Parametrization of Quantificational Determiners and Head-Internal Relatives

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1. Introduction

This paper investigates the factors that determine the typological distribution of head-internal relative clauses (HIRC), especially in view of the fact that there are two types of them. Our focus of attention is on the nature of determiners. Studies by Bonneau (1992), Basilico (1996), and Grosu and Landman (1998) all point to the determiner system as playing a crucial role in HIRC. None of these studies, however, provides a satisfactory principled account of how the determiner system interacts with the two types of HIRC. This paper proposes that an explicit theory of parametrization of the determiner system holds the key to understanding the syntactic properties of the two types of HIRC. Specifically, our theory claims that quantificational determiners come in two varieties, one which makes use of feature checking and the other that relies on binding. The typology of HIRC is sensitive to this parametrization of quantificational determiners.

In section 2, I will examine typological characteristics of those languages which have HIRC in some detail, taking Japanese and Lakhota as representatives of the two types. Section 3 works out the theory of determiner parametrization and shows how it determines the properties of HIRC and wh-in-situ.

2. Typology of Head-Internal Relative Clauses

There are two major hypotheses about what kind of languages allow HIRC. Watanabe (1992a, b) observes that HIRC is found in a subset of languages which use the wh-in-situ strategy. Kuroda (1974), on the other hand, notes that HIRC is correlated with the SOV word order, attributing the original observation to S. I. Harada (personal communication). Cole (1987), citing Gorbet (1977) and other works, also assumes that the word order generalization is on the right track. These two generalizations, however, are not exceptionless. At the same time, they in fact express very similar ideas, because of Bach's (1971) generalization that wh-in-situ tends to be found in SOV languages. In this section, I would like to home in on the typological distribution of HIRC more carefully, focusing on the relation to wh-in-situ. First, I will take up the question of what subset of wh-in-situ languages have HIRC. And then, I will turn to exceptions to the generalization that HIRC is found in a subset of wh-in-situ languages. In so doing, I would like to sharpen the problems to be addressed in this paper.

2.1. Head-Internal Relative Clauses and Typology of Wh-in-Situ

Let us start by comparing Chinese and Japanese as representatives of the wh-in-situ languages which contrast in the availability of HIRC.

Watanabe (1992a) argues that the island-sensitivity of wh-in-situ in Japanese should be attributed to movement of a null wh-operator in overt syntax. This operator is assumed to
originates in Spec of DP. The schematic representation of the movement of this operator is given in (1).

(1) \[\text{[CP Op [IP . . . DP . . . ] Q]}\]

\[\text{I} \quad \text{D'} \quad \text{WH}\]

Under this proposal, Japanese is very similar to English, except that the null wh-operator in Spec of DP is separable in Japanese, while it is inseparable in English. Watanabe claims that this difference between English and Japanese is due to the presence of quantificational particles in Japanese which attach to wh-elements to form various quantificational expressions, as illustrated in (2).

(2) a. Dare-ga ringo-o tabeta no? 
    who-nom apple-acc ate Q 
    'Who ate an apple?'

b. Daremo-ga ringo-o tabeta.
    everyone-nom apple-acc ate 
    'Everyone ate an apple.'

c. Daremo ringo-o tabe-nak-atta.
    anyone apple-acc eat-neg-past 
    'No one ate an apple.'

d. Dareka-ga ringo-o tabeta.
    someone-nom apple-acc ate 
    'Someone ate an apple.'

Let us call elements like dare in (2) the indeterminate, adopting the terminology of the seminal work by Kuroda (1965). The indeterminate occupies QP and the quantificational particle is located under D°, according to Watanabe (1992a), who posits the structure in (3) for the various quantificational expressions in (2).

(3)

\[\text{DP} \quad \text{Op} \quad \text{D'} \quad \text{QP} \quad \text{D°} \quad \text{indeterminate} \quad \text{particle}\]

The operator in Spec is "selected" by the particle, which happens to be null for wh-phrases.

Watanabe (1992a) extends his overt movement analysis of wh-in-situ to HIRC, on the ground that HIRC also displays island-sensitivity, as illustrated with the Complex NP Constraint (CNPC) effect in (4), where the bold-faced phrase is the head of the relative clause.

(4) a. Mary-ga [John-ga [zibun-no gakusei-ga juuyouna kasetsu-o Mary-nom John-nom self-gen student-nom important hypothesis-acc teianshita to] jimanshite-ita]-no-no kekkan-o shitekishita. proposed C° boasted-had-C°-gen defect-acc pointed out
'Mary pointed out a defect of the important hypothesis which John had boasted that his student proposed.'

b. *[John-ga subarashii ronbun-o kaita hito-o homete ita]-no-ga
   John-nom excellent paper-acc wrote person-acc praised had-C°-nom
   publish-pass
   'An excellent paper which John had praised the person who wrote (it) was published.'

The same island-sensitivity of HIRC is observed in Navajo (Platero 1974) and in Quechua (Cole 1987, Cole and Hermon 1994). The movement posited for HIRC is shown schematically in (5), where no is the nominalizer which is located in C°.

(5) \[
\begin{array}{c}
\text{[CP Op [IP . . . DP . . .] no]}
\end{array} \]

In contrast to Japanese, Chinese lacks HIRC, despite the fact that it is a wh-in-situ language. Interestingly, Chinese also lacks quantificational particles of the kind found in Japanese. Thus, indeterminate phrases can be used as wh-phrases and as non-wh quantificational expressions without the help of a particle attached to the indeterminate, as in (6).

(6) a. ni xiang mai shenme (ne)? you want buy what Q 'What do you want to buy?'
   b. we bu xiang mai shenme I not want buy anything 'I don't want to buy anything.'
   c. ni xiang mai shenme ma? you want buy something Q 'Would you like to buy something?'
   d. ta dagai mai-le shenme le he probably buy-perf something part 'He probably bought something.'

