

# The Syntax of Conjoined Wh-elements in English: Its Origin\*

Myung-Kwan Park

(Dongguk University)

## 1. Introduction

Giannakidou and Merchant (1998) made an investigation into what they call reverse sluicing in English. Cases of reverse sluicing are illustrated in (1):

- (1)a. The journalists want to know **if and when** the suspect will make a statement.
  - b. Holmes set out to discover **whether and where** Moriarty might set a trap.
  - c. Magdalena worried about **whether and how** to break the news to her father.
  - d. The journalists couldn't find out **whether or why** the letters might have been sent.
- Giannakidou and Merchant (1998: 238-239)

Giannakidou and Merchant assume that *if/whether* and an adjunct wh-phrase in (1a-d) actually involve two clauses. In other words, there is an empty IP immediately after *if/whether* which results from sluicing or IP ellipsis. Following Chung et al. (1995), they argue that this empty position undergoes IP-copy or "IP recycling" in the interpretive component of LF. When we take (1a) for example, IP-copy copies and reuses into the empty IP right after *if* the overt antecedent IP, yielding the LF representation in (2):

- (2) The journalists want to know **if** [<sub>IP</sub> ~~the suspect will make a statement~~  $t_1$ ] **and when**<sub>1</sub> [<sub>IP</sub> the suspect will make a statement  $t_1$ ].

The problematic aspect of the LF representation in (2), however, is the unbound trace  $t_1$  in the first conjunct clause, which is associated with the adjunct wh-phrase in the second one. Giannakidou and Merchant propose that the unbound trace associated with an adjunct wh-phrase can be pruned or deleted because its deletion does not alter the argument structure of a predicate. By contrast, the unbound trace associated with an argument wh-phrase cannot be pruned because otherwise, its deletion would change the argument structure of a predicate. This accounts for the ungrammaticality of the following examples where an argument wh-phrase is fronted to [Spec,CP] position.

- (3)a. \*Lucy was wondering **whether and who** might come to her party.
- b. \*The reporters asked **if and who** the FBI had arrested.
- c. \*We found out **whether and on what materials** the company relied.

In other words, taking (3a) for example, the argument trace in the first-conjunct copied IP

of its LF representation (4) ends up being unbound, giving rise to the ungrammaticality of the sentence.

- (4) \*Lucy was wondering **whether** [<sub>IP</sub> t<sub>1</sub> ~~might come to her party~~] and **who**<sub>i</sub> [<sub>IP</sub> t<sub>1</sub> might come to her party].

Giannakidou and Merchant's analysis, however, poses several problems. First, their analysis hinges on the idea that IP ellipsis is possible after *whether/if*. However, the fact is that it is not, though why it is not has been an unanswered puzzle, as follows:

- (5)a. A: Mary asked you whether John passed the exam? B: I am sorry I don't know whether \*<sub>[IP</sub> John ~~passed the exam~~].  
b. Susan told me if John saw the movie, but I cannot remember if \*<sub>[IP</sub> John ~~saw the movie~~].

Giannakidou and Merchant presented as their supporting evidence for their analysis the following pair of examples:

- (6)a. The intern wasn't sure {**whether/\*if**} to perform the procedure.  
b. The intern asked the chief resident to determine {**whether/\*if**} and how to perform the procedure.

The thrust of their argument is that only *whether*, but not *if* is allowed in (6b), as only the former, not the latter co-occurs with a *to*-infinitive clause in (6a). If this is true, it renders a convincing argument showing that a clause is elided only after *whether*.

Contrary to their claim, however, there are a considerable number of attestations on the web allowing for the pattern at hand, as in (7):<sup>1</sup>

- (7)a. Below is some information you may find useful as you decide **if and how** to contribute. [<http://www.maine.gov/portal/katrina/wantingtohelp.html>]  
b. You use the optional codebase attribute to specify **if and how** to download the JRE. [[http://java.sun.com/j2se/1.5.0/docs/guide/plugin/developer\\_guide/using\\_tags.html](http://java.sun.com/j2se/1.5.0/docs/guide/plugin/developer_guide/using_tags.html)]

In addition to this problem, it is also questionable whether the argument vs. adjunct distinction is a viable generation on what they call reverse sluicing. In particular, Haegeman (2006: 356) reports that the following example she cited from the newspaper *Guardian* is perfectly acceptable:

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<sup>1</sup> I acknowledge that examples found on the web must be used with caution, since it is often unclear whether the author is a native speaker, a typo was involved, etc. But hundreds/thousands of the types of examples in (7) were found; we take it as a clear indication that the pattern in question is possible.

