |    |
                    doing   t
```

In wh-movemet, a wh-item moves from one position, such as the direct object position in (4) to the matrix or top-most SpecCP position in (5). The original position of the wh-phrase is shown by a trace *t*.

(4) Picasso had painted [which picture].

(5) 〔CP Which picture *i*〕had Picasso painted t*i* ?

The wh-phrase [which picture] has to originate as the direct object of the verb for reasons of subcategorisation, i.e. *paint* needs a direct object. Then the wh-phrase moves to the initial position of the sentence to form a question.

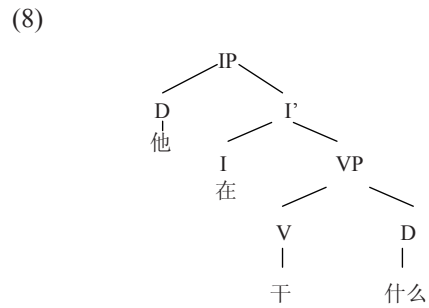The same type of wh-movemet also occurs in longer sentences including any number of sub-clauses. This is shown in (6):

[CP Which picture]*i*   did Miro think [CP t*i* that Picasso had painted t*i*]?

In (6), the wh-phrase moves in successive-cyclical steps from its base-position through the SpecCP of the embedded clause to the SpecCP of the matrix clause. In this position, the wh-phrase takes scope over the entire sentence, i.e. the sentence is interpreted as a question.
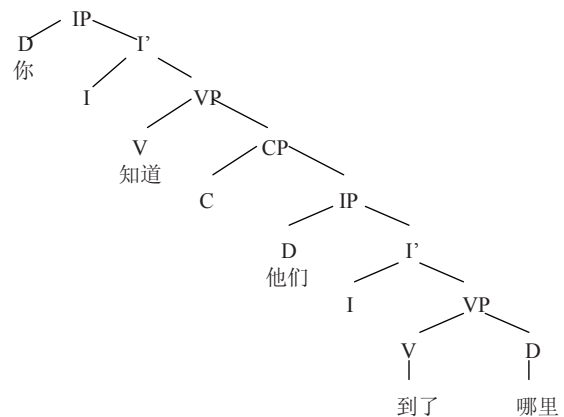
DATA ANALYSIS

Chinese version of wh-movement has quite the similar structure to the echo question of English version *what he was doing*? i.e. in Chinese, wh-operator is usually kept at the end of a sentence. If sentence (1) is put into Chinese, it will be: (7) 他在干什么? In comparison to English, Chinese wh-operators don't need to move to the front spec-CP position, but stay **in situ**, i.e. stay in the sentence-final position. So sentence (7) has the derivation (8) below:

Since the [wh] determiner 什么?（what) does not move to the front to check the [wh] specifier-feature of COMP (in fact, there is no need for sentence (7) to extend to CP.). 什么? stays in situ, and INFL 在 also stays in situ instead of moving to the COMP position. To further prove this phenomenon, let's see another example below:
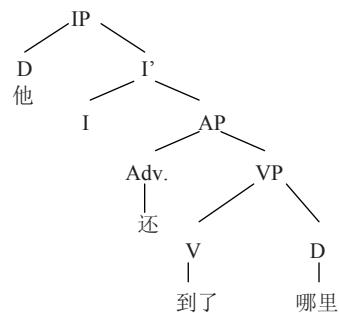
(8)

```
           IP
         /    \
        D      I'
        |    /   \
        他   I     VP
             |    /  \
             在   V    D
                  |    |
                  干    什么
```

(9) 你知道他们到了哪里？
We get the derivation (10) below:
(10)

```
      IP
    /    \
   D      I'
   |    /   \
   你   I     VP
        |   /    \
        知道  CP
           /      \
          C        IP
               /        \
              D          I'
              他们      /    \
                      I      VP
                      |    /    \
                     到了  V      D
                          到了    哪里
```

Other wh-operators such as 谁? (who) also have the similar structure as 什么? and 哪里? More examples are given as follows:

(11) 她还认识谁?