Aoun and Li (1993) argue that the absence of HIRC in Chinese is related to the absence of quantificational particles. Assuming that an abstract particle is responsible for movement of the null operator in (5), the absence of such particles in Chinese means that movement of the null operator in (5) is not available for HIRC. Assuming further that movement of the null operator is essential for HIRC, the absence of HIRC in Chinese follows.

But this cannot be the end of the story, because HIRC is found in wh-in-situ languages which do not make use of quantificational particles. Lakhota is such a language. Williamson (1984) and Van Valin (1985) observe that a wh-phrase can also be used as a non-wh indefinite in Lakhota. Examples from Williamson (1984, p. 255) are given in (7).

(7) a. Charlotte tako kag\&he?' Charlotte what make Q 'What did Charlotte make?'
Did Charlotte make something?"

b. Charlotte **taku kag&**
Charlotte what make
'Charlotte made something.'

In the indefinite use, there is no particle attached to the indeterminate. Williamson notes that (7a) is ambiguous between a wh-question and a yes-no question with an indefinite, but the latter will amount to the same thing as the former if Ausin (1999) is on the right track. Cf. also Bhat (2000).

Lakhota is thus similar to Chinese in lacking quantificational particles that attach to the indeterminate. Significantly, however, it has HIRC. Why is there such a difference?

A hint comes from the fact that the Lakhota HIRC differs from the type of HIRC found in languages like Japanese, Navajo, and Quechua in one significant respect: island-sensitivity. Williamson (1987) observes that the Lakhota HIRC does not exhibit island effects. In (8) below, for example, the head of the higher HIRC is embedded under another HIRC, but the dependency of the higher HIRC is well-formed.

(8) \[
\text{[[Wichota wowapi wa\text{3}awa pi cha]} \text{ob wo?ug\text{3}aka pi ki he]}
\]
\[
\text{many-people paper a read pl ind with we-speak pl the that}
\]
\[
\text{L.A. Times e.}
\]
\[
\text{L.A. Times be}
\]
'The newspaper that we talk to many people who read (it) is the L.A. Times.'

On the other hand, Japanese examples with a comparable structure are not acceptable. (9) illustrates such a case.

(9) *\[
\text{[John-ga [gakusei-ga subarashii ronbun-o kaita-no]-o}
\]
\[
\text{John-nom student-nom excellent paper-acc wrote-C^o-acc}
\]
\[
\text{posuto-doku-toshite saiyoushite kita-no]-no shuppan-ga okureta.}
\]
\[
\text{post-doc-as adopted had-C^o-gen publish-nom be-delayed}
\]
Publication of an excellent paper which John had hired as a post-doc a student who wrote (it) was delayed.'

We have already seen the CNPC effect in Japanese with an head-external relative in (4) above. The degree of deviance in (9) seems to be more or less on a par with that in (4). Navajo similarly prohibits embedding a HIRC under another HIRC, as shown in the example in (10) from Platero (1974, p. 220).

(10) *\[
\text{[[Hastiin ñññ bishxash-éññ be\text{e}ldo\text{ñ} néidiitáñ(n)éññ naññ\text{ñ}ñ\text{ñ}in.}
\]
\[
\text{man dog 3-perf-3-bite-rel gun 3-perf-3-pick-up-rel imp-3-bark}
\]
'The dog that the man who was bitten by (it) picked up the gun is barking.'

The absence of island-sensitivity in the Lakhota HIRC suggests that there is an additional way of licensing HIRC other than movement. Bonneau (1992) analyzes the Lakhota HIRC as making use of unselective binding to explain why the Lakhota HIRC does not show island-sensitivity. Bonneau points to the determiner that comes with HIRC (as well as with ordinary NP) in Lakhota as the unselective binder of the head of HIRC. Lakhota indeed has a
full-fledged system of determiners. The examples in (11) illustrate the definite determiner *ki* and the indefinite determiner *wa* in ordinary DPs as well as in HIRC.

(11) a. [wicsis63ki] [mathó wa3kté.  
man the bear a kill
'The man killed a bear.'

b. [[Mary owi26wa3tag6 ki] he ophewathu3  
Mary quilt a make the dem I-buy
'I bought the quilt that Mary made.'

See Williamson (1984) for more details of the Lakhota determiner system.

In contrast to Lakhota, Chinese lacks the determiner system of this kind. A bare noun can be interpreted as definite, depending on the context, as in (12).

(12) Hufei he-wan-le  tang.  
Hufei drink-finish-perf soup
'Hufei finished the soup.'

It then follows that Chinese cannot use unselective binding by the determiner. Hence the absence of HIRC in Chinese. For more on definite and indefinite expressions in Chinese, see Cheng and Sybesma (1999).

It should be noted at this point that the parallelism between in-situ wh-questions and HIRC, which motivated Watanabe's (1992a) analysis, holds in languages like Lakhota as well. That is, in-situ wh-questions do not show island-sensitivity, according to Williamson (1984). Long-distance dependency is possible regardless of an intervening wh-island, as indicated in (13).1

(13) a. Edwin [hel tuwa naz8 he] keya he?  
Edwin there who stand dur say Q
'Who did Edwin say was standing there?'

b. [Tuwa takuwe cheya ha3 ki] Marie inug6 he?  
who why cry dur C° Marie you-ask Q
'Who did you ask Mary why (he) was crying?'

There is no CNPC effect, either, as shown by (ia) for Lakhota and by (ib) for Chinese.

