LF PIED PIPING: EVIDENCE FROM SINHALA

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Abstract

This paper presents an array of novel data attested in Sinhala (Sinhalese), which indicates that Subjacency is a viable constraint even on LF Wh raising. It is shown that a satisfactory characterization of the LF Wh movement phenomena must include a system of pied piping, and that the presently available solutions are unable to offer a well-motivated account for the pied piping phenomena. It is then argued that the relevant phenomena are adequately handled only by reference to machinery of pied piping defined by a quantificational domain marker.

1. Introduction

In recent years, there has been much debate over the issue of whether or not Subjacency should hold for Wh movement at the level of Logical Form (LF). The controversy over the relevance

1) Part of the material in this paper was presented at the 16th annual conference of the Kansai Linguistic Society. I would like to express my thanks for comments and discussions from the participants. I am grateful to Dileep Chandraalal for his informant work and to Professor Masayoshi Shibatani for reading through several versions of this paper. I am also grateful to reviewers for this journal for insightful comments. I am solely responsible for any remaining errors and inadequacies.

2) In the classical analysis, the Subjacency constraint is defined as in (i), on the basis of the notion of bounding nodes:
of Subjacency at LF stems from the observation that Subjacency effects are usually absent for wh phrases if they are not susceptible to S-structure Wh movement. In effect, in such a case, a wh site can generally be embedded inside a syntactic island, without displaying Subjacency effects. The irrelevance of bounding conditions at the LF level raises an interesting theoretical problem of how LF Wh movement can generally escape Subjacency effects.

In an attempt to account for this discrepancy between S-structure Wh movement and LF Wh movement, two different solutions have been presented in the literature. The first solution is the so-called ECP account. Within the ECP account (cf. Huang (1982a, 1982b), Lasnik and Saito (1984), among others), the non-existence of Subjacency effects at LF is handled on the assumption that Subjacency applies prior to LF Wh movement. Under the ECP account, it is maintained that since LF is not a relevant level where Subjacency applies, no Subjacency issue arises in the case of LF Wh movement.

An alternative to the ECP account is the pied piping analysis, which has been advanced by Nishigauchi (1986, 1990), Choe (1987) and others. The pied piping analysis, in opposition to the ECP analysis, claims that Subjacency is inviolable even in LF despite

\[(\text{i})\] No rule can relate \(X, Y\) in the structure
\[
\ldots X [_{a \ldots [_{b \ldots Y \ldots ]} \ldots ]} \ldots X \ldots ,
\]
where \(a\) and \(b\) are bounding nodes.

There appear to be several problems in determining what node counts as a bounding node in Sinhala, but NP and S (=IP) can be taken as bounding nodes in this language. More recently, in Chomsky (1986), Subjacency is defined in terms of barriers. The reader is referred to Chomsky (1986) for the relevant definitions on barriers.

3) The classical definition of the ECP is as follows:
   \[(\text{i})\] A nonpronominal empty category must be properly governed.
   \[(\text{ii})\] \(X\) properly governs \(Y\) if \(X\) governs \(Y\) and
   \[
   (a) \ X \text{ is a lexical category } X^0 \text{ (lexical government)}
   
   \text{or} \quad (b) \ X \text{ is coindexed with } Y \text{ (antecedent government)}.
   
appearances to the contrary, and that a wh phrase, if it is located inside an island, may pied pipe the island with it, raising the entire island. The pied piping analysis analyzes the apparent unboundedness of LF wh movement as a case of LF pied piping; thereby LF wh movement is reduced to the case of a local wh-binding relation obeying Subjacency.

In view of the fact that the pied piping analysis allows us to treat both S-structure wh movement and LF wh movement in a unitary manner with regard to Subjacency, it has a more intuitive appeal than the ECP analysis. In seeking a unified account for the wh movement phenomena, it is desirable to regard LF wh movement as susceptible to Subjacency for the following reasons.

First, by claiming that Subjacency, which constrains syntactic movement, also pertains to LF movement, we obtain a strong motivation for establishing LF as a part of syntactic component of the grammar. Second, imposing Subjacency on LF wh movement allows us to severely constrain the strong generative power of LF wh movement which is assumed to be legitimate, at least, at the LF level. (In this connection, note the fact that although the ECP places severe limits on movement of 'adjunct' wh phrases, long distance movement of 'argument' wh phrases is, in principle, allowed under the assumptions maintained by Lasnik and Saito (1984).) Thus, by stating that Subjacency is also applicable to LF wh movement, we can even constrain the unbounded movement of 'argument' wh phrases, which is allowed by the ECP account. These are the obvious advantages of subjecting LF wh movement to Subjacency.