- (8) **Whether and whom** to marry, how to express sexual intimacy, and **whether and how** to establish a family —these are among the most basic of every individual's liberty and due process rights.

Recall that Giannakidou and Merchant accounts for the argument vs. adjunct distinction by proposing that unlike the adjunct one, the argument trace in the copied IP cannot be deleted, winding up being unbound in the copied IP clause. Note that this proposed idea incorrectly rules in the example in (8) as well as many other examples of the same pattern which we will see later.

Showing that Giannakidou and Merchant's account is not a correct one for the construction at issue, we turn now to the empirical domain of the construction and seek an alternative analysis of it in the next section.

## 2. Conjunction of "the edges"

Let me start with the discussion of the examples in (1a-b), repeated below:

- (9)a. The journalists want to know **if and when** the suspect will make a statement.  
b. Holmes set out to discover **whether and where** Moriarty might set a trap.

I pointed out in the previous section that the ellipsis of IP is not allowed after *if* nor after *whether*, which implies that an alternative approach rather than the ellipsis one is sought after to this construction.

The idea I am proposing for this construction is that the CP system of *if/whether* is conjoined together with that of an adjunct wh-phrase, and that both the former and the latter share the same IP following them. This is schematized for (9a) as follows:

- (10) The journalists want to know [<sub>CP</sub> **if** and [<sub>CP</sub> **when** [<sub>IP</sub> the suspect will make a statement]]].

The conjoined structure in (10), at first appearance, looks to be somewhat peculiar because it involves coordination of the two CP systems. However, its peculiarity is not so remarkable as we find parallelism in the coordination of the two Determiner systems in (11):

- (11)a. Kim's and Pat's marriage  
b. my and her new baby  
c. the and any other product  
d. a and other issues  
e. every and any topic

Note that all the instances of DP in (11a-e) cannot be derived by applying the operation of NP-deletion (following the old idea of NP, N'-deletion) to their first conjunct. This is because none of the determiners except the non-pronominal possessive in (11a) permit eliding NP after them, as noted by Lobeck (1995) with her examples in (12):

- (12)a. Mary likes Chomsky's book(s) but Bill likes **Halle's** book(s).
- b. Mary likes your book but Bill likes **their/her/our** \*(books).
- c. Both students attended the rally, and **the** \*(students) felt it was important.
- d. Though a \*(vacation) would certainly be nice, a vacation at this time unthinkable.
- e. The women came in and **every** \*(woman) sat down.

The only remaining option I can conceive of regarding (11a-e), dismissing the deletion approach, is to say that the examples have two DP systems simply coordinated, as noted above. In other words, for example (11a) has the following schematic structure:

- (13) [<sub>DP</sub> Kim's and [<sub>DP</sub> Pat's [<sub>NP</sub> marriage ]]]

The feature of the proposed structure is that the two systems of DP are coordinated and share the same NP following them.

It is also instructive to note that the demonstrative wh-element *which* and the possessive wh-element *whose* can be apparently coordinated in either order as in (14a-b):

- (14)a. As we cannot teach every accent of English, **which and whose** accent should then be taught—and should we allow our students to use any accent they want?
- b. Collectors determine **whose and which** art is worth buying?

The examples in (14a-b) clearly show that the DP system behaves in exactly parallel fashion to the CP system in conjoining together the two wh-elements apparently. Furthermore, the idea of coordinating the two DP systems (excluding the complement of D) resolves a problem due to combining together two wh-elements of apparently different category-levels. Note that in (14), on one hand, *which* is a determiner head. On the other hand, provided that, as generally assumed, possessive elements hold a phrase status rather than a head one (Radford (1989)), *whose* should count as a phrase. Therefore, conjunction of *which* and *whose* is an instance of apparently asymmetrical coordination. The following examples are also such ones:

- (15)a. We will do all that we can—working with **every and our** elected officials at all levels to help create a more positive environment. [  
[www.clarksville.tn.us/files/releases/Chamber04-05\\_Officers.pdf](http://www.clarksville.tn.us/files/releases/Chamber04-05_Officers.pdf)]
- b. ... let alone all human beings together in **the and our** course through time across

this globe. [[www.interreligieus.nl/literatuur/Toward\\_a\\_Universal\\_Theology\\_of\\_Religion.pdf](http://www.interreligieus.nl/literatuur/Toward_a_Universal_Theology_of_Religion.pdf)]

However, rather than understanding these cases of (14) and (15) as involving the two determiners, suppose as suggested that coordination of the two DP systems is involved in these cases. Then, the conjunction involved in (14) and (15) can be actually understood as a genuine instance of symmetrical coordination, because it is of the two DP systems rather than of the two determiners of different structural status.