(i) a. [Tuwa wowapi wa3wa cha] lawa ha3e?  
who book a write ind you-read dur Q
'Who are you reading a book that (he) wrote?'

b. Akiu kan-bu-qi [ zuo shenme] de ren?  
Akiu look-not-up do what DE person
'What does Akiu despise people who do (it),'

The CNPC effect, however, is not directly observed in Japanese, because the Complex NP itself can be pied-piped, as proposed by Nishigauchi (1990) and Pesetsky (1987) and adapted for the null wh-operator analysis by Watanabe (1992a). See also Watanabe (2001a, to appear b).
It is well-known that Chinese wh-questions behave in the same way.²

(14) ni xiang-zhidao [wo weishenme mai shenme]?
      you wonder I why buy what
    'What do you wonder why I bought ?'

But this parallel behavior of in-situ wh-questions and HIRC in Lakhota differs from that of the Japanese counterparts in one significant respect. In Japanese, both wh-questions and HIRC display island-sensitivity. The Wh-Island effect for wh-questions is illustrated in (15).

(15) ??John-wa [Mary-ga nani-o katta kadooka] Tom-ni tazuneta no?
      John-top Mary-nom what-acc bought whether Tom-dat asked Q
    'What did John ask Tom whether Mary bought?'

If the two Japanese constructions are analyzed as involving movement, it is reasonable to account for the absence of island-sensitivity in the Lakhota counterparts by saying that they involve unselective binding. Bonneau (1992) in fact proposes to treat not only HIRC but also wh-questions in Lakhota in terms of unselective binding. Tsai (1994, 1999), too, proposes the unselective binding analysis of Chinese wh-in-situ (cf. also Aoun and Li 1993) and develops a theory of why Chinese and Japanese wh-in-situ differs, according to which the operator is located at the clausal level in Chinese (hence no need for movement) whereas it is found within DP in Japanese, as in Watanabe's (1992a) account briefly reviewed above. The position of the operator is determined by whether the indeterminate is accompanied by a quantificational particle in its non-wh use(s). If yes, the operator is found inside DP.

To summarize, there are three types of wh-in-situ languages. HIRC is possible in addition if the language has either a determiner system or a particle system. The determiner system provides unselective binding for HIRC, while the particle system induces movement. We may regard particles as special kinds of determiners, following Watanabe's (1992a) proposal to generate them under D°.

(16)  wh-dependency        HIRC                determiner system
  a. Chinese        unselective binding    ———— no
  b. Lakhota        unselective binding    unselective binding yes
  c. Japanese       movement               movement           particles

At this point, however, we should ask a deeper question of why things are as they are. That is, why must the dependency in HIRC match the wh-dependency? In other words, why must the use of quantificational particles with the indeterminate induce movement for HIRC, which does not make use of the indeterminate, while determiners are unselective binders for HIRC? If things were the other way round, we would find the Lakhota HIRC sensitive to islands and the Modern Japanese HIRC violating subjacency, contrary to fact. We need a more principled account of why wh-in-situ and HIRC behave in the same way, once HIRC is made possible.

² We abstract away from problems posed by adjuncts. (14), for example, lacks the reading in (i).

(i) *What is the reason x such that you wonder what I bought for x?
   It is important to note, though, that Chinese and Lakhota behave similarly in this respect, too. For Lakhota, see Williamson (1984).
2.2. Word Order, Head-Internal Relative Clauses, and Wh-in-Situ

The parallelism between in-situ wh-questions and HIRC is also reinforced by a historical change that took place in Old Japanese. Watanabe (to appear a) observes that overt phrasal wh-movement was lost around the beginning of the Heian Period (9th - 12th century). Interestingly, HIRC appeared at the same time, according to Kondo (1981), correlating with the loss of overt phrasal wh-movement.3

The word order generalization about the typological distribution also points to the close relation between wh-in-situ and HIRC. It was mentioned above that the works by Cole (1987), Gorbet (1977), and Kuroda (1974), among others, observe that HIRC is found in SOV languages. Bach's (1971) generalization says that wh-in-situ tends to be found in SOV languages. Thus, wh-in-situ and HIRC are found in the same type of languages, as far as word order is concerned. Fukui and Takano (1998, 2000) propose a general theory connecting syntactic properties to word order that attempts to cover the typological distribution of both wh-in-situ and HIRC.

There are reasons, however, to believe that word order is not a primary factor regulating the distribution of wh-in-situ and HIRC. First, wh-in-situ and HIRC are found in languages that are not SOV. As Tellier's (1989) study shows, Mooré is SVO but has both wh-in-situ and HIRC. Old Japanese, on the other hand, continued to be SOV both before and after the loss of overt phrasal wh-movement and the concomitant appearance of HIRC. Second, more significantly, Bach's (1971) generalization receives a learnability account, so that it is redundant to reduce Bach's generalization to UG principles which may also account for the distribution of HIRC. Watanabe (to appear a) argues that overt phrasal wh-movement is difficult for children to detect in SOV languages, because the only visible trigger is consistent placement of a wh-phrase in front of an overt subject. In SVO languages, wh-movement of post-verbal elements crosses the verb as well as the subject, so that children do not have to pay attention to the relative position of the wh-phrase vis-à-vis the subject. Watanabe suggests that the loss of overt phrasal wh-movement in Old Japanese is due to the increase of subject topicalization, which takes away the crucial trigger for setting the positive value of overt phrasal wh-movement. HIRC in Old Japanese, on the other hand, appeared out of nowhere. If the distribution of wh-in-situ is not regulated by UG principles, the behavior of HIRC should be explained in terms of wh-in-situ.

This idea, however, is challenged by languages like Imbabura Quechua, which has wh-in-situ but lacks HIRC. Imbabura Quechua has obligatory wh-movement but allows HIRC. What is going on?

