MULTIPLE *WH*-QUESTIONS AND LEFT PERIPHERY*

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1. Introduction

The main goal of this paper is to present an empirical argument for positing uninterpretable/unvalued features (henceforth *u*Fs) in *wh*-dependencies in light of the Probe-Goal analysis. Focusing (almost exclusively) on the Case-agreement system, Chomsky in his recent writings proposes the following condition for feature checking/valuation.

(1)   Probe and Goal must both be *active* for Agree/Move to apply.

Crucially, *u*Fs are what render Probe and Goal active. In Case-agreement dependencies (i.e., A-dependency), the probe's uninterpretable/unvalued ϕ-features and the goal's Case features play a crucial role in driving the computation. As an illustration, let us consider the following simple example.

(2)   a.   John was arrested *t*
      b.   T   was arrested   John
             [*u*ϕ, EPP]   [*i*ϕ, *u*Case]

P (T in this case) seeks an active goal G in order to value and eliminate its *u*ϕ-features. The object DP, with interpretable/valued ϕ-features, is G in this case. G is rendered active by the presence of the uninterpretable/unvalued Case feature.

If we extend this picture to A'-dependencies, such as *wh*-constructions, we are led to posit *u*Fs for the interrogative C and a *wh*-phrase. Following Chomsky (2000), let us tentatively refer to them as Q-feature and *wh*-feature, respectively. According to this hypothesis, a *wh*-question such as *(I wonder) what you bought* would be analyzed in the following manner. Consider (3). Due to the presence of the EPP-feature on C, Move is called for. The Agree part of Move checks off the *wh*-feature of *what* and the Q-feature of C. Pied-piping applies to *what*, placing it in the specifier of CP and satisfying the EPP property of the probe.

(3) a. C   you bought what
         [uQ]   [iQ]
         [EPP]   [uWh]

     b. what   C   you bought t
         [iQ]   [~~uQ~~]
         [~~uWh~~] [~~EPP~~]

Some questions remain with such an attempt to extend the P-G system to *wh*-dependencies, however. In particular, there has been little, if any, justification for positing *u*Fs in *wh*-dependencies. In the case of Case-agreement dependencies, postulation of *u*F is well grounded: Case is morphologically visible in a number of languages and, crucially, it is a standard assumption in the filed that it plays no role in LF interpretation. On the other hand, although *wh*-feature is morphologically visible in one form or another in a number of languages (as in English *wh*-), such feature is relevant for LF interpretation. Similarly, Q-feature of the interrogative C should be classified as [+interpretable]. Thus, this line of extension of the probe-goal system needs ample empirical justification.

A potential advantage of positing *u*Fs in *wh*-dependencies is in fact hinted at in Chomsky (2000), and is fully explored by authors such as Rizzi (2006) and especially Bošković (2008). Once an element moves into the specifier of the interrogative head, it is frozen for a further movement. Consider the ungrammaticality of (4a) and a potential derivational stage in (4b). Chomsky argues that if a syntactic object has all of its *u*Fs checked/valued, it is no longer active, which is why *who* in this example cannot raise into the matrix clause.

(4) a. *Who do you wonder bought what?
     b. do you wonder [$_{CP}$ who C [$_{TP}$ t bought what]]

The goal of this paper is to provide additional support for analyzing *wh*-dependencies in terms of the probe-goal system. I attempt to do this with the following descriptive generalization (due originally to Chomsky 1973).

(5) Uniformity Condition on Multiple *Wh*-questions[1]
     A *wh*-element externally merged into the specifier of the interrogative CP cannot participate in multiple *wh*-questions.

Chomsky's (1973) original idea is that the interpretation of multiple *wh*-phrases must be

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[1] Chomsky's (1973: 282) original formulation:

(i) Assign a *wh*-phrase not in COMP to some higher structure [$_{COMP}$ +wh] and interpret as in (248) where *the interpretation is uniform in this COMP node* (note: (248) is a rule that interprets *wh*-quantifiers that bind a trace/variable).

uniform in terms of trace/variable binding: each and every *wh*-phrase interpreted by the same interrogative C must bind a trace/variable.

The following examples in (6), discussed in Chomsky (1973), will help us see the point. (6a) obeys this restriction, assuming that *what* moves to the interrogative C in covert syntax, leaving behind a trace, as illustrated in (7a). On the other hand, assuming that *whether* is directly merged with the interrogative C, (6b) runs afoul of this restriction, as shown in (7b).

(6) a. I wonder who bought what.
    b. *I wonder whether John bought what.

