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Extraction Across a Yes/No COMP in English, Japanese, and Irish: An Argument for Phase*

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1. Introduction

The purpose of this paper is to examine data involving extraction across a yes/no COMP in English, Japanese, and Irish, and to show that the data would not be explained without assuming (1) that CP is a phase, (2) that a non-Q COMP, but not a yes/no Q COMP, may have an "EPP" property, the term "EPP" being due to Chomsky (2001), and (3) that grammar contains the Phase Impenetrability Condition (PIC), whose informal formulation, according to Branigan and MacKenzie (2002), is that only the head and SPEC of a phase are accessible to operations outside the phase. In this paper, we focus on examining whether CP constitutes a phase, putting aside vP, and conclude that CP must be a phase. Thus, the present paper provides an empirical argument for postulating phase in grammar.

There are two interesting consequences of the claim that universally a non-Q COMP, but not a yes/no Q COMP, may have an "EPP" property. First, data that involve relativization, topicalization, and comparative deletion across a yes/no COMP in English, which do not directly follow from Attract proposed in Chomsky (1995), are straightforwardly accounted for under the claim. Second, Japanese must allow large scale pied-piping by an argument wh-phrase in situ, which supports Nishigauchi (1990) and argues against Maki's (1995) wh-feature movement hypothesis.

The organization of this paper is as follows. In Section 2, we examine data that involve extraction across a yes/no COMP in English, Japanese, and Irish, and point out that the data would not be accounted for by Attract. We then argue, based on the (non)existence of morphological agreement between COMP and an operator that moves into its SPEC in Irish, that universally a non-question COMP, but not a yes/no COMP, may have an "EPP" property, so that the complement of a yes/no COMP becomes an opaque domain from outside the CP, if CP is assumed to be a phase. In Section 3, we discuss two consequences of the proposed analysis. Section 4 concludes the paper.

2. English, Japanese, and Irish

In English, there are two types of yes/no COMP whether and if. Examples that involve extraction of a wh-phrase across these yes/no COMPs are worse in grammaticality than those that involve extraction of a wh-phrase across a non-Q COMP that, as shown in (1-2).¹

(1) *What do you know whether/if John bought?

(2) What do you think that John bought?

Kayne (1991) points out that there are distributional differences between whether and if. (3) and (4) show that whether, but not if, may appear in an infinitival clause and in a concessive clause, respectively.

(3) He doesn't know whether/*if to go to the movie. (Kayne (1991))

(4) Whether/*if they give him a seat or not, he'll be happy. (Kayne (1991))

Based on these and other data, Kayne (1991) proposes that while whether is a phrase that occupies CP SPEC, if is a head that occupies a yes/no COMP.

If this is true, example (1) with if poses a question when we assume Attract. This is because if just has a yes/no question feature, but not a wh-feature, and the matrix COMP needs a wh-feature, so that under Attract, the matrix COMP could attract the wh-phrase in the embedded clause, and the example would be incorrectly predicted to be grammatical.

Note, however, that if we further assume the PIC and the hypothesis that CP is a phase, following Chomsky (2001), along with Attract, the ungrammaticality of the example will be expected, as long as it is ensured that if does not have an "EPP" property. On the other hand, in order to correctly rule in example (2) under the phase theory, it must be ensured that that may have an "EPP" property. The question that immediately arises is whether there is direct and visible evidence for the claim that that, but not if, may have an "EPP" property.

The same paradigm holds in Japanese as well. Consider the contrast in grammaticality between (5) and (6).²

(5) *Anata-wa [John-ga nani-o katta kadooka/ka] shitteimasu ka?
 you-Top -Nom what-Acc bought whether/Qyes/no know Qwh
 '*What do you know whether John bought?'

(6) Anata-wa [John-ga nani-o katta to] omoimasu ka?
 you-Top -Nom what-Acc bought COMP think Qwh
 'What do you think that John bought?'

Just as in English, there are two types of yes/no COMP kadooka "whether" and ka "if" in Japanese. The precise structure of kadooka "whether" is not clear, because it consists of three parts ka-doo-ka, in which doo is a wh-phrase meaning "how." However, the important point is that the alternative yes/no COMP ka, which occupies the COMP position given the fact that Japanese is a strictly head final language, does not have a wh-feature. Then, Attract alone would incorrectly predict that (5) with ka is grammatical.