It has the derivation (12) below:

```
          IP
        /    \
       D      I'
       |    /   \
       他   I     AP
            |   /    \
              Adv.    VP
              |     /    \
              还    V      D
                   |      |
                  到了    哪里
```

谁? in example (11) originates as the complement of the verb 认识 and stays in situ. So (11) is an IP, and does not extend to CP. See example (13) below:

(13) 一只蜜蜂能活多久?

多久 (how long) is also the kind of [wh] operator that does not move to the front but remains in situ, i.e. remains in the sentence-final position. By adding a question mark to the sentence, (10) forms a wh-interrogative sentence. Thus, we have the derivation (14) below:

(14)

*(syntax tree: IP → QP [D 一只, N 蜜蜂], I' [I 能活, VP [V, D 多久]])*
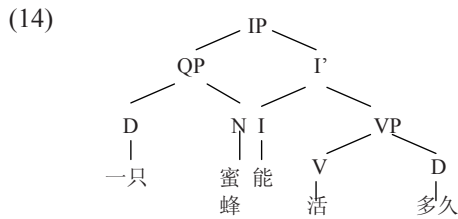
But this generalization mentioned above seems unreliable when exceptional operators such as 为什么? and 什么时候? Are brought into light. We can not simply treat 为什么? as these examples given above, instead it is a different case. Let's see example (12) below:

(15) 你为什么学习?

Example (12) is different from examples (7), (9), (11) and (13) lies in the assumption that the determiner 为什么? Originates in the complement of verb学习 and specifier 你 originates in the spec-IP, so we get its corresponding echo question (16) below:

(16) 你学习为什么?

Let's assume that an interrogative COMP carries a [wh] specifier feature and that 为什么? Moves to spec-CP and also that determiner 你 moves from the lower spec-IP to the higher spec-IP, so we get the following derivation (17):

(17)

(syntax tree: IP → D 你, I' [I, CP [D 为什么, C' [C, IP [D t, I' [I, VP [V 学习, D t]]]]]])
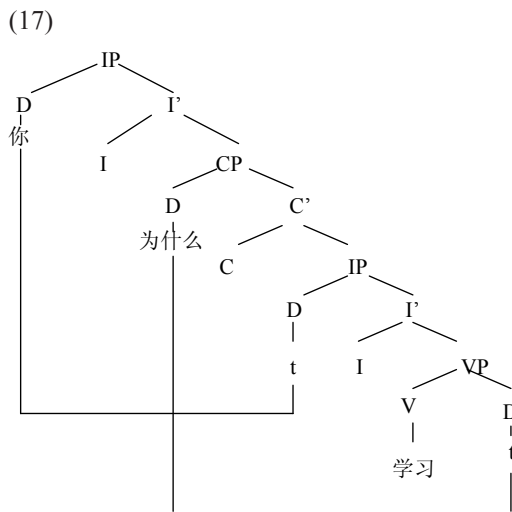
Similar to the case of 为什么? in example (18), 什么时候? (when) also originates in the complement of the verb 回来 and so needs to be moved to spec-CP position. See example (18) below:

(18) (a) 他什么时候回来?

(b) he when   come back ?