3. Indeterminate and Typology of Determiners

In this section, I would like to take up the challenges elaborated on in the previous section. My proposal is that both the Japanese-type and the Lakhota-type HIRC have the structure in (17).

\( (17) \quad [\text{DP} \quad [\text{CP} \ldots \text{head} \ldots] \quad \text{D°}] \)

This structure is essentially the one posited by Basilico (1996), except that D° directly takes IP under Basilico's proposal. CP is posited in (17), because a complementizer is found in the

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3 The observation about the appearance of HIRC during the Heian Period goes back to Ishigaki (1955).
Japanese HIRC. $D^\circ$ is overt in Lakhota, but covert in Modern Japanese. Japanese and Lakhota differ in the type of relation that holds between the CP-internal head and $D^\circ$ in (17): feature checking in Japanese and binding in Lakhota. I am claiming that the contrast between Modern Japanese and Lakhota with respect to HIRC is a matter of parametrization of determiners. The question raised in section 2.1 is now reformulated as why the $D^\circ$-head relation in (17) mimics the relation between $C^\circ$ and wh-in-situ. To answer this question, I will take a closer look at the structure of wh-questions first.

3.1. Internal Relation

Let us start with the assumption mentioned above that quantificational particles in languages like Japanese are determiners. Treating quantificational particles as determiners points us to an interesting difference between Modern Japanese and Lakhota: quantificational particles in Modern Japanese are selective whereas determiners in Lakhota are not. Thus, the particle $ka$ in Modern Japanese, which forms an existential quantifier, can only attach to an indeterminate, as in (18).

(18) a. Dare-$ka$-ga kita.
'Who-$KA$-nom came'
'Someone came.'

b. *Otoko-$ka$-ga kita.
'man-$KA$-nom'
'Some man came.'

(18b) is ill-formed, because the particle $ka$ cannot combine with an ordinary NP. Determiners in Lakhota, on the other hand, do not show such a restriction. The examples in (11) above, repeated here as (19), illustrate the definite determiner $ki$ and the indefinite determiner $wa$ with ordinary NPs.

(19) a. [wicbas6ki] [matho wa3kt6]
'man the bear a kill'
'The man killed a bear.'

b. [[Mary owi26wa3oge8ki] he opthewathu3
'Mary quilt a make the dem I-buy
'I bought the quilt that Mary made.'

The choosiness of the Modern Japanese quantificational particles can be explained by the requirement that these quantificational particles must undergo checking with an indeterminate. Assuming that feature checking does not involve categorial features (Chomsky 2000), the relation between the determiner and a nominal in Lakhota, on the other hand, cannot be established by checking. It must make use of unselective binding.

Thus, wh-questions in languages like Japanese involve two checking relations: one between the $D^\circ$ head and the indeterminate in QP, and the other between $C^\circ$ and the operator in DP, as schematically shown in (20).

(20) $[CP [ ... [DP QP D^\circ] ... ] C^\circ]$
Let us call the former the internal relation and the latter the external relation. This subsection mainly concentrates on the internal relation, though consideration of the external relation is also relevant.

The internal relation can cross clause boundaries. If this happens, we have large-scale pied-piping. Examples are given in (21).

(21) a. [[nani-o katta] hito-ga] kubini-natta no?
    what-acc bought person-nom was-fired Q
    ‘The person who bought what got fired?’

b. [[[Mary-ga nani-o katta to] omotta] hito-ga] kubini-natta no?
    Mary-nom what-acc bought C° thought person-nom was-fired Q
    ‘The person who thought that Mary bought what got fired?’

Though various technical implementations of large-scale pied-piping have been proposed (Nishigauchi 1990, Watanabe 1992a, Hagstrom 1998, and Richards 2000, among others), I would like to claim that this is another instance of the internal relation holding between the null particle in D° and the indeterminate, as shown in (22).

(22) [DP [NP [CP [ ... [DP QP D°] ... ] C°] NP] (Q°) D°]

Essentially the same analysis of large-scale pied-piping is proposed by Takahashi (1999) for cases of non-wh quantificational particles, in particular, the universal quantifier -mo. There are two differences between Takahashi’s proposal and ours, though. First, Takahashi treats the relation between the particle and the indeterminate in terms of selection, so that the particle is always generated as the sister to the indeterminate as in (23).

(23) DP
    QP
    D°
    indeterminate particle

For us, the relation between the two is mediated by feature checking, so that the particle does not have to be generated as the sister to the indeterminate. An argument for the checking analysis comes from the fact that the indeterminate has to be aided by a particle to have a determinate interpretation. The very nature of the indeterminate is that it cannot fix the interpretation by itself. Then, the feature which characterizes the indeterminate is most likely to be [- interpretable]. If so, checking is needed to delete this feature. Second, as a consequence of the first difference, the particle undergoes head movement to D° under Takahashi’s analysis. Because of the somewhat controversial status of head movement (Chomsky 2000, etc), I would like to avoid this option. All in all, our analysis is trying to capture the correlation of the indeterminate and large-scale pied-piping more directly. Despite these differences, the spirit of the analysis is the same.

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4 Assuming that the relative clause is CP, though nothing hinges on it.
5 Cf. Richards (2000) on movement internal to the island in Basque and Quechua, both of which make use of the indeterminate.
Let us now consider what feature is involved in the internal relation. At this point, the external relation also becomes relevant, because the two relations interact in an interesting way, as shown in (24).