(7) a. I wonder [who$_i$, what$_j$ Comp [t_i bought t_j]]
    b. *I wonder [whether, what$_j$ Comp [$_{IP}$ John bought t_j]]

One may nonetheless raise questions about the explanation of (6b) in terms of the uniformity condition, since this example may be ruled out on independent grounds. In particular, the meaning assigned to such a sentence, e.g., "I wonder which of these things are such that John did or didn't buy them" (Hornstein 1995: chapter 7), may be pragmatically odd. Thus, we need other, more convincing cases to establish the validity of the uniformity condition under discussion. In what follows, I will attempt to achieve two things. I will first confirm the validity of (5) on the basis of the behavior of adjunct *wh*-phrases in several languages. I will then show how its effect can be derived under the probe-goal system as currently conceived in the minimalist syntax.

2. Empirical Support for the Uniformity Condition on Multiple *Wh*-Questions

2.1 Chinese

According to Tsai (2008), the causal *zenme* 'how come' is base-generated in the C domain. And this *wh*-element fails to occur in multiple *wh*-questions, regardless of the word order among the *wh*-phrases and regardless of whether the *wh*-phrase occurring with *zenme* is subject as in (8) or object as in (9). This conforms to the generalization in (5).

(8) a. *(nimen,) shei **zenme** hui chuli zhe-jian shi?
       you guys who **how** will handle this-Cl matter

    '*How come who will handle this matter?'

    b. *(nimen,) **zenme** shei hui chuli zhe-jian shi?
       you guys **how** who will handle this-Cl matter

(9) a. *ni **zenme** hui he na-zhong jiu?
       you **how** will drink which-kind wine

    '*How come you will drink which kind of wine?'

b. ***zenme** ni hui he na-zhong jiu?
   how you will drink which-kind wine (Tsai 2008)

In addition, the distribution of *weishenme* offers potential support for the same generalization. In principle, *weishenme* may precede or follow the subject.

(10) a. Ni **weishenme** mai-le shu?
       you **why** bought book

   'Why did you buy a book?'

   b. **Weishenme** ni mai-le shu?
      why you bought book

   'Why did you buy a book?'

Some speakers allow *weishnme* in multiple *wh*-questions.[2] Crucially, for such speakers, there is a tendency to disfavor *weishnme* in the position preceding the *wh*-subject.

(11) a. Shei **weishenme** mei lai?
       who **why** not come

   'Who didn't come why?'

   b. ***Weishenme** shei mei lai?
      why who not come

(12) a. Ni **weishenme** mai-le shenme?
       you why bought what

   'Why did you buy what?'

   b. [??]**Weishenme** ni mai-le shenme?
      why you bought what

Now let us assume the following.

(13) a. *weishenme* does not undergo overt movement (i.e., the surface position of *weishenme* reflects the merging site of this *wh*-adjunct).
   b. *weishenme* is externally merged into the spec of CP when preceding the subject, and somewhere in the TP complement of C when following the subject.[3]

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[2] There seems to be a variation among speakers in this regard. Thus, Tsai (2008) reports that the reason *weishenme* cannot occur in multiple *wh*-questions (but even for him, the order shown in (11a) is judged to be better than that in (11b)).

[3] See also Tsai (2008). See Ko (2005) and Soh (2005) for alternative views.

Under these assumptions, the degraded status of (11b) and (12b) can be regarded as reflecting the effect of the uniformity requirement in (5).

2.2 *How Come* (Collins 1991)

The distribution of *how come* in multiple *wh*-questions is another instance falling under the generalization in (5). Based on several facts about *how come* (in contrast to *why*), including the lack of the long-distance construal of this *wh*-element as shown below, Collins (1991) argues that *how come* never undergoes movement, which means that the surface position of *how come* directly corresponds to its merging site.

(14) a. **Why** did John say Mary left?   (ambiguous)
      b. **How come** John said Mary left?   (matrix only)

As pointed out by Collins, *how come* fails to participate in multiple *wh*-questions, unlike *why*. This constitutes another case falling under (5).[4]

(15) a. **Why** did John buy what?
      b. *****How come** John bought what?

Note that I will assume that *how come* is merged as the spec of CP, unlike Collins' (1991) proposal that it is a (complex) C head. One piece of potential evidence for this assumption comes from the fact that *how come* licenses sluicing, which is normally assumed to require a spec-head agreement (see Lobeck 1995).

(16) A: I'd like to leave.
      B: [$_{CP}$ With whom/Why/How come [$_{C'}$ C [$_{TP}$ ~~you would like to leave~~]]]?

2.3 Spanish Subject-Verb Inversion and Multiple *Wh*-Questions

The behavior of Spanish *wh*-adjunct potentially provides support for the generalization in (5). Let us start with the observation that the subject-verb inversion is normally obligatory in Spanish *wh*-questions as shown in (17), whereas it is optional with *por qué* as shown in (18).

(17) a. *Qué Juan vio?
          what Juan saw

          'What did Juan see?'

      b. Qué vio Juan?
          what saw Juan

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[4] Collins (1991) also resorts to Chomsky's (1973) condition to exclude this example.