Note again that given the phase theory along with Attract, the ungrammaticality of the example will be expected, as long as ka does not have an "EPP" property. On the other hand, in order to rule in example (6), it must be ensured that to "that" may have an "EPP" property. The question is whether there is direct and visible evidence for the claim that to "that", but not ka, may have an "EPP" property.

To address the question that arose both in English and Japanese, we would like to examine the parallel examples in Irish, which shows morphological, and thus, visible evidence for successive cyclic movement. If English, Japanese, and Irish all show the Wh-Island Condition effect across a yes/no COMP, and allow extraction across a non-Q COMP, it suggests that all relevant data should be given a uniform analysis.

Let us start with the property of COMP alternation in Irish. McCloskey (1979), McCloskey and Hale (1984), Chung and McCloskey (1987), and McCloskey (2001), among others, show that a non-Q COMP go in (7) must change to aL, if an operator or a wh-phrase moves to its SPEC, as shown in (8-9).

- (7) Deir said go measann sibh go bhfuil an eochair insa doras.
 say they COMP think you COMP is the key in the door
 'They say that you think that the key is in the door.' (McCloskey (1979))
- (8) an duine aL mheas tú aL chonaic tú
 the person COMP thought you COMP saw you
 'the person that you thought that you saw' (McCloskey (1979))
- (9) Cé aL mheas tú aL chonaic tú t?
 who COMP thought you COMP saw you
 'Who did you think that you saw?' (McCloskey (1979))

(8) is a case of relative clause formation, and (9) is a case of wh-question formation. All the COMPs are realized as aL in (8-9), and if they remained go, these examples are ungrammatical. This suggests that wh-movement proceeds in a successive cyclic fashion by obligatorily making use of an intermediate non-Q COMP position. Under the phase theory, movement of a wh-phrase to the SPEC of an intermediate non-Q COMP is triggered by an "EPP" property of the COMP. The ungrammaticality of the examples in (8-9) with go directly follow from the PIC and the assumption that CP is a phase, since if the operator and the wh-phrase were not attracted to the SPEC of the intermediate COMP, and are to be attracted by the higher COMP in one step, they would not be visible from the higher COMP.

The grammaticality of (8-9) is also expected under the phase theory along with the assumption that CP is a phase. As the morphological agreement on the intermediate COMP suggests, the operator and the wh-phrase move into the SPEC of the intermediate CP first. Then, they are visible from the higher COMP, since they are outside the opaque domain, that is, the complement of the intermediate COMP. Thus, they are attracted to the higher CP SPEC without violating the PIC, and the examples are correctly predicted to be grammatical.

Let us then consider the case that involves extraction of a wh-phrase across a yes/no COMP in Irish. As shown in (10), such examples are ungrammatical.

- (10) *Cén sagart aL d'fhiafraigh Seán díot arL bhuail tú _?
 which priest asked John of you Int.Part. hit you
 '*Which priest did John ask you if you hit? (McCloskey (1979))

Just like the English and Japanese cases, extraction of a wh-phrase across a yes/no COMP leads to ungrammaticality in Irish.

A comment is in order as to the status of the yes/no COMP arL in Irish. arL is the past form of the yes/no COMP an, which appears in (11).

- (11) Níl fhios agam an bpósfadh duine ar bith í.
 I don't know Int.Part. would-marry person any her
 'I don't know if anyone would marry her.' (McCloskey (1979))

James McCloskey (personal communication) points out that Irish has only one yes/no COMP an, and lacks the distinction between "whether" and "if." If an corresponds to whether, but not if, in English, the ungrammaticality of (10) simply follows from Attract and a semantic condition. That is, in (10) the higher COMP attracts arL "whether" to its SPEC, and a semantic mismatch takes place between the COMP and arL. Therefore, the phase theory is irrelevant to the ungrammaticality of (10).

Note, however, that observation of Irish wh-words suggests that there is a possibility

that an may correspond to if in English. Consider the set of wh-words in Irish in (12).

- (12) a. cé 'who' b. cén 'what' c. céacu 'which' d. cathain 'when'
 e. mar 'where' f. cá 'how' g. cad 'why' h. an 'whether/if'

Except mar "where" in (12e) and an "whether/if" in (12h), all wh-words in Irish start with the consonant [c], just like all wh-words in English, except how and if, start with [wh]. This suggests that an may correspond to if. Therefore, we have to take into account the two possibilities that an is if and that an is whether.