As will be shown in the ensuing discussion, the pied piping analysis in effect enables us to attain quite a general account for the LF-syntax asymmetry pertaining to Subjacency at no extra theoretical cost. Attractive as the pied piping account is, however, as far as I know, no convincing arguments in favor of the pied
piping analysis have been provided in the literature. Nishigauchi (1986), for instance, presents two major arguments for the pied piping analysis and challenge the ECP analysis, but his arguments are hardly conclusive.

Nishigauchi's first argument concerns the conceptual issue of the parallelism between S-structure and LF movements with regard to Subjacency. It appears that this argument of Nishigauchi's is not decisive as it stands, since Fiengo et al. (1988) have provided a way of obtaining the parallel constraints on movement rules between S-structure and LF (without having recourse to LF pied piping). Although the account proposed by Fiengo et al. bears close resemblance to the pied piping analysis, their discussion shows, to say the least, that it is possible to obtain a similar result within the ECP account.

The second argument for the pied piping analysis is associated with short answers to wh questions. Nishigauchi (1986) argues that the structure of LF pied piping is mirrored by the truncated answers to a wh question, but the validity of this argument again has been questioned by Fiengo et al. (1988). In fact, as is pointed out by Pesetsky (1987), short answer formation is not a reliable diagnostic test for LF pied piping, so that we cannot draw too much on possible elliptical answers to wh questions to argue for the presence or absence of LF pied piping. (Cf. also Kuno and Masunaga (1986) and Kuno (1991).)

These arguments appear to weaken the motivations for the pied piping analysis, but if we look at wh questions in Sinhala, firm evidence turns up that shows that pied piping is indeed responsible for the lack of Subjacency effects at the LF level. In the following, we will present an array of new data from Sinhala which lends empirical support to the pied piping analysis.

The major aim of the present paper is, in essence, to show that Subjacency is indeed a viable constraint on movement rules even
in LF, and that it is the machinery of pied piping that yields the effect of the long distance movement. For our purposes, we will first discuss the nature of Sinhala wh questions and then present new Sinhala data which we claim to constitute definitive evidence in favor of the pied piping account over the ECP account. Furthermore, toward the end of the paper, we will discuss factors relevant to the determination of a pied piped constituent.

2. Wh Questions in Sinhala

2.1. Wh Formation

The peculiarity of wh questions in Sinhala lies in the fact that the effect of LF pied piping is clearly visible in surface form. This notable property of Sinhala is derived from the fact that the formation of wh questions in Sinhala is accomplished through the addition of the Q morpheme $d\hat{o}$ to a wh phrase in argument position, as in (1):

(1) Kau-d$\hat{o}$ Chitra-w$\hat{o}$ dække?
    who-Q Chitra-ACC saw
    “Who saw Chitra?”

In Sinhala, the sentence-medial Q element $d\hat{o}$ indicates that the sentence is to be construed as a question. In such a case, the verb involves a special verbal ending, i.e. an $e$-ending, and this is a kind of particle-predicate concord. (Note in passing that this verbal marking is different from the verbal marking of a simple declarative, which has an $a$-ending.)

In the case of wh questions, Sinhala, in most cases, does not have the particle $d\hat{o}$ in clause final position, and the Q element is, in general, attached directly to a wh phrase, as illustrated by the contrast in grammaticality between the sentences below:

4) In Sinhala, it is possible to have a clause final $d\hat{o}$ in a yes-no question, as in (i):

(i) Oyaa pot-ak gatta-d$\hat{o}$
    you book-INDEF bought-Q
    “Did you buy a book?”
Although Sinhala implements the rule that places the Q element in argument position, as in (2a), it should be pointed out here that there are two major classes of exceptions to this rule (cf. Gair (1980, 1983)). First, when a wh phrase embedded in a complement clause of verbs like dannwa 'know', sehwa 'asked' and the like takes the embedded scope, the Q element da may show up either in argument position or in clause final position of the embedded clause, as shown in (3):

Chitra who-Q book bought COMP know
"Chitra knows who bought the book."
(b) Chitra [kauru pota gatta-da kiyala] dannwa.
Chitra who book bought-Q COMP know
"Chitra knows who bought the book."