(18) a. **Por qué** vio Juan a Maria?
         why   saw Juan A Maria

       'Why did Juan see Maria?'

      b. **Por qué** Juan vio a Maria?
         why   Juan saw A Maria

But consider the following data (see Uriagereka 1988, Boeckx 2008). While (19a) is ambiguous with respect to the modification domain of *por qué*, the example in (19b), where inversion does not apply, lacks the embedded reading of *por qué*. We can take this fact to be an indication that inversion is in fact obligatory when *por qué* undergoes movement, short or long-distance. This in turn shows that *por qué* has more than one merging site: It may be merged somewhere in TP/*v*P and moves to the spec of CP as in (18a), or it may be directly merged into the spec of CP (and hence no inversion takes place) as in (18b).

(19) a. **Por qué** pensaste tú que Juan vio a Maria?   (ambiguous)
         why   thought you that Juan saw A Maria

       'Why did you think that Juan saw Maria?'

      b. **Por qué** tú pensaste que Juan vio a Maria?   (*embedded reading)
         why   you thought   that Juan saw A Maria

Now let us turn to the crucial fact: the lack of inversion affects the multiple *wh*-question with *por qué*.[5] Unlike (20a), (20b) does not have the ordinary pair-list reading.

(20) a. **Por qué razon** hizo Juan que cosa?   (pair-list answer)
         why   reason did Juan what thing

       'Why did Juan do what thing?'

      b. **Por qué razon** Juan hizo que cosa?   (single pair answer only)
         why   reason Juan did   what thing

This fact could be attributed to (5). When *por qué* is directly merged into the spec of CP, it disrupts the formation of the full-fledged multiple *wh*-question, with the single pair reading somehow surviving (I need to set aside the question of how the single pair reading is obtained).

2.4 Questions with an Attitude

2.4.1 Why the Hell

     Two other types of *wh*-adjuncts lend further support to the restriction under discussion.

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[5] Thanks to Juan Uriagereka (p.c.) for the data and discussion.

First, *why the hell* in English, like *how come*, which was discussed earlier, does not allow the embedded reading.

(21) a.   **Why** did John say that Peter is upset?   (ambiguous)
    b.   **Why the hell** did John say that Peter is upset?   (matrix only)

Let us assume that *why the hell* must be externally merged into the spec of the interrogative CP. And this *wh*-phrase fails to participate in multiple *wh*-questions.

(22) a.   **Why** did you buy what?
    b.   ***Why the hell** did you buy what?

2.4.2 WHAT-questions with an Attitude (for Asking Reasons)

A peculiar type of 'what'-questions found in several languages also confirms the validity of (5). As discussed by Ochi (1999, 2004), this type of *wh*-adjunct is found in a number of languages. For instance, *was* 'what' in German can be used to ask reasons, as illustrated by the examples below. In order to distinguish this peculiar use of 'what' from its ordinary usage, I will refer to the former as WHAT.

(23) a.   **Was**   schläfst du   so lange?
        WHAT sleeps   you so long

        'Why (the hell) are you sleeping for so long?'

    b.   **Was**   tadeln Sie Hans denn?
        WHAT blame   you Hans

        'Why (the hell) are you blaming Hans?'

Two points should be noted here. First, as we can see in the examples above, WHAT-questions exhibit verb second (V$_2$) effects. Given the standard view about V$_2$, i.e., that a verb occupies the C-slot and whatever precedes the verb is located in the specifier of CP, we can safely conclude that WHAT sits in the spec of the interrogative CP, just like other *wh*-phrases. Second, the use of WHAT is most natural in a context in which emotions such as annoyance, impatience, and surprises etc. are accompanied by the utterance. In this sense, it is similar to *wh the hell* phrase discussed in the previous subsection.[6]

Just like *how come* (section 2.2) and *why the hell* (section 2.4.1), WHAT-questions (i.e., *was* for asking reasons) in German do not allow a long-distance construal, as shown by the contrast between *warum* 'why' in (24a) and WHAT in (24b).

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[6] This remark also applies to WHAT in Chinese and Japanese (to be discussed shortly).

(24) a. **Warum** glaubst du dass er so lange schläft?　　(ambiguous)
　　　　why　　 believe you that he so long sleeps

　　　　'Why do you believe that he sleeps so long?'

　　b. **Was**　　 glaubst du dass er so lange schläft?　　(matrix only)
　　　　WHAT believe you that he so long sleeps

　　　　'Why (the hell) do you believe that he sleeps so long?'

The lack of the embedded reading in (24b) immediately follows if we suppose that WHAT in German has the lexical property/requirement of being directly inserted into the specifier of interrogative CP and, consequently, no *wh*-movement is involved in this construction.