Now returning to the coordination of two CP systems, a question arises as to the relationship between the two coordinated systems of CP and one shared IP. One possibility I can put forward is that each of the two coordinated systems of CP is associated with the shared IP not in the *syntactic* component but just in the *interpretational* one. I suppose that this possibility, however, encounters a problem due to the parallelism condition on coordinate structure. This is because in (8) and (9) an argument or adjunct *wh*-phrase moves from the shared IP to the second conjunct CP system only, but not to the first one. This effect is in fact not what is forbidden by Ross's (1967) original definition of the Coordinate Structure Constraint, which states that no element contained in a conjunct may be moved out of that conjunct. With the conceived possibility, however, since the trace left by *wh*-movement in the shared IP ends up being associated with only one conjunct, but with both conjuncts, the effect assumedly still holds, incorrectly predicting the examples in (8) and (9) to be ungrammatical. This means that the possibility cannot be adopted for the analysis of the examples in (8) and (9).

Dismissing the first possibility, there are two other possibilities that allow for IP after the first conjunct *whether/if*. One of the two is to maintain that the IP is constructed in the syntactic component, but it undergoes deletion at a relevant point of derivation. In the previous section it was argued that this is not a viable option either. The last possibility which I will endorse is the idea that the IP is generated in the syntactic component and undergoes right node raising (RNR) at a later point of derivation. With this conception, (9a) involves the following derivation:

(16) The journalists want to know [<sub>CP</sub> if [<sub>IP</sub> the suspect will make a statement] and [<sub>CP</sub> | RNR |  
when [<sub>IP</sub> the suspect will make a statement]]].  
\_\_\_\_\_ ↑

In fact, the RNR approach to the syntax of conjoined *wh*-phrases was examined and rejected by Giannakidou and Merchant (*ibid.*). One argument against this approach is based on the peculiar characteristic of intonation realized in the RNR construction, which is absent in the construction at issue. In particular, RNR requires a contrastive stress or list-intonation, followed by a substantial pause at the end of each host remnant. For example, in (17a) each of the host remnants *if* and *when* carries a list-intonation and has a pause following it. As

represented in (17b-c), the list-intonation is indicated by the upper-case letter and the pause by the commas:

- (17)a. Frank wondered if, and if so, when the guests would arrive].  
b. ... [if, and if so, WHEN,] ...  
c. ... [if, and if SO, WHEN,] ...  
Giannakidou and Merchant (1998:248)

In contrast, the construction at issue does not display the same intonation pattern.

The generalization above on the intonation pattern of the RNR construction is a correct one, but when we examine more instances of the construction, it seems that the generalization has to be revised. One case in point is the one involving RNR inside DP as in (18), which are repeated from (11):

- (18)a. Kim's and Pat's marriage  
b. my and her new baby  
c. the and any other product  
d. a and other issues  
e. every and any topic

Recall that all the instances of the first conjunct determiner in (18) may not be derived by the application of the deletion operation. The alternative analysis is to pursue the idea that the DPs in (18) involve RNR inside them.<sup>2</sup> The following example in fact shows that RNR inside DP is possible in the following RNR construction, drawn from Swingle (1993):

- (19)a. ?John wrote a mildly INTEResting, but Elvis wrote a truly BRILLiant, [NP thesis on nightingales].  
b. ?John wants just ANY, but I want the BEST, [NP portrait of Elvis].

Therefore, it seems hard to deny RNR within DP in (18). However, there is a remarkable contrast in intonation pattern between (18) and (19). In the latter, both of the two host remnants associated with the RNRred NP carry a list-intonation. In the former, on the other hand, they do not have to carry it. The structural difference between (18) and (19) is that

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<sup>2</sup> The existence of a separate NP even after the first conjunct determiner can be adduced from the following example:

- (i) its and the other building's destruction by the company.