Second, if a wh phrase like kiidenek 'how many' or kiiya 'how much' is used in a wh question, then the placement of a Q element in argument position is not obligatory, as illustrated below:

(4)(a) Kiidenek aawa-da?
how many came-Q
"How many people came?"
(b) Kiidenek-da aawe?
how many-Q came
"How many people came?"

If the da particle used in forming a wh question appears in clause final position, then the verb does not involve a special marking of the verb, i.e. the e-marking. The important point to be borne in
mind here, however, is that a wh question, in unmarked cases, requires the presence of the Q element \( d \) in argument position.\(^5\)

Sidestepping a little for the moment, it should be noted that if the Q element attaches to a wh phrase, then the predicate is marked with the \( e \)-form, and that it indicates the scope of the wh phrase. The \( e \)-form that appears on the verb is shared by the cleft construction in Sinhala. Thus, it might be claimed that the fact that the occurrence of a Q element in argument position goes hand in hand with the \( e \)-marking on the verb is a reflection of clefting, rather than Wh movement.

In some languages, clefting is obligatory in forming a wh question, i.e. wh formation mandatorily involves clefting in addition to Wh movement (e.g. Indonesian), but in Sinhala there is good reason to believe that Wh movement is at issue in the case at hand, since Sinhala wh questions display some interesting properties that are distinct from cleft sentences. One crucial difference pertains to the fact that in Sinhala, two or more wh words are allowed in a wh interrogative sentence, while focus (i.e. clefting) is usually limited to one constituent per clause. The following examples illustrate the point:

(5)(a) Chitra-tamay pot\(o\) kieuwe.

5) In the variety of Sinhala under study, the presence of at least one Q element is obligatory. The following sentence, which does not have the Q particle \( d \) only allows for an echo interpretation (with a rising intonation):

(i) Chitra mon\(\text{w}a\) gatta?
   Chitra what bought
   “Chitra bought what?”

Note that the sentence does not have the \( e \)-marking on the verb which indicates the scope of the wh phrase. If the verb is marked with this special marking, then no echo interpretation is available and the sentence turns out to be ungrammatical:

(ii) *Chitra mon\(\text{w}a\) gatte?
       Chitra what bought
       “Chitra bought what?”

Chitra-FOCUS book read
“It was Chitra that read the book.”
(b) Chitra potə-tamay kieuwe.
Chitra book-FOCUS read
“It was the book that Chitra read.”
(c) *Chitra-tamay potə-tamay kieuwe.
Chitra-FOCUS book-FOCUS read
(lit.) “It was Chitra, the book that read.”

(6)(a) Kau-də potə kieuwe?
who-Q book read
“Who read the book?”
(b) Chitra monəwa-də kieuwe?
Chitra what-Q read
“What did Chitra read?”
(c) Kau-də monəwa-də kieuwe?
who-Q what-Q read
“Who read what?”

It must be admitted that a wh question sometimes involves a cleft interpretation, but the difference in acceptability manifested in (5c) and (6c) clearly shows that the formation of a wh question is different from that of a cleft.6) (In particular, note the fact that

6) In Sinhala, clefting is optional in syntax, in the sense that clefting may take place either in S-structure or in LF. The reason why a wh question is sometimes associated with a cleft interpretation is that Sinhala has a cleft construction which optionally moves a wh phrase into a focus position in LF. If clefting occurs in syntax, a wh phrase is placed right after the verb, as in (i):

(i) Pota kieuwe kau-da?
book read who-Q
“Who was it that read the book?”

Note that if the wh word is moved to the clause final position, then the cleft interpretation is obligatory. It is worth while to point out here that even if clefting (in addition to Wh movement) is involved in the formation of a wh question at the level of LF, this does not undermines our argument for island effects in LF.
while a cleft interpretation is possible in (6a) and (6b), this type of interpretation is not available for (6c).) In light of this fact, it can be concluded that Wh movement, rather than clefting, determines the scope properties of wh phrases in Sinhala wh questions (in typical cases).

With this much as a background, we will now embark on providing some arguments for the pied piping analysis being advocated here. Since the central claim of this paper is that examples like (2a) provide us with hard evidence in support of the pied piping analysis, our discussions are confined to examples of this type.