　　As expected, WHAT in German fails to occur in multiple *wh*-questions.[7] As (25a) and (26a) show, *warum* 'why' occurs in multiple *wh*-questions under certain circumstances. I will tentatively attribute the contrast between (25a) and (25b) to superiority effects involving an adjunct *wh*-phrase in German (although it is often assumed that no superiority is observed in this language).[8] In contrast, WHAT is not allowed in multiple *wh*-questions regardless of the word order, as shown in (25c-d) and (26b).

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[7] In addition to German, several other *wh*-fronting languages, such as Bulgarian, Hebrew, and Hungarian allow the *wh*-phrase corresponding to 'what' to be used for asking reasons. Although I will focus on German in this subsection, it should be noted that WHAT-questions in these languages pattern together in the sense that they do not allow a long-distance dependency nor do they participate in multiple *wh*-questions.

[8] A comment is in order regarding *wh*-adjuncts in German. Haider (2000) claims that *wh*-adjuncts cannot stay in situ in German, which seems to indicate that there is some variation among speakers concerning this point. One source of this variation may be related to intonation patterns. According to Wiltschko (1997), intonation patterns (which Wiltschko relates to the issue of D-linking) affect the acceptability of adjunct *wh*-in-situ. There are two possible intonation patterns for morphologically complex *wh*-words like *warum* 'why'. Either the *wh*-part is stressed (indicated below as WARum), or the preposition part is stressed (waRUM). When *warum* is in the spec of CP, either stress pattern is allowed as shown in (i).

(i)　WARum/waRUM　hat　Peter　was　getrunken?
　　 what　　　　　　　has　Peter　what　drunk

　　 'Why did Peter drink what?'

When *warum* is in situ, however, only the pattern in which the *wh*-part is stressed is acceptable, as shown in (ii) below.

(ii)　Was　hat　Peter　WARum/$^?$*waRUM　getrunken?
　　　what　has　Peter　why　　　　　　　 drunk

　　　'What did Peter drink why?'

(25) a.   Wer   schläft   **warum**   so   lange?
           who.NOM   sleeps   **why**   so   long

           'Who is sleeping why so long?'

     b.^{??}/***Warum**   schläft   wer   so   lange?
           why   sleeps   who.NOM   so   long

           'Who is sleeping why so long?'

     c.   *Wer   schläft   **was**   so   lange?
           who.NOM   sleeps   **WHAT**   so   long

           'Who sleeps why (the hell) so long?'

     d.   ***Was**   schläft   wer   so   lange?
           WHAT   sleeps   who.NOM   so   long

           'Who sleeps why (the hell) so long?'

(26) a.   **Warum**   tadeln   Sie   wen?
           why   blame   you   who.ACC

           'Why are you blaming who?'

     b.   ***Was**   tadeln   Sie   wen?
           WHAT   blame   you   who.ACC

           'Why (the hell) are you blaming who?'

(25c) is ruled out by our earlier assumption that WHAT in German has the lexical property that it must be inserted into the specifier of interrogative CP. Further, (25d) may be ruled out on a par with (25b), possibly as a superiority violation. Now, the crucial example is (26b). Nothing other than the uniformity requirement (5) would rule out this example (thanks to Klaus Abels, p.c. for the data).

     There is empirical evidence for the claim that the merging site of WHAT is indeed the source of the problem in (26b). The crucial evidence comes from Japanese and Chinese. As discussed by Kurafuji (1996), Japanese also allows *nani-o* 'what-ACC' to be used for asking reasons, as shown below. Kurafuji also shows that WHAT in Japanese allows long-distance dependencies.[9]

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[9] In both German and Japanese, WHAT occurs within the complement of a verb selecting an interrogative clause, which clearly demonstrates the interrogative nature of this *wh*-phrase. Furthermore, in both languages, WHAT does not easily occur in the complement clause of a factive-type predicate, as shown in (i) below. This sense, WHAT is akin to *wh*-the-hell, as shown in (ii) (see den Dikken and Giannakidou 2002)

(27) a. Kimi-wa **nani**-o   manga-o   yondeiru no?[10]
          you-TOP **WHAT**-ACC cartoon-ACC reading   Q

       'Why (the hell) are you reading such a thing as a cartoon?'

      b. Kimi-wa [Hanako-ga   **nani**-o   manga-o   yondeiru to]
          you-TOP   Hanako-NOM **WHAT**-ACC cartoon-ACC reading   that

          omou   no?
          think   Q

          'Why (the hell) do you think [that John is reading cartoons *t*]?'

It is therefore plausible that WHAT in Japanese need not be merged into the interrogative specifier of CP (see Kurafuji 1996).

    Chinese also allows this *wh*-construction and, not surprisingly, it patterns with Japanese (James Huang, p.c.).

(28) a. ni   shui   **shenme**?
          you sleep **WHAT**

          'Why (the hell) are you sleeping?'

      b. ni   renwei tamen shui   **shenme**?
          you think   they   sleep **WHAT**

          'Why (the hell) do you think [they are sleeping *t*]?'