It is to be acknowledged that the two pronominal and full-DP possessives in (i) are derived from two separate NP-internal positions, in that both are interpreted as the complement of *destruction*. This implies the existence of two separate NPs after each conjunct possessive.

in the resulting post-RNR structure, the former involves coordination of just the two host remnants, whereas the latter involves coordination of more than them.

The situation is exactly the same in the case of two subject NPs coordinated. It is often noted that *I'* can undergo RNR, as shown by (20), drawn from Postal (1998: 173):

- (20) The pilot claimed that the FIRST nurse, and the sailor proved that the SEcond nurse,  
|\_\_\_\_\_RNR\_\_\_\_\_|  
— [<sub>r</sub> were spies]. (Postal (1998: 173))  
\_\_\_\_↑

When this is the case, it is hard to deny RNR of *I'* in (21).<sup>3</sup>

- (21) Wallace and Wendolene [<sub>r</sub> will give Gromit crackers before breakfast]. (Phillips  
|\_\_\_\_\_RNR\_\_\_\_\_|↑  
(2003))

Note the contrast between (20) and (21). The former example requires a list-intonation on each host remnant, but this requirement does not hold in the latter example. The structural difference between them, it is to be noted, is that after the application of RNR, the latter involves coordination of just the two host remnants, whereas the former involves coordination of more than them.

Given the finding as to RNR inside DP and IP, the contrast between (16) and (17a) is expected. In the post-RNR structure, the two host remnants are coordinated in (16), but more than them are coordinated in (17a). In this regard, the intonation realization in (16) is not peculiar at all, but just attributed to the general pattern manifested in this construction.

Another argument Giannakidou and Merchant (*ibid.*) presented against the RNR analysis of the construction at issue is that (22) is ungrammatical. Specifically, they took (22) to show that what they call reverse sluicing is not possible with a non-*wh*-complementizer, which is expected because the complementizer *that* does not allow for deletion of the following IP:

- (22) \*I didn't remember that or when Jack got married.

Giannakidou and Merchant argued that, contrary to fact, (22) would be expected to be grammatical if it resulted from RNR of IP, because RNR makes it possible to share the two IPs as (23a) and (23b) show:

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<sup>3</sup> I do not deny another possibility of the two DPs *Wallace* and *Wendolene* being coordinated in one [Spec,IP] position. The relevant issue will be discussed in section 4.

- (23)a. ?I've been wondering whether, but wouldn't want to positively state that, your theory was correct.  
 b. ?Lucy claimed that, but couldn't say exactly when, the strike would take place.

However, my web search finds that contrary to Giannakidou and Merchant's claim, examples of the structure in (22) are grammatical as follows:

- (24) But a few days of bachelorhood won't be so bad. The best part is that I know **that**, and **when**, it will end. [<http://suburbdad.blogspot.com/2005/09/temporary-bachelorhood.html>]  
 (25) We fully realize that preparation for scholarship competitions and the process of applying are daunting, difficult prospects and projects. We want to help you. Please let us know **that**, and **when**, you want our help. [[http://ohs.vanderbilt.edu/news\\_detail.php?id=6](http://ohs.vanderbilt.edu/news_detail.php?id=6)]

The grammaticality of (24) and (25) in turn constitutes compelling evidence against the 'reverse' sluicing analysis of this construction at issue but in favor of the RNR analysis of it, because the complementizer *that* allows for RNR of but prevents deletion of the following IP.

To summarize, it has been shown in this section that apparent coordination of the edges (i.e., either a Spec or a head element) in the CP and DP systems results not from deletion of the following complement, but from RNR of it. In the meantime it has also been noted that the edges of the CP and DP systems that are apparently stranded after RNR of the following IP do not necessary carry a usual contrastive stress or list-intonation, departing from the general contrast-stress/intonation pattern of the canonical RNR construction.

### 3. *whether* and *if* in the second conjunct clause

#### [A] Optional NP-gap

- (26)a. The question is taken up of **what and whether** editors should be paid ○.  
 [[www.arl.org/scomm/subversive/toc.html](http://www.arl.org/scomm/subversive/toc.html)] (Whitman (2002))  
 b. These efforts, and many more, resulted in a growing consensus about the importance of paying attention to **what and whether** students were learning ○.  
 [[www.thedialogue.org/publications/preal/preal4en.html](http://www.thedialogue.org/publications/preal/preal4en.html)]  
 c. ... and one may well wonder **what and if** people in this city are actually reading ○.  
 [[www.knaw.nl/indonesia/transition/workshop/work\\_in\\_progress09.pdf](http://www.knaw.nl/indonesia/transition/workshop/work_in_progress09.pdf)]  
 d. The decision about **who and whether** to marry ○ has been recognized as being among the most important choices a person makes.  
 [<http://legalminds.lp.findlaw.com/list/queerlaw-edit/msg01114.html>]  
 e. Grey was moping about the Troutcave trying to decide **who and whether** he should



thwack ○ this week when he got a call from Brad Pitt.