(24) ??[[[Mary-ga nani-o katta ka dooka] Tom-ni tazuneta] hito-ga]
    Mary-nom what-acc bought whether Tom-dat asked person-nom
    kubini-natta no?
    was-fired Q

The internal relation is sensitive to the wh-island, as reported in Watanabe (1992a, 59). This means that the internal relation looks for the same feature as the external relation does. According to Chomsky (2000), the external relation involves the Q features of C° and the wh-phrase, with the Q features of C° being [- interpretable]. The wh-feature of the wh-phrase is [- interpretable], making it active.

    a. probe: uninterpretable Q feature in C°
    b. goal: interpretable Q feature in D° & uninterpretable wh-feature

I have argued in Watanabe (to appear a) that what makes the wh-phrase active is not the wh-phrase but the [- interpretable] focus feature. This point becomes significant in the next subsection. Here, what matters is the Q feature.

In (24), the wh-island which blocks the internal relation is a yes-no question. An important property of Japanese yes-no questions is that long-distance association is impossible, in contrast to the English counterparts. As observed by Larson (1985), English yes-no questions allow ambiguity as to whether the choice of affirmation and negation is associated with the higher clause or with the lower clause in cases like (26).

(26) I don't know whether John claimed that Bill left or not.
    a. I don't know whether John claimed or did not claim that Bill left.
    b. I don't know whether John claimed that Bill left or did not leave.

(26a, b) are the two readings in question. Larson analyzes the ambiguity as arising from the movement nature of whether, which is associated with disjunction. In Japanese, however, only the local association is possible, as shown in (27).

    John-nom Bill-nom came C° said whether I-top know-neg
    'I don't know whether John said or did not say that Bill left.'

The absence of ambiguity in yes-no questions in Japanese indicates that there is no operator movement involved. It then follows that if yes-no questions in Japanese have a Q feature in C°, it must be interpretable, for it is not going to be deleted. We can extend this conclusion to the Q feature in wh-questions and yes-no questions in general. The ambiguity in English yes-no questions is simply due to the availability of an operator which bears an uninterpretable

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Larson notes, though, that root yes-no questions do not allow such ambiguity. This asymmetry may be due to the I-to-C movement in root questions. The I° head, which is 'activated' by negation as part of disjunction, may be incompatible with the I-to-C movement in questions.
(focus) feature. (28) summarizes our hypothesis about the features involved in the external relation.

(28) External Relation for wh-in-situ
   a. probe: interpretable Q feature in $C^\circ$
   b. goal: interpretable Q feature in $D^\circ$ & uninterpretable focus feature

(28) receives an independent support from the nature of wh-in-situ in Chinese. Recall that Chinese wh-in-situ is treated in terms of unselective binding under Tsai's (1994, 1999) account. If interrogative clauses are characterized by the Q feature in $C^\circ$, it cannot be uninterpretable in Chinese. Since Chinese wh-in-situ does not involve feature checking, the derivation would always crash if the Q feature in $C^\circ$ were uninterpretable. Assuming that the Q feature in $C^\circ$ gives a universal characterization of interrogative clauses, (28) should be adopted as the external relation for those languages which make use of feature checking in wh-questions. Note also that this way of handling Chinese wh-in-situ leads to the conclusion that the Chinese wh-phrase differs from the Japanese counterpart in not having an uninterpretable focus feature. This is a nice consequence, because the Chinese indeterminate is not associated with a $D^\circ$ particle. The same story applies to Lakhota.

Once (28) is established, the wh-island effect shown by the internal relation in (24) can now be accounted for by saying that the Q feature is used in the internal relation as well. The minimal hypothesis for the internal relation then is:

(29) Internal Relation
   a. probe: interpretable Q feature in $D^\circ$
   b. goal: uninterpretable Q feature in the indeterminate

The configuration of the Q features in (24) is shown schematically in (30).

(30) QP ... $C^\circ$ ... $D^\circ$
     \[\text{F}_Q \quad \text{F}_Q \quad \text{F}_Q \quad \text{X}\]

The checking relation between the indeterminate and $D^\circ$ is blocked by the intervening Q feature under the interrogative $C^\circ$. It should also be noted that in well-formed cases schematized in (22), the external relation from $C^\circ$ as probe cannot reach the indeterminate in QP. The interpretable Q feature in $D^\circ$ blocks such a relation. The external relation therefore must have the Q feature in the $D$ head of the wh-phrase as its goal.

The idea embodied in our hypothesis in (29) is that the indeterminate can be associated with various features which receive interpretation under $D^\circ$ but are uninterpretable within the indeterminate itself. Such an uninterpretable feature of the indeterminate induces checking with $D^\circ$. The indeterminate in languages like Chinese and Lakhota, on the other hand, simply lacks this option. Binding, therefore, is the only option provided by UG to supply an appropriate interpretation. It also follows that the indeterminate in Chinese and Lakhota does not have an uninterpretable feature. This may run counter to the argument, mentioned above in connection with Takahashi's (1999) proposal, that the indeterminate must have an

7 The internal relation for non-wh quantifiers will be:
   (i) a. probe: interpretable quantificational feature in $D^\circ$
   b. goal: uninterpretable quantificational feature in the indeterminate

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uninterpretable feature by its very nature of being indeterminate semantically. The Chinese and Lakhota indeterminate not having an uninterpretable feature is not unreasonable. There is some reason to believe that the Chinese indeterminate and the Japanese counterpart occupy different syntactic positions. If so, the difference in interpretation is also expected. See Watanabe (in preparation).

3.2. External Relation

The discussion in the previous subsection has relied on the hypothesis about the external relation summarized in (28) above. In the framework of Chomsky (2000), both phrasal movement and feature checking without phrasal movement should involve the same set of features in the probe-goal relation, the only difference being that the EPP feature of the head that contains the probe is also needed for phrasal movement. The correlation of HIRC with wh-in-situ suggests that the external relation as defined in (28) without the EPP is playing a crucial role in the Japanese-type HIRC. As noted in section 2.2 above, however, Imbabura Quechua is problematic for this perspective, because it has HIRC even though overt phrasal wh-movement is obligatory in that language.