Crucially, WHAT in these two languages is fine in multiple *wh*-questions.

(29) a. Dare-ga   **nani**-o   Taro-bakari ijimeteiru no?
          who-NOM **WHAT**-ACC Taro-only   bullying   Q

          'Who keeps bullying Taro why (the hell)?'

(i)   a. Ich frage mich   / weiss   nicht / *weiss, **was**   Hans so   gestresst ist.
          I   ask   myself / know   not / know   **WHAT** Hans that stressed is

          'I wonder/don't know/*know why Hans is so stressed.' (German)

      b. Boku-wa Taro-ga   **nani**-o   hashitteiru (no) ka tazuneta / sir-anai   / [??]sitteiru.
          I-TOP   Taro-NOM **what**-ACC running   Q asked   / know-not / [??]know

          'I asked/don't know/[??]know why Taro is running.' (Japanese)

(ii) I wonder/don't know/*know why the hell he is avoiding me.

[10] This example is slightly degraded due to the double-*o* constraint (see Harada 1973) operating in Japanese. I will abstract away from this point, since it is also known that double -*o* is tolerated when one of the -*o* phrases is an adjunct (see Kuroda 1992: chapter 6).

b.   Shei   shui   **shenme**?
       who   sleep   **WHAT**

       'Who is sleeping why (the hell)?

This fact indicates that there is no intrinsic property of WHAT that renders it incompatible with other *wh*-phrases, since it does occur in multiple *wh*-questions, provided that it is merged in a position other than the interrogative spec CP.

3. Deriving the Uniformity Condition

So far, we have seen ample cases to confirm the correctness of the uniformity condition on multiple *wh*-questions (5). Now I would like to show that its effect follows rather naturally under the probe-goal system. Let us assume the following:

(30) a.   Probe and Goal must both be active for Agree/Move to apply.

      b.   Each and every *wh*-phrase bears an uF.[11]

Before discussing how the probe-goal system explains the generalization in (5), we should consider several types of *wh*-questions, starting with a single *wh*-question such as *(I wonder) what John bought*. At the point of the derivation at which the interrogative C is introduced into the structure, Agree holds of the C and *what*. The latter also moves and remerges with the C head in order to satisfy the EPP property (whatever this property is).

(31) a.   C   [$_{TP}$ John bought what]
         [uQ̶]   [uW̶h̶]
         [EPP]

      b.   [$_{CP}$ what   C   [$_{TP}$ …… *t*]]
             [uW̶h̶] [uQ̶]
                  [E̶P̶P̶]

As for multiple *wh*-questions such as *who bought what?*, I adopt the proposals of Chomsky (2001b), Frampton et al. (1999), and Hiraiwa (2001) to the effect that the probe P can agree with multiple goals in a simultaneous fashion, which means that intervention effects are evaded insofar as an intervening element is rendered inactive by P. Assuming that the interrogative C agrees simultaneously with each and every *wh*-phrase which it interprets, the C in (32a) establishes an Agree relation with both *who* and *what*. Since English requires just one *wh*-phrase to move, the higher *wh*-phrase, *who*, remerges with the interrogative C.

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[11] Contrary to Bošković (2007). Note that, for the reason mentioned in section 1, I will continue to use terms like uQ and uWh without committing myself to the exact labels/natures of such features.

(32) a.　　C　　　[TP who　bought what]
　　　　　[uQ]　　　[uWh]　　　　[uWh]
　　　　　[EPP]

　　　b.　[　who　　C　　　[TP t bought what]]
　　　　　　[~~uWh~~]　[~~uQ~~]　　　　　　[~~uWh~~]
　　　　　　　　　[~~EPP~~]

Now let us turn to the multiple *wh*-question involving the reason adjunct *wh*-phrase. We saw in the previous section that some of them must be merged into the spec of the interrogative CP (e.g., the causal *zenme* 'how come' in Chinese, *how come* and *why the hell* in English, and WHAT in languages like German) whereas others may be merged there or elsewhere (e.g., *weishnme* in Chinese, *why* in English, and *por qué* in Spanish). For the sake of convenience, I will use the term WHY to refer to those two types of reason adjunct *wh*-phrases. Let us start with the situation in which WHY is merged somewhere in the complement domain of the C head, an option available for some but not all instances of WHY. In this case, WHY is probed by the C on a par with other *wh*s.

(33)　C　…　*wh*　…　**WHY**　　(order irrelevant)

Now turn to the situation in which WHY is merged into the spec of the interrogative CP. I assume that WHY in this case will act as a probe, taking care of the uQ-feature as well as the EPP-feature of the interrogative C (see Ko 2005).