2.2. Subjacency Effects

The foregoing discussion suggests that wh questions usually require the presence of the Q element _d_, co-occurring with a wh word in argument position. At first glance, it might appear that the Q element must be directly attached to a wh phrase if it appears in argument position, but this is not necessarily the case. In some cases, the Q element is obligatorily separated from a wh phrase, as exemplified below:

(7)(a) Chitra kauru ekk*-d* kataa k*lee?
    Chitra who with-Q talk did
    “With whom did Chitra talk?”
(b) Chitra kohee indan-d* enne?
    Chitra where from-Q come
    “Where did Chitra come from?”

Note that in each case at hand, a postposition must intervene between the wh phrase and the Q element, and sentences like (7) do not have corresponding wh interrogations in which the Q element is attached to the wh phrase, as the ungrammaticality of (8) shows:

(8)(a) *Chitra kau-d* ekk* kataa k*lee?
    Chitra who-Q with talk did
    “Who did Chitra talk with?”
(b) *Chitra kohee-da indan enne?
Chitra where-Q from come
“Where did Chitra come from?”

There appear to be several possible reasons for blocking the adjacency of the Q particle to the wh phrase, but the most plausible generalization seems to be that Subjacency blocks the positioning of the Q element in such a way that it is attached to the wh phrase (as discussed below). Whatever the reason may be, the data given above, to say the very least, shows that the Q element da and the wh phrase do not form a fixed lexical unit, so that the Q particle da can sometimes be separated from a wh phrase. (In general, we may assume that a Q element can attach to NP, PP, or CP.)

With this in mind, let us consider some cases in which a wh phrase is embedded in a syntactic island. As we will see shortly, Subjacency effects in LF clearly show up on surface strings by virtue of the presence of the sentence-medial Q particle da. First, observe the grammaticality of the following examples, in which a wh phrase appears inside a complex NP:

7) A reviewer has suggested that (8) should be ruled out by a morphological constraint. There are, however, at least two reasons for rejecting this suggestion: First, Sinhala postpositions are independent words, just like English prepositions, and PPs are formed compositionally in the syntactic component. This being so, it is hard to see why the formation of PP accompanying the Q element is restricted by a morphological constraint. Second, when a wh phrase is followed by a postposition, a Q element which does not induce a particle-predicate concord may directly attach to the wh phrase (or it may be followed by the postposition), as illustrated below:

(i) (a) Chitra kauru-t ekka kataa kalaa.
    Chitra who-Q with talk did
    “Chitra talked with everyone.”

(b) Chitra kauru ekka-t kataa kalaa.
    Chitra who with-Q talk did
    “Chitra talked with everyone.”
Examples (9a) and (9b) involve a relative clause and a noun complement, respectively. In both cases, the Q element attaches to the island which contains a wh phrase, and these sentences are fully acceptable. In comparison to this, if the Q morpheme is adjoined to the wh phrase, which is contained within the island, then the sentence turns out to be ill-formed:

(10)(a) *Oyaa [kau-də liyəpu] potə kieuwe?
    you who-Q wrote book read
    “You read the book that who wrote?”

(b) *Chitra [kau-də aawa kiəno] kaṭəkataawə-də æhuwe?
    Chitra who came COMP rumor-Q heard
    “Chitra heard the rumor that who came?”

(The wh phrase kauru comes to convey the sense of ‘everyone’ if it combines with the Q element t, which expresses a universal quantificational force.) This shows that a wh phrase is a potential attachment site for a Q element when it is followed by a postposition. Since it is the distance between the Q element and the predicate that dictates the well-formedness of the sentence, it is unlikely that the unacceptability of an example like (8) is derived from a morphological restriction. It should be kept in mind that a case-marker in Sinhala is, on the other hand, a particle which attaches to an NP. In this case, a Q element may not intervene between a noun and a case-marker:

(ii)(a) Ranjit kaurun-tə-t gəhuwa.
    Ranjit who-DAT-Q hit
    “Ranjit hit everyone.”

(b) *Ranjit kauru-t-tə gəhuwa.
    Ranjit who-Q-DAT hit
    “Ranjit hit everyone.”

Here, the restriction on the Q element attachment may be due to a morphological constraint, for the attachment of a Q element is proscribed, irrespective of whether it induces a particle-predicate concord or not.
Chitra who-Q came COMP rumor heard
“Chitra heard the rumor that who came?”

What the sentences in (10) show is that wh phrases with the da-marking embedded in islands display the effects of Subjacency violation.