Overt phrasal wh-movement in Imbabura Quechua is illustrated by the following examples from Cole and Hermon (1994):

   'What do you think that Juan bought?'
b. *Ya-ngui [Juan ima-taj randishka-ta]? think-2pl. Juan what-acc-Q bought-acc

The fronted phrase precedes even a topic, as can be seen from the following examples from Cole (1982, 17), where the particle -ka marks the topic:

(32) a. Ima alku-taj Marya-ka chari-n? what dog-acc-Q Maria-top have-3
   'What kind of dog does Maria have?'
   'Which house does your brother live in?'

The wh-phrase in Imbabura Quechua is formed on the basis of the indeterminate, to which the particle -pash can be attached to create a non-wh existential quantifier, as in (33).

(33) Pi-pash shamurka.
       who-even came
   'Someone came.'

It is interesting to compare Imbabura Quechua with Old Japanese, because overt phrasal wh-movement is also obligatory in Old Japanese during the Nara Period, as discussed in detail in Watanabe (to appear a). An example is given in (34).

(34) Kado tate-te to-mo sashi-taru-wo izuku-yu-ka imo-ga iriki-te gate close-conj door-also shut-past-acc where-through-KA wife-nom enter-conj
yume-ni mie-tsuru?
dream-loc appear-perf
'From where did my wife come and appear in my dream, despite the fact that I
closed the gate and shut the door?' (Man'youshuu #3117)

Notice that the wh-phrase precedes the subject. This is a consistent pattern during the Nara
Period. Old Japanese is quite similar to Imbabura Quechua in other respects as well. First,
the wh-phrase is marked by a special particle, which is -taj in Imbabura Quechua and -ka in
Old Japanese. Second, Old Japanese also employs the indeterminate system.

(35) a. ... itsu-mo itsu-mo hito-no yurusa-mu koto-wo-shi mata-mu.
when-MO when-MO person-nom accept-will word-acc-prt wait-for-will
'I will always wait for the woman to accept me.' (Man'youshuu #2770)
b. ... tare-to ihu hito-mo kimi-ni-ha masa-ji.
who-quot say person-MO you-than-top superior-neg
'Nobody would be nicer than you.' (Man'youshuu #2628)

The particle which can be attached to the indeterminate is -mo 'also, even', forming a universal
quantifier as in (35a) or a negative polarity concord item as in (35b). Note also reduplication
in (35a). It continues to be used till the present day, except that reduplication is no longer
productive in Modern Japanese. According to Ohshika (1991), -mo is the only productive
particle during this period.

Despite these similarities, Old Japanese during the Nara Period lacks HIRC, in contrast to
Imbabura Quechua. HIRC appeared during the Heian Period, as noted above, apparently at
the same time as the loss of overt phrasal wh-movement. Why is there such a difference?

Interestingly, Imbabura Quechua has a system of in-situ focus which makes use of so-
called validators (Cole 1982). In (36), the focus is marked by the validator mi.

(36) Kan-paj ushi-wan  Agatu-pi-mi tupari-rka-ni.
you-of daughter-with Agato-in-foc meet-past-1
'I meet your daughter in Agato.'

The focus of yes-no questions is also in-situ, judging from the examples in (37) from Cole and
Hermon (1994).

(37) a. Juan Quito-man-chu rirka?
Juan Quito-to-Q went
'Did Juan go to quito?'
b. Pi-wan-taj Juan parlarka?
who-with-Q Juan spoke
'Who did Juan speak with?'

In Old Japanese during the Nara Period, in contrast, focused constituents undergo raising,
judging from data in Sasaki (1992). In (38) are examples of declarative clauses containing a
focus, marked by so or koso.

8 The particle -ka, which forms an existential quantifier in Modern Japanese as in (2d), is
apparently a descendant of the particle which marks the wh-phrase in Old Japanese. See
Ogawa (1976-77).
(38) a. ... ikoma-yama koete-**so** a-ga kuru imo-ga me-wo hori.
   Ikoma-mountain go-beyond-SO I-nom come wife-gen eye-acc want
   ‘I come from behind Mr. Ikoma to see my wife.’ (Man’youshuu #3589)

b. ... masura wonoko-no kofure-**koso** wa-ga yufu kami-no hichi-te
   brave man-nom yearn-KOSO I-nom do-up hair-nom be-soaked-conj
   nure-kere. loosen-perf
   ‘My hair I did up has got loose soakingly, because my brave man is yearning
   for me.’ (Man’youshuu #118)

The focus of yes-no questions, marked by *ka* or *ya*, also undergoes focus movement, as shown in (39).

(39) a. ... Hatsuse-no kaha-ha ura na-mi-**ka** fune-no yori-ko-nu?...
   Hatsuse-gen river-top shore absent-ness-KA boat-nom approach-come-neg
   ‘Is it because Hatsuse River has no shore that no boat comes near?’
   (Man’youshuu #3225)

b. ... chichi haha-wo oki-te-**ya** nagaku a-ga wakare-na-mu.
   father mother-wo leave-conj-YA for-ever I-nom be-separated-perf-would
   ‘Will I be separated from my parents for ever, leaving them behind?’
   (Man’youshuu #891)

Basque also contrasts with Imbabura Quechua in lacking HIRC, despite the fact that it has
indeterminate expressions and obligatory overt wh-movement, as Imbabura Quechua does.
The indeterminate system is illustrated in (40), drawing on Saltarelli et al. (1988) and
Haspelmath (1997).