(34) [CP **WHY**　　　　C　　　[TP ……]]
　　　　　　[~~uWh~~]　　[uQ, ~~EPP~~]

Now let us turn to the crucial configuration (exemplifying (5)).

(35)　***WHY** C [TP … *wh* …]　　(WHY is merged into its surface position)

Let us consider a point in the derivation at which the interrogative C is merged with TP, with WHY still in the Numeration and ready to be introduced into the derivation.

(36)　C　　[TP … *wh* …]　　　N = {WHY}
　　　[uQ]　　　[uWh]　　　　　　[uWh]
　　　[EPP]

Two different derivational paths are available: (i) Agree holding of C and *wh*, and (ii) WHY being merged into the specifier of the interrogative CP. As will be demonstrated below, no matter which path is chosen, at least one of the uFs is bound to remain unchecked/unvalued. Suppose that Agree holds of the C head and *wh* first. As shown in (37a) below, the uFs of the C head and the *wh*-phrase are taken care of. The next derivational step would be to have

WHY merged into the spec of CP, as shown in (37b). However, the *u*F of WHY remains.

(37) a.   C   [$_{TP}$ … *wh* …]
           [EPP]   [~~*u*Wh~~]
           [~~*u*Q~~]

   b.   WHY   C   [$_{TP}$ *wh*   ]
        [***u*Wh**] [~~*u*Q~~]   [~~*u*Wh~~]

Suppose instead that WHY is merged into the structure immediately after the derivational point shown in (36) is reached. As discussed above, I assume that WHY acts as a probe in this configuration. Although this Agree relation could take care of the relevant features of WHY and the C head, the *u*F of the *wh*-phrase in situ remains.

(38) WHY   C   [$_{TP}$ *wh*   ]
     [~~*u*Wh~~] [~~EPP~~]   [***u*Wh**]
              [~~*u*Q~~]

In short, once a configuration shown in (36) is constructed, the derivation is bound to crash in one way or another. In the remainder of this paper, I would like to discuss a few issues arising from this line of analysis.

4. An Alternative Analysis

Let us see if there is an alternative way to derive the effect of the uniformity requirement on multiple *wh*-questions (5) that does not resort to the idea that the probe and the goal contain *u*Fs in *wh*-dependencies. One possibility would be to allude to the idea that Move is preferred to Merge (see Shima 2000). Consider again the German example in (26b). Suppose that the derivation has reached a point at which a decision has to be made with respect to an application of the next operation between Move and Merge. If Move is forced at this point in accordance with the principle under discussion, there is no way to introduce WHAT in the structure, since German does not permit multiple specifiers in the domain of CP.

(39) who   C   [$_{IP}$ … (who) …]   N = {WHAT}
         [Q, ~~EPP~~]   [~~wh~~]

Although this is a potential way to derive the effect of (5) in German, it is not obvious if it can be extended to the Chinese data in (11b) and (12b). Suppose that Chinese *wh*-in-situ involves movement in covert syntax. Since Move > Merge is not operative in this language, it is not obvious how those examples could be ruled out.

Furthermore, we can obtain a more direct argument against utilizing the Move > Merge principle to derive the effect of (5). Notice that this alternative line of approach capitalizes on

the fact that German does not tolerate more than a single specifier. It is therefore interesting to look at Bulgarian, a multiple *wh*-fronting language. As shown below, *kakvo* 'what' in Bulgarian can be used to ask reasons, just like German *was* 'what' and Japanese *nani-o* 'what-ACC':

(40) **Kakvo** si se umârlusila?
     WHAT aux self get down

     'Why (the hell) are you so depressed?'

This instance of *kakvo* 'what' (for asking reasons) does not allow a long-distance construal as shown in (41b), just like its German counterpart. Thus, we can safely regard this instance of *kakvo* as another instance of WHAT.

(41) a.   **Zašto** mislis ce Penka e zamila tajakola?
        why think that Penka wash thiscar

        'Why do you think that Penka is washing this car?'   (ambiguous)

     b.   **Kakvo** mislis ce Penka e zamila tajakola?
        WHAT think that Penka wash thiscar

        'Why (the hell) do you think that Penka is washing this car?'   (matrix only)

According to Rudin (1988), all the *wh*-phrases in multiple *wh*-constructions in Bulgarian are located in the spec of CP. Crucially, *kakvo* fails to occur in multiple *wh*-questions, regardless of the order in which it appears, as shown in (42b) and (42c).

(42) a.   Koj **zašto** je zamil taja kola?
        who **why** her za-wash this car

        'Who is washing this car why?'

     b.   ****Kakvo** koj je zamil taja kola?
        WHAT who her za-wash this car

        'Who is washing this car why (the hell)?'

     c.   *Koj **kakvo** je zamil taja kola?
        who **WHAT** her za-wash this car

        'Who is washing this car why (the hell)?'