These facts find a natural explanation if it is assumed that the constituent indicated by the Q particle undergo Wh movement at the level of LF. In the case of (9 a), for instance, the NP constitutes an island for wh elements within it, but the NP itself occurs in a position from which movement is licit. The placement of the Q element on the whole NP suggests that this is the constituent that undergoes movement, as shown below:

(11) \[\text{[cp [NP [kauru liy\text{"}pu] pot\text{-}d\text{*}]i [IP oyaa ti kieuwe] \]}\]

Since the movement of the entire island does not involve a Subjacency violation, the sentence turns out to be grammatical. By contrast, if LF Wh movement is not mediated by pied piping, namely, in a structure like (10 a), where the Q particle da is directly attached to the wh phrase, then the wh phrase alone is moved to a scope position upon the application of LF movement, as represented in (12):

(12) \[\text{[cp kau\text{-}d\text{*}i [IP oyaa [NP [ti liy\text{"}pu] pot\text{\}}] kieuwe] \]}\]

Obviously, the movement of the wh phrase kau-d\text{"}a alone is in violation of Subjacency, involving extraction out of the complex NP. Given the assumption that the sequence marked by the Q element is susceptible to Wh movement at LF, then it follows that the wh question in (10 a) is ruled out as unacceptable, while (9 a) is found fully acceptable without a Subjacency violation.

The crucial point is that Subjacency is generally construed as the boundedness requirement imposed either on movement itself or on the resulting representation created by movement. As no Wh movement takes place at S-structure in Sinhala wh questions, it is clear that there is no source information on the surface strings which encodes the relevant representation. Thus, it can safely be
stated that the Subjacency effects shown above are derived from (invisible) LF Wh movement, which occurs after S-structure. If our analysis is correct, then this means that the LF strategy of pied piping is reflected in the strings of a surface form in Sinhala, owing to the presence of a Q element which attaches to a constituent raised by LF Wh movement.

Now, in order to confirm the validity of our claim, let us consider some more cases of island effects manifested in Sinhala. A further case demonstrating LF pied piping arises in constructions with an adjunct clause within which a wh phrase is contained. In such a case, the Q element must be adjoined to the whole adjunct clause, for an adjunct clause constitutes an island for the purpose of movement:

\[(13) \ [Kauru \ enə \ koṭə] -də \ Ranjit \ paaḍam \ kəramin \ hitie? \]

\[\begin{array}{c}
\text{who came time} -Q \ \text{Ranjit study doing was}
\end{array}\]

"Ranjit was studying when who came?"

As shown above, the sentence in which the Q morpheme is adjoined to the adjunct clause is well-formed. In contrast, the sentence turns out to be ill-formed if the Q morpheme appears inside the adjunct clause:

\[(14) *[Kau-də \ enə \ koṭə] \ Ranjit \ paaḍam \ kəramin \ hitie \]

\[\begin{array}{c}
\text{who-Q came time Ranjit study doing was}
\end{array}\]

"Ranjit was studying when who came?"

These examples show that the positioning of the Q morpheme is taken as a determinant of the syntactic well-formedness of wh interrogations in Sinhala. The relevant data immediately suggests that LF Wh movement should be constrained by Subjacency in a way analogous to S-structure Wh movement.

Another piece of evidence in favor of our view can be obtained by looking at sentences with bridge and non-bridge verbs. In regard to Wh movement out of a lower clause of these verbs, we can state, as a descriptive generalization, that extraction of a wh phrase
from a lower clause is possible with a bridge verb, but not with a non-bridge verb, as illustrated by the English examples below (cf. Stowell (1982a, 1982b), Erteshik-Shir (1973)):

(15)(a) Who did you say that John saw?
(b) ??Who did you whisper that John saw?
The following Sinhala examples are, however, both grammatical and do not show a familiar contrast in acceptability regardless of verb type:

(16)(a) Ranjit [Chitra mokaa-ṭə gəhuwa kiyəla]-də kiiwe?
   Ranjit Chitra what-DAT hit COMP-Q said
   “Ranjit said that Chitra hit what?”
(b) Ranjit [Chitra mokaa-ṭə gəhuwa kiyəla]-də kendiruwe
   Ranjit Chitra what-DAT hit COMP-Q whispered
   “Ranjit whispered that Chitra hit what?”