(40) a. nor ‘who’
    b. nor-bait ‘someone’
    c. i-nor ‘anyone’

Wh-movement in Basque, however, is a special case of focus movement, as studied
extensively by Ortiz de Urbina (1989, 1995) and Uriagereka (1999), among others. The
preposed wh-phrase must be adjacent to the participial verb, as the contrast between (41a)
and (41b) shows.

(41) a. Nor ikusi du Jonek?
   who seen has John
   ‘Who has John seen?’
   b. *Nor Jonek ikusi du ?
   who John seen has

Similarly, the phrase immediately preceding the participial verb receives the focus
interpretation in (42).

(42) Miren ikusi du Jonek.
   Mary seen has John
   ‘It is Mary that John has seen.’
Crucially, Basque does not have HIRC.\(^9\)

Thus, the generalization is that those languages where overt phrasal wh-movement is obligatory allow HIRC if focusing uses the in-situ strategy. I would like to suggest that Imbabura Quechua recruits the in-situ focus strategy for its HIRC, just as Modern Japanese recruits wh-in-situ for its HIRC. It follows that wh-in-situ and focus-in-situ must share something. Looking back at (28), repeated below, we notice that a good candidate is the uninterpretable focus feature on the goal.

\begin{enumerate}
\item External Relation for wh-in-situ
\begin{enumerate}
\item probe: interpretable focus feature in C°
\item goal: interpretable focus feature in D° & uninterpretable focus feature
\end{enumerate}
\end{enumerate}

We are also led to conclude that HIRC makes use of this feature.

3.3. **Head-Internal Relative Clauses**

We are now in a position to address the questions about the behavior of HIRC. The reason why the D°-head relation in HIRC mimics the relation between C° and wh-in-situ is that the same feature is involved, namely, an uninterpretable focus feature.

The idea that focus is involved in HIRC is not new. Tellier (1989) claims that the head of HIRC in Mooré must have a focus marker *ninga*, as shown in (43).\(^{10}\)

\begin{enumerate}
\item External Relation for wh-in-situ
\begin{enumerate}
\item probe: interpretable focus feature in C°
\item goal: interpretable focus feature in D° & uninterpretable focus feature
\end{enumerate}
\end{enumerate}

Tellier goes on to show that this focus-marked internal head can undergo overt movement within HIRC, in which case a parasitic gap can be licensed. Since Tellier does not discuss island-sensitivity of HIRC in Mooré, I do not know whether it belongs to the Lakhota type or the Japanese type.\(^{11}\) If it belongs to the Lakhota type, we cannot say that an uninterpretable focus feature is involved, because no feature checking takes place in the Lakhota-type HIRC. It is reasonable, however, to hypothesize that an uninterpretable focus feature in the Japanese-type HIRC can be paired up with its interpretable counterpart.\(^{12}\) We can then say that the Lakhota-type HIRC and the Japanese-type HIRC share the property of marking the internal head with an interpretable focus feature. The difference between them is that the head of the Japanese-type HIRC has in addition an uninterpretable focus feature, which forces checking.

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\(^9\) Thanks are due to Itziar San Martin (personal communication) for the information about Basque.

\(^{10}\) Tellier notes that *ninga* functions as an indefinite determiner in simple sentences, as in (i).

\begin{enumerate}
\item m-\mbox{mi}s fó sén tø! biig *(ningá) zaámé wå!  
\begin{quote}
\text{I know you rel insult child NINGA yesterday det}
\text{‘I know the child that you insulted yesterday.’}
\end{quote}
\end{enumerate}

\(^{11}\) The presence of ordinary determiners in this language, however, suggests that it is the Lakhota type, if this paper’s proposal is on the right track.

\(^{12}\) Kuroda’s (1975-76) relevancy condition may be understood in terms of focus semantics, though it is a future task to work it out.
At this point, however, we must ask why HIRC recruits the feature that is involved in the checking between wh-in-situ and C°. This is the question that we started with at the beginning of this section. Now, it does not seem to be a coincidence that the Japanese-type HIRC is found in languages which make use of the indeterminate system with quantificational particles. Modern Japanese, Imbabura Quechua, Navajo, and Old Japanese during the Heian Period all possess such an indeterminate system. Navajo wh-in-situ, and positive and negative indefinites are illustrated by examples in (44) from Hale and Platero (2000).

(44)  a. Shi-zhê’è ha’àt’ii-lá nayiisnii’?
    my-father what-LA 3.P.3.buy
    ‘What did my father buy?’
   
b. Shi-zhê’è ha’àt’ii-shíí nayiisnii’.
    my-father what-indef 3.P.3.buy
    ‘My father bought something.’
   
c. Shi-zhê’è doo ha’àt’ii-da nayiisnii’-da.
    my-father neg what-DA 3.P.3.buy-DA
    ‘My father didn’t buy anything.’

As we have seen above, wh-in-situ involves two checking relations schematized in (20), repeated below.

(20)  [CP [... [DP QP D°] ... ] C°]

I would like to claim that the Japanese-type HIRC makes use of these two checking relations in a unified way. Suppose that the head of HIRC is also QP and that the checking relation involving an uninterpretable focus feature holds between D° and QP, as in (45).

(45)  [DP [CP [... QP ... ] C°] D°]

This checking uses the same structural configuration as the internal relation of wh-in-situ. The existence of an independent checking relation between D° and QP, however, is not sufficient to license HIRC. Basque wh-questions involve the indeterminate, and hence, the internal relation between D° and QP, but HIRC is not allowed. Why?

Notice that the D° head is phonologically null and no indeterminate element is used in the Japanese-type HIRC, as can be seen from the examples above. An Imbabura Quechua example is shown in (46).