If Move > Merge is all that is at stake, it is unclear how examples like (42b) and (42c) are ruled out. With multiple specifiers of CP permitted in Bulgarian, it should be possible to move one *wh*-phrase into a spec first, thus observing Move > Merge, and then insert another

wh-phrase via External Merge.[12] The alternative approach considered in this section should therefore be rejected on empirical grounds.[13]

5. Potential Loophole

In section 3, we examined two different derivational paths at the point of the derivation shown in (36), concluding that both of them will lead to a derivational crash. Let us elaborate a little more on this issue by considering the following example.

(43) *Why do you wonder John bought what?

Imagine the derivational point shown in (44a). Two continuations are possible, just like in (36): (i) C probes and agrees with *what*, and (ii) *why* is externally merged. Suppose that the former is chosen. As shown in (44b), the relevant features of C and *what* are taken care of, but the EPP-feature of the C head still needs to be taken care of. Now imagine that *why* is merged at this point. This should satisfy the EPP property of C, as shown in (44c). The *u*F of *why* still remains and the derivation continues, constructing the matrix clause. When the matrix C is introduced, all the relevant features are satisfied by the Agree holding of C and *why* followed by remerging of *why* into the spec of the matrix CP, as illustrated in (44d).
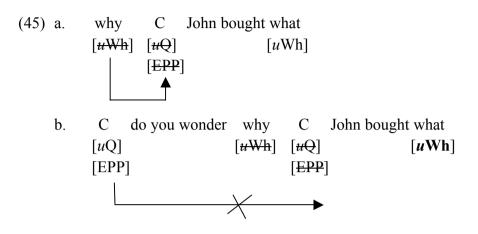
(44) a.   C   John bought what   N = { … WHY … }
            [*u*Q]   [*u*Wh]   [*u*Wh]
            [EPP]

      b.   C   John bought what
            [*u̶Q̶*]   [*u̶W̶h̶*]
            [EPP]

      c.   why   C   John bought what
            [*u*Wh] [*u̶Q̶*]   [*u̶W̶h̶*]
                     [E̶P̶P̶]

      d.   why   C   do you wonder [$_{CP}$ *t* C   John bought what]
            [*u̶W̶h̶*] [*u̶Q̶*]   [*u̶Q̶*]   [*u̶W̶h̶*]
                     [E̶P̶P̶]   [E̶P̶P̶]

One way in which this unwanted derivation for (43) can be blocked would be to say that when there is a choice between External Merge and Agree/Move in a situation like (33) and (44a), the former option is always chosen. Thus, instead of (44b), we obtain (45a), where *why*

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[12] WHAT may be merged into a higher spec, yielding the order shown in (42b), or into a lower spec (by 'tucking-in'), yielding the order shown in (42c).

[13] Of course, the discussion in this section does not reject Shima's proposal. The point is that the Move over Merge Principle alone is not sufficient to derive the content of (5).

is the new probe agreeing with the C, and the latter can no longer serve as a probe, which means that the *u*F of *what* remains unchecked/unvalued. The derivation continues and the matrix interrogative C is introduced. But this C head cannot agree with the *u*F of *what* because the latter is too deeply embedded (due to minimality, the PIC, etc.), as illustrated in (45b).

(45) a.   why   C   John bought what
       [uWh] [uQ]   [uWh]
              [EPP]

    b.   C   do you wonder   why   C   John bought what
       [uQ]   [uWh] [uQ]   [**uWh**]
       [EPP]   [EPP]

6. *Wh*-QP Interactions in the Left Periphery

Our discussion so far strongly favors the idea that merging sites of the reason *wh*-adjunct include the spec of CP and an additional position within TP/*v*P (see Collins 1991, Aoun and Li 1993 among others) over an alternative hypothesis that all instances of WHY are always merged into the spec of CP (see Rizzi 1999, Ko 2005, Stepanov and Tsai 2008 etc.). If the latter hypothesis were correct, all instances of multiple *wh*-questions with WHY would be expected to be equally excluded.

I would now like to briefly discuss scope interactions between WHY and the subject QP and examine how these two competing hypotheses fare with the facts. Let us focus on the following contrast noted by Collins (1991).

(46) a.   **Why** did everyone leave?   (every > wh; wh > every)
     b.   **How come** everyone left?   (*every > wh; wh > every)

I adopt Collins' proposal that the ambiguity of (46a) is due to the movement of *why*, assuming that *why* is (or, can be) base-generated somewhere in the complement domain of C, below the surface position of the subject QP, as shown in (47a). (46b) is unambiguous because *how come* does not undergo movement at all (as shown in (47b)) and hence never falls within the scope of the subject QP. Essentially the same account could cover Chinese data like (48).