(18b) is the English counterpart of (18a). In (18a), 什么时候? Undergoes movement from its underlying determiner of VP to the spec-CP position and it leaves behind a trace in the position of the determiner of VP. Similarly, 他 moves from its original position of the lower spec-IP to the higher spec-IP. Thus, example (18a) has the following derivation (19):

(syntax tree: IP → D 他, I' [I, CP [D 什么时候, C' [C, IP [D t, I' [I, VP [V 回来, D t]]]]]])
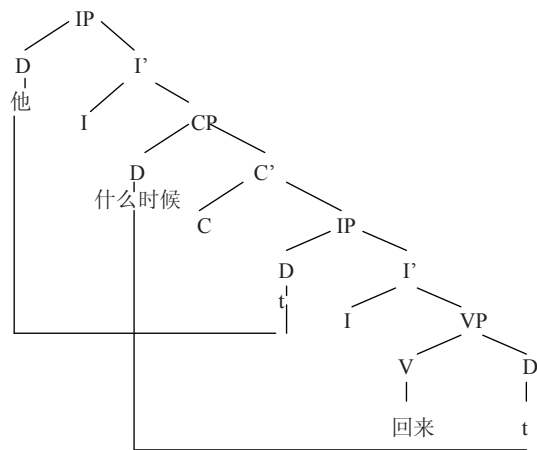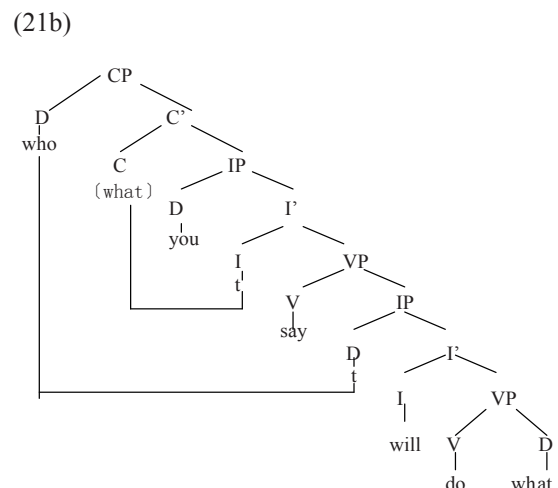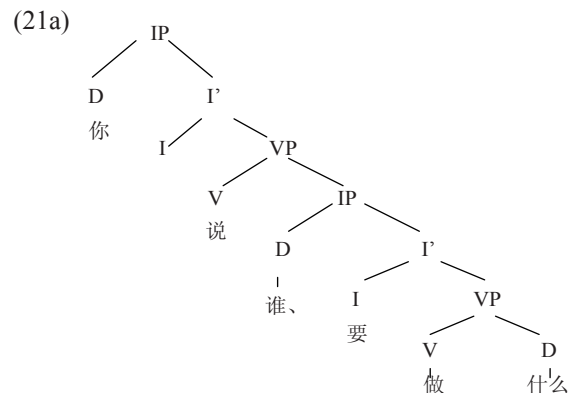
The second issue I would like to discuss here is about the wh-movement in multiple wh-questions in Chinese. Comparing (20a) with (20b), it can be seen that in English wh-words move to the front, while in Chinese wh-words do not move, i.e., stay in situ. According to Chomsky (1973) and James Huang (1982), the logical form (LF) is responsible for the wh-raising, and all the wh-words should be moved out of the D-structure. See example (20) below:

(20) (a) 你说谁要做什么?

(b) Who do you say will do what?

(20b) is the English counterpart of (20a), and (20a) and (20b) have their derivations (21a) and (21b) respectively as follows:

(21a)

(syntax tree: IP → D 你, I' [I 说, VP [V, IP [D 谁、, I' [I 要, VP [V 做, D 什么]]]]])

(21b)

(syntax tree: CP → D who, C' [C 〔what〕, IP [D you, I' [I t, VP [V say, IP [D t, I' [I will, VP [V do, D what]]]]]]])

Comparing (21a) with (21b), we can find that in (21a) 你说谁要做什么? neither 谁 nor 什么? Moves to the front spec-CP to be checked. Since Chinese, unlike English, does not need to check its agreement-features, it usually does not move its constituents to the front to be checked. This is also the case with wh-operator movement. 谁 originates as the specifier of the complement of 你说 and stays in situ, i.e. stays in the lower spec-IP and does not move to spec-CP. Since 谁 does not move to spec-CP, 什么? Can not move to the next highest determiner position in that there is no empty position to fill.

This assumption that Chinese wh-operators stay in situ in multiple wh-questions raises an interesting question: why should 谁 be put in front while 什么 in sentence-finial position? To answer this question, we have to exploit UTAH (Uniform Theta-Assignment Hypothesis) analysis. The predicate of the clause, 做, requires an agent subject, that is to say, verb 做 θ-marks its subject, and hence it can only have as its subject an expression denoting an entity capable of rational thought. In this sense 什么 is not allowed to be the subject of 做, while 谁 can.