(46)  [Wambra wagra-ta randishka] ali wagra-mi.
    boy cow-acc bought good cow-validator
    ‘The cow that the boy bought is a good cow.’

Since the indeterminate is not used, it is reasonable to consider that the features that participate in the internal relation cannot be invoked for the checking in HIRC. Significantly, however, the D° head of the wh-phrase also takes part in the checking relation with an external head, namely, C°. The D°-QP relation needed for HIRC recruits this external relation. This is possible, because it does not require a special morphological marking to impose an uninterpretable focus feature on the internal head of HIRC. As noted by
Haspelmath (1997), the D° head posited for the wh-phrase built out of an indeterminate is consistently null cross-linguistically. This D° is the locus of an uninterpretable focus feature in the external relation. The Navajo wh-question, illustrated above in (44a), at first sight seems to require an overt D°, but the particle -lá is separable from the wh-phrase itself as in (47), suggesting that it is not D°.

\[(47)\] Shi-zhé’è lá ha’át’ii nayiisnii’?
my-father LA what 3.P.3.buy
‘What did my father buy?’

See Barss, Hale, Perkins, and Speas (1991) and Schauber (1979) for the behavior of this particle.

Thus, the absence of special overt materials that indicate the probe and the goal in the checking relation in (45) is probably the reason why HIRC must recruit bits and pieces from the checking relation where such overt materials are not needed: in-situ wh-questions, or in case the wh-phrase is overtly displaced, in-situ focus.\(^\text{13}\) To sum up, the Japanese-type HIRC recruits the structural configuration from the internal relation and the uninterpretable focus feature on the goal from the external relation.

\[(48)\] internal relation: QP-D
external relation: uninterpretable focus feature on the goal without the EPP on the probe

Let us turn to the Lakhota-type HIRC, where the D°-head relation uses unselective binding. This relation is needed to provide a connection between the nominal head and the determiner which also holds in ordinary DPs such as the one in (49).

\[(49)\] owi₂₆ki
quilt the
‘the quilt’

The definiteness effect in the Lakhota HIRC observed by Williamson (1987) should be understood as due to blocking of the determiner-nominal association, as argued by Basilico (1996). In (50a), the indefinite determiner on the internal head is semantically empty and does not block the determiner-nominal association.

\[(50)\] a. [Mary owi₂₆wa₃ kagʤ ki] he ophewathu₃
Mary quilt a make the dem I-buy
‘I bought the quilt that Mary made.’

b. *[Mary owi₂₆ki kagʤ ki] he ophewathu₃
Mary quilt the make the dem I-buy

In (50b), however, the definite determiner outside HIRC has no nominal to be associated with. Hence the ill-formedness.

\(^\text{13}\) An overt focus marker appears on Imbabura in-situ focus, to be sure. Perhaps, its status is similar to the Navajo particle -lā, even though the Quechua particle does not seem to be separable. It is interesting to note that Navajo also has an extensive in-situ focus system. See again Barss, Hale, Perkins, and Speas (1991) and Schauber (1979).
The determiner-nominal association in HIRC, however, does not come for free. Languages like English also have a determiner system like that of Lakhota, but HIRC is not allowed. The difference again seems to be due to whether overt phrasal wh-movement is obligatory or not. Recall that in Lakhota, wh-in-situ employs unselective binding. The reason why the determiner-nominal association in ordinary DPs cannot be used directly in HIRC is probably that it should be local in the default case. Note that the determiner-nominal association in ordinary DPs does not cross a clause-boundary. In HIRC, however, it must cross IP and CP. The dependency in wh-questions is designed to be able to cross clause-boundaries, and therefore is recruited.

In fact, there is even a deeper reason for this recruitment. Recall that the indeterminate system in Lakhota does not use quantificational particles, unlike its Japanese counterpart. It is reasonable to assume that the absence of quantificational particles which can be attached to the indeterminate is correlated with the existence of the binding determiner system. Let us assume that in those languages with the indeterminate system, determiners can come only in a single variety, either binding or checking. Since Lakhota chooses the binding determiner system, it cannot use a checking determiner for wh-phrases.\(^\text{14}\) The only way left for wh-phrases is to make use of unselective binding. If the language chooses to use no determiner at all, HIRC is impossible, and wh-questions must rely on unselective binding. This is what happens in Chinese. The table in (16) in section 2.1 should be revised as follows:

\[(51) \quad \text{wh-dependency} \quad \text{HIRC} \quad \text{particle for ind} \quad \text{determiner} \]

\[
\begin{array}{cccc}
\text{a. Chinese} & \text{binding} & \text{---} & \text{no} \\
\text{b. Lakhota} & \text{binding} & \text{binding} & \text{no} \\
\text{c. Japanese} & \text{movement} & \text{movement} & \text{yes} \\
\end{array}
\]

Thus, the three properties having to do with wh-questions, HIRC, and the availability of quantificational particles are reduced to the nature of the determiner system.

Of course, the question remains whether we can lift the restriction to the indeterminate system. In English, for example, the determiner system apparently uses binding, but overt phrasal wh-movement is obligatory, so that we seem to be driven to the conclusion that the D° head of wh-phrases takes part in checking as well. One way of avoiding this conclusion is to say that it is not the D° head that drives wh-movement in English. Adapting Watanabe’s (1992a) proposal for wh-phrases in general to the English type alone, one might say that it is the wh-operator in Spec of DP that hosts an uninterpretable focus feature and undergoes checking with C°. A full exploration of this idea is simply beyond the scope of this paper, but the direction suggested here is interesting enough to be worth pursuing further.

4. Conclusion

References


\(^{14}\) Australian languages which distinguish between the wh-reading and the non-wh existential reading only in terms of whether movement takes place or not pose a significant challenge to this idea.


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