[<http://www.angelfire.com/comics/mightytrout/vsBradPitt.html>]

(27) be paid, learn, believe, marry, ride, read

[B] Obligatory NP-gap (subject gap, preposition object gap, genuine transitive verb object gap, definite implicit argument (Fillmore (1986))

(28)a. Not sure **what or IF** we're doing ○. [<http://boards.parentsplace.com/messages/get/pphoenixaz2/51.html>]  
(Whitman (2002))

b. I don't know **what or if** she is feeling ○ but I know there is a sensation of "warmth"; we are together. [<http://www.beoutrageous.com/guestbook.htm>] (Whitman (2002))

(29) do, feel

[C] Missing NP-gap

(30)a. We leave it up to the hostess of the meeting to determine **what and whether** she will provide *anything other than coffee and soft drinks*.

[[www.readinggroupguides.com/roundtable/interview\\_EriePA.asp](http://www.readinggroupguides.com/roundtable/interview_EriePA.asp)]

b. What a great surprise...a tiny lake good for a walk! some people were fishing as well, I wonder **what and if** they got *something!*

[<http://members.virtualtourist.com/m/7dfc8/49e84/>]

c. %**Who and whether anybody** survived is what you don't know, but ...

[[www.defenselink.mil/transcripts/2003/t03232003\\_t0323cbs.html](http://www.defenselink.mil/transcripts/2003/t03232003_t0323cbs.html)]

d. - and yet there is some strange addictive quality that brings me back to wonder **what and if** I'll finally write *something*.

[<http://www.xanga.com/home.aspx?user=mycmd&nextdate=5%2f6%2f2003+19%3a52%3a17.0f>]

e. There are slightly different size colored disks, shown in picture, to represent runners. I am not sure **which or if either** are original.

[<http://www.fortycaroline.com/dusty.htm>] (Whitman (2002))

[D] Plural noun

(31)a. I would like to know **what or if** King Duncan made *good decisions*.

[<http://library.thinkquest.org/2888/wwwboard/msg/5863.html>] (Whitman (2002))

b. It provides an encrypted filesystem that stores more than one piece of information in the same partition in such a way that it is computationally infeasible to prove **what and if data** exists.

[<http://www.boran.com/security/sp/toolsdigest/2000/tools20000922.html>] (Whitman (2002))

c. In its opening stages, however, the Summit process has tended to focus on ad hoc coordination, with little focus on **what (or whether) permanent institutional arrangements** should be created to manage a system of periodic meetings.

[<http://www.thedialogue.org/publications/oas.html>] (Whitman (2002))

[E] Copula

- (32)a. \*He doesn't know **whether and where** the book was  
b. \*He doesn't know **where and whether** the book was

#### 4. Grosu's (1987) examples

- (33)a. **What and where** has John eaten (in the last five years)?  
b. **What and to whom** has John written (in the course of his life)?  
c. **What and from whom** does John steal (for a living)?  
d. **What and for whom** does John steal (these days)?
- (34)a. Bob has eaten **what and where** so far?  
b. Bob has written **what and to whom** so far?  
c. Bob steals **what and from whom** (for a living)?  
d. Bob steals **what and for whom** (these days)?
- (35)a. \*John has eaten **a steak and at the corner restaurant**.  
b. \*John has written **a poem and to Mary**.  
c. \*John steals **jewels and from the rich**.  
d. \*John steals **heroin and for the Mafia**.
- (36)a. John has kissed Mary **only in his own apartment and only 11 pm** (so far).  
b. John has eaten **only American food and only in his mother and only in his mother's house** (all his life).  
c. John has written **only to smart people and only clever things** (so far).  
d. John will steal **even worthless objects and even from defenseless orphans** (if he is given the chance).

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Myung-Kwan Park  
Department of English  
Dongguk University  
3-ga 26, Pil-dong, Chung-gu, Seoul  
100-715, Korea

parkmk@dgu.edu