Another point that I'd like to introduce here is the differences between matching questions and conjoined questions in multiple wh-questions. See example (22) below:

(22) (a) Who came when?
     (b) Who came and when?

The former (i.e. (22a)) is a matching question, while the latter (i.e. (22b)) is a conjoined question. According to Bolinger (1978) and Wachowicz (1975), a matching question has at least two pairs of answers that are appropriate, and they use minimalist pair to differ matching questions from conjoined questions. Take (23) for instance:

(23) Q: Who brought what?
     A1: Monica brought her teddy-bear and Herbert brought his dolls.
     A2: * Monica brought her teddy-bear. (* signals an inappropriate answer.)

So in this sense, if an action that a verb represents can happen only once, then the matching question with such kind of verb is unacceptable.

For example:

(24) (a) * Who killed Robert Kennedy when?
     (b) * Who is keeping the silver dollar in which bank?

If we change the verb phrase or object noun phrase in (24), so that the actions in the sentences can happen for several times, we will get the acceptable sentences (25) (a) (b) (c) respectively.

(25) (a) Who killed which Kennedy?
     Who kept the silver dollar in which bank?
     Who saw Robert Kennedy when?

But it is not always the case that a matching question needs at least two pairs of answers, see the counter example (26) below:

(26) Q: Who hit who first?
     A: Tom hit Ben.

Similarly, in Chinese interpretations of wh-phrases in canonical multiple wh-questions resemble that found in English. See examples below:

(27) (a) 谁喜欢什么?
     (b) 张三喜欢古典音乐, 李四喜欢当代小说…
(28) (a) 谁为什么没来呢?
     (b) 张三因为太忙没来, 李四因为生病没来…
     (a) 李四怎么样偷了什么?
     (b) 李四公开地偷了汽车, 悄悄地偷了钱包…
(29) Q: 他们俩谁喜欢谁?
     A: 张三喜欢李四.

In example (27), (28), and (29), all need pair-list answers, which are in accordance with Kuno's (1982) "sorting key hypothesis (分类答案假设)". Kuno puts forward this hypothesis to the effect that in a multiple wh-question, the fronted wh-word represents the key for sorting relevant pieces of information in the answer. As for example (30), it is the counter example to the requirement that matching questions need at least two pairs of answers.

Finally, I want to put some emphasis on a phenomenon concerned with *who* or in Chinese谁. See the following example (31):

(31) Who beat her?

Unlike the formula we have used above, i.e. all wh-questions is CPs containing a wh-operator which moves into spec-CP, (31) is not a CP, but an IP. According to Andrew Radford, *who* in (31) does not move to spec-CP, but remains in situ in spec-IP. Thus, (31) has its derivation (32) below:
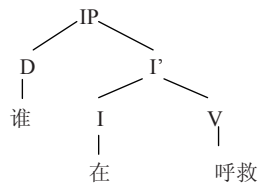
(32)
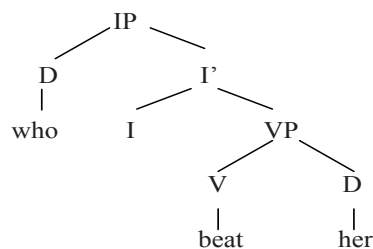
"This would mean that interrogative clauses with interrogative subjects have the status of IPs, but other types of interrogative clauses have the status of CPs" (Radford, p144). Then Mr. Radford further proposes **economy principle** to explain the asymmetry in the structure of questions. This applies to the Chinese wh-operator, 谁. When 谁 is the subject of a predicate, it usually remains in the beginning position of a sentence like other subjects. See example (33) below:
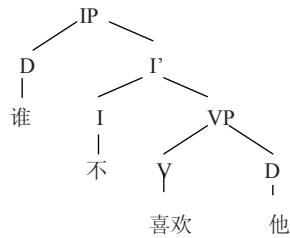
(33) (a) 谁在呼救?