(47) a.   Why did [TP everyone leave *t*]
     b.   How come [TP everyone left]

(48) a.   Meigeren dou   **weishenme** da?   ta?   (every > wh; wh > every)
        everyone all   **why**   hit him

      'Why did everyone hit him?'

   b.   **Weishenme** meigeren dou da ta?   (*every > wh; wh > every)
        why   everyone all hit him

We should now consider whether or not this kind of contrast can be accommodated under the hypothesis that WHY is always merged as the spec of CP. Fitzpatrick (2005) in fact provides an interesting analysis along this line. He first argues that *how come* is exceptional among English *wh*-phrases (including *why*) in that it is a factive *wh*-phrase, a point also noted by Collins (1991). This is demonstrated by the contrast in (49). *Why*-questions like (49a) have the flavor of a rhetorical question, as the speaker in this case expects a negative answer (e.g., *He would not leave.*). According to Fitzpatrick, (49b) is bad because of the conflict between this negative-bias and the factive/presuppositional nature of *how come*, as summarized in (50). No such conflict arises in (49a) because *why* is not a factive *wh*-phrase.

(49) a.   Why would he leave?
     b.   *How come he would leave?

(50) a.   Factive presupposition: He would leave.
     b.   Negative bias: He would not leave.

Returning to the contrast in (46), Fitzpatrick analyzes the ambiguity of (46a) in terms of the covert movement of the subject QP over *why*, as illustrated in (51a) below. He then suggests that the same covert movement is not available in (51b). This is where the factive nature of *how come* becomes crucial for Fitzpatrick. His idea is that this property renders the TP complement of *how come* an island (factive island), barring the (covert) movement of the subject *wh*-phrase over *how come*.

(51) a.   everyone [why [$_{TP}$ *t* left]]

     b.   [how come [$_{island}$ everyone left]]

As for the Chinese data in (48), one could follow Ko (2005) and claim that (48a) is derived from (48b) via the movement of *meigeren* across *weishenme* 'why' in Chinese (she assumes the latter to be always merged into the spec of CP). Then, the ambiguity of (48a) can be treated on a par with that of (46a), the only difference between the two being the timing of the movement of the subject QP (overt in Chinese and covert in English). Thus, it seems that the contrast we see in examples like (46) and (48) can be accommodated successfully under the stronger hypothesis that WHY is always merged into the spec of CP (as well as under our weaker position).

There are empirical reasons to question this line of analysis, however. First, recall that the pre-modal (causal) *zenme* in Chinese is always base-generated in the C domain (Tsai 2008). Crucially, Tsai reports that the order of *zenme* and the subject QP does not affect scope. In particular, (52b) lacks the wide scope reading of *meigeren* 'everyone.'

(52) a. (nimen,) **zenme** meigeren hui dai yi-ben shu?
         you guys **how come** everyone will bring one-Cl book

         'How come everyone will bring one book?'   (wh > every; *every > wh)

     b. (nimen,) meigeren **zenme** hui dai yi-ben shu?
         you guys everyone **how come** will bring one-Cl book

         'How come everyone will bring one book?'   (wh > every; *every > wh)

This shows that movement of the subject QP across WHY in the spec of CP is indeed possible, but it does not establish a new scope relation (for whatever reasons). This casts doubt on the explanation of the ambiguity seen in (48a) in terms of the movement of the subject QP. Turning to English, recall that there are reasons to suppose that *why the hell* in English, like *how come*, is always merged into the spec of the interrogative CP. Crucially for us, the former is not factive, since examples like *why the hell would he leave?* are fully acceptable. And yet, it behaves on a par with *how come* in disallowing the subject QP to take scope over it.

(53) **Why the hell** did everyone leave?   (wh > every; *every > wh)[14]

To sum up, the ambiguity of (46a) and (48a) should not be tied to the movement of the subject QP. Rather, it arises via overt/covert movement of *why* and *weishenme*, which were base-generated in the complement domain of the interrogative C.

7. Conclusion

In this paper, I first showed that Chomsky's (1973) uniformity requirement on multiple *wh*-questions is a valid cross-linguistic generalization. Then I showed how the probe-goal system, where *u*Fs play a crucial role, can derive the nature of this uniformity. To the extent that this analysis is successful, it supports the idea that probes and goals have *u*Fs in *wh*-dependencies. The analysis also supports the idea of multiple feature-checking as a simultaneous operation. Finally, it also shows that probes and goals become inactive the moment their *u*Fs are taken care of (see, for example, Epstein and Seely 2002). If such features were accessible for a short while even after checking/valuation (e.g., until the

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[14] According to den Dikken and Giannakidou (2002), even the argument *wh the hell* fails to yield scope ambiguity in examples like *what the hell did everyone buy?*. But my informants report that if we use *each* instead of *every*, the wide scope reading of the subject QP becomes salient.

(i)   What the hell did each girl buy?

completion of a phase domain), we would lose an account of the uniformity condition.

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