Let us then consider example (10) under the assumption that an/arL is if. (10) is still ungrammatical. However, this presents a very important fact. James McCloskey (personal communication) points out that there is no COMP alternation for the yes/no Q COMP an/arL, unlike the non-Q COMP go, which alternates with aL. This fact suggests that an/arL cannot have an "EPP" property, and the wh-phrase must directly move to the SPEC of the higher COMP in (10), in violation of the PIC. Hence, (10) results in ungrammaticality.

Note here that the relevant paradigm in English, Japanese, and Irish is identical. Therefore, it requires a uniform analysis. As shown above, the analysis of Irish data based on morphological agreement is straightforward. Therefore, it is not implausible to extend the analysis to English and Japanese data. Then, that, but not if, in English and to "that," but not ka "if," in Japanese have an "EPP" property, and consequently, all relevant data are explained by the phase theory along with the assumption that CP is a phase. Thus, the data that involve extraction across a yes/no COMP strongly suggest that CP must be a phase, and that phase must be incorporated into grammar.

3. Consequences

There are two interesting consequences of the proposed analysis, which will be discussed in turn below.

3.1. Other Unbounded Dependencies in English

Just like wh-movement across a yes/no COMP in English does not directly follow from Attract, other movement operations such as relativization, topicalization, and comparative deletion across a yes/no COMP in English do not, either. Consider the examples in (13-15).

- (13) a. the man who/that John thinks that Mary saw
 b. *the man who/that John wonders whether/if Mary saw
- (14) a. The man, John thinks that Mary saw.
 b. *The man, John wonders whether/if Mary saw.
- (15) a. I read more books than John thinks that Mary read.
 b. *I read more books than John wonders whether/if Mary read.

In (13-15), the higher COMP does not need a wh-feature, or a feature in the yes/no COMP. Therefore, the ungrammaticality of the b-examples does not directly follow from Attract.

However, if the claim is correct that a non-Q COMP, but not a yes/no COMP, may have an "EPP" property, the ungrammaticality of the b-examples is straightforwardly accounted for, since the yes/no COMP cannot attract a relevant operator to its SPEC,

and thus, the higher COMP cannot see the operator within the lower CP. At the same time, the grammaticality of the *a*-examples is also expected, since the non-Q COMP has an "EPP" property, and attracts the operator to its SPEC, so that the higher COMP can see the operator, and attract it to its SPEC.

3.2. Pied-Piping in Japanese Interrogatives

Japanese allows an argument wh-phrase, but not an adjunct wh-phrase, in an adjunct clause, as shown in (16-17).

- (16) Anata-wa [John-ga nani-o nusunda node] odoriteimasu ka?
 you-Top -Nom what-Acc stole because surprised Q
 '[Q you are surprised because John stole what].'
- (17) *Anata-wa [John-ga naze LGB-o nusunda node] odoriteimasu ka?
 you-Top -Nom why -Acc stole because surprised Q
 '[Q you are surprised [because John stole LGB why]].'

Let us assume that the adjunct clause in (16-17) is a CP. The ungrammaticality of (17) suggests that the head (COMP) of an adjunct clause does not have an "EPP" property. Then, the question arises as to why (16) is grammatical, as the higher COMP cannot see the wh-phrase in the adjunct. The grammaticality of (16) thus suggests that the entire adjunct clause must be pied-piped by the argument wh-phrase in situ, and is attracted to the matrix CP SPEC. This in turn suggests that Maki's (1995) wh-feature movement hypothesis, which allows a wh-feature to move across an adjunct clause, is not correct. Rather, Nishigauchi's (1990) original insight about large scale pied-piping is correct.

4. Conclusion

To conclude, based on the parallel data of extraction across a yes/no Q COMP from English, Japanese, and Irish, the present paper argued that a non-Q COMP, but not a yes/no Q COMP, may have an "EPP" property, and CP must be a phase, providing an empirical argument for postulating phase in grammar. Two consequences of the proposed analysis were discussed: (1) that relativization, topicalization, and comparative deletion across a yes/no COMP in English directly follow from the proposed analysis; and (2) that Japanese must allow large scale pied-piping by an argument wh-phrase in situ, which argues for Nishigauchi (1990) and against Maki (1995).

Notes

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¹The symbol * indicates that given a minimal pair, there is a grammaticality contrast in the pair, and does not mean that an example with * is absolutely ungrammatical.

²The observation that a wh-phrase in a clause headed by *ka* cannot take scope at a higher +Q COMP in examples such as (5) in Japanese is originally due to Harada (1972).

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