     (b) 谁不喜欢他?

In both (33a) and (33b), 谁 is the subject of the predicate 呼救 and喜欢, so it remains in situ. (33) has the derivation (34) below:

(34a)

```
            IP
          /    \
         D      I'
         |     /  \
         谁   I    V
              |    |
              在   呼救
```

(34b)

```
            IP
          /    \
         D      I'
         |     /  \
         谁   I    VP
              |   /  \
              不  V    D
                 |     |
                 喜欢   他
```

In this sense, Chinese is uniform to English wh-operator movement. But in Chinese there are exceptions that the wh-operator 谁 is not in the beginning subject position., but is "moved" to the second place. See example (35) below:
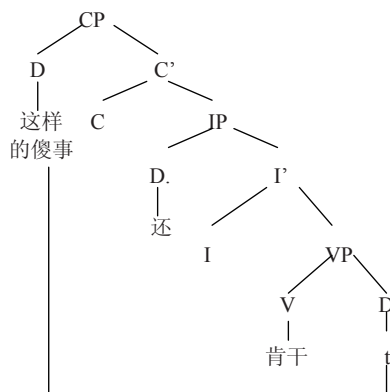
(35) 这样的傻事谁肯干?

Although 谁 is still the subject of the predicate 肯干, it retreats to the second place in (35). Why so? The key to this question is that the complement (object in this case) of the predicate 肯干 is moved to the front spec-CP. So (35) has its echo question (36) as follows:

(36) 谁肯干这样的傻事?

For the purpose of emphasizing its complement, 这样的傻事 is moved to the front spec-CP. So (35) has its derivation (37) below:

(37)

```
            CP
          /    \
         D      C'
         |     /  \
        这样   C    JP
        的傻事      /  \
                  D.    I'
                  |    /  \
                  还   I    VP
                            /  \
                           V    D
                           |    |
                           肯干   t
```

In (37), the determiner of the VP, 这样的傻事, moves across spec-IP, 谁, to the spec-CP in order to be stressed. This assumption also applies to example (38):

(38) 窗户谁叫打开的?

Its original order should be:

(39) 谁叫打开窗户的?

In order to make the complement 窗户 emphasized, it moves across the subject 谁 to the position of spec-CP.

Wh-operator movement is a very important part in principles of Universal Grammar, but since each language has its particularities, universal grammar can only be seen as universal to some extent. This article mainly concentrates on wh-movement and some issues of multiple wh-questions. There must be a lot of other points concerning this movement and wh-questions, for example, the pipe-pied phenomenon of wh-operators in Chinese, LF movement, Chinese donkey sentences, and etc., but I could not cover all these issues within one article. Since Chinese is an interesting and special language, it will be worthwhile to explore it under the principles of Universal Grammar.

REFERENCES

Bolinger, D. (1978). *Asking more than one thing at a time*. In H. Hiz (Ed.), *Questions.* Dordrecht: Reidel.

Chomsky, N. (1973). Conditions on transformation. In S. Anderson & P. Kiparsky (Eds.). *A festschrift for morris halle, holt.* New York: Rinehart, and Winston. New York.

Huang, & James, C. -T. (1982). Move WH in a language without WH movement. *The Linguistic Review, 1,* 369-416.

Kuno, S. (1982). *The focus of the question and focus of the answer.* Papers from the Parasession on Nondeclaratives, Chicago Linguistic Society.

Radford, A. (2000). *Syntax: A minimalist introduction*. Beijing: Foreign Language Teaching and Research Press.

Wachowicz, K. (1975). Multiple questions. *Linguistic Silesiana, 1,* 145-151.

Wu, Y. Q. (2000). A review of the studies of wh-questions. *Modern Foreign Languages, 83,* 75-107.

Wu, Y. Q. (2001). Multiple wh-question and the functional interpretation of wh-phrases. *Modern Foreign Languages, 95,* 14-24.

Zhao Z. L. (1983). *Analysis of sentence elements in modern Chinese.* Xi'an, China: Shannxi People's Press.