What is notable about the sentences in (16) is that in both cases, the Q morpheme is adjoined to the complement clause of the verb. Not surprisingly, the sentences are well-formed, for the movement of the whole clause does not cause a Subjacency violation. In contrast to this, the expected contrast of bridge versus non-bridge verbs emerges if the Q particle is directly adjoined to a wh phrase inside the subordinate clause:

(17)(a) Ranjit [Chitra mokaa-ṭə-də gəhuwa kiyəla] kiiwe?
   Ranjit Chitra what-DAT-Q hit COMP said
   “What did Ranjit say that Chitra hit?”
(b) *Ranjit [Chitra mokaa-ṭə-də gəhuwa kiyəla] kendiruwe?
   Ranjit Chitra what-DAT-Q hit COMP whispered
   “What did Ranjit whisper that Chitra hit?”

In the sentences in (17), the kind of movement required in the derivation is LF fronting of the wh phrase mokaa-ṭə-də. As this wh phrase must be extracted from the lower clause at the LF level in

8) For reasons unclear to me, it appears that example (17b) is completely out, while an English counterpart is marginal.
the sentences in (17), the ill-formedness of (17 b) must come from an illicit LF movement, which extracts mokaa-t-ə-də from the lower clause of the non-bridge verb. The fact that Sinhala exhibits the familiar contrast of acceptability between bridge and non-bridge verbs in (17) gives us a clear indication that LF extraction of a wh phrase from a lower clause of a non-bridge verb, but not of a bridge verb, yields a Subjacency violation.

Let us now turn to the Subject Condition. Interestingly, in the case of Sinhala, we do not find asymmetries between subject and object with regard to LF extraction. The fact of the matter is that it is simply impossible to extract a lexical item (i.e. a wh word) from a position internal to subject or object, as illustrated below:

(18) (a) *Ranjit kaa-ge-də potə kieuwe?
   Ranjit who-GEN-Q book read
   “Ranjit read whose book?”
(b) *Kaa-ge-də potə wædipura kiewenne?
   who-GEN-Q book often is read
   “Whose book is often read?”

The fact seems to suggest that both subject and object constitute islands for LF extraction. In these cases, the Q element də must attach to the entire NP:

9) Note that an NP marked with genitive is a potential attachment site for a Q element, and the placement of a Q element to a genitive NP is allowed if it does not trigger a particle-predicate concord:

(i) Ranjit kaa-ge-t potə kieuwa.
   Ranjit who-GEN-Q book read
   “Ranjit read everyone's book.”

This indicates that the examples in (18) are not ruled out on the basis of a morphological constraint. Notice further that it is usually assumed that an object NP is L-marked and hence does not form a barrier to movement. But this does not mean that an element internal to an object NP is always extractable, since we can readily obtain an ungrammatical example like? *Who did she destroy a picture of? Thus, we cannot state that object is transparent to movement on the basis of L-marking alone.
(19)(a) Ranjit kaa-ge pot-ǝ-da kieuwe?
Ranjit who-GEN book-Q read
"Whose book did Ranjit read?"
(b) Kaa-ge pot-ǝ-da wǝdipura kiewenne?
who-GEN book-Q often is read
"Whose book is often read?"

The grammaticality of the sentences in (19) shows that the subject NP and the object NP must be subject to LF extraction in their entirety. 10)

Essentially the same pattern of distribution with regard to the Q element placement is found when a wh phrase is embedded in a ǝ-naǝddǝ ‘whether’ clause (i.e. Wh island). As expected from our analysis, again, it is not possible to place the Q element next to a wh phrase, as indicated by the ungrammaticality of the following sentence:

(20) *Ranjit [Chitra kau-ǝ ekkaragena aawa ǝ-naǝddǝ kiwǝla]
Ranjit Chitra who-Q bring came whether COMP
know
"Who does Ranjit know whether Chitra brought?"

If the entire ǝ-naǝddǝ ‘whether’ clause is pied piped, then the sentence turns out to be well-formed, as shown by the acceptability of (21):

10) In Sinhala, unlike English, it is not possible to test the sentential Subject Condition, because a subject position is always filled with an NP expression. If a sentential constituent appears in subject position, it must have the form of a complex NP, which forms an island for movement, as illustrated below:

(i)(a) [Chitra enowa kiǝna] eka pudumai.
Chitra come COMP fact surprising
"The fact that Chitra comes is surprising."
(b) *[Chitra enowa kiǝna] pudumai.
Chitra come COMP surprising
"That Chitra comes is surprising."
Again, the Sinhala fact lends empirical support to the suggested analysis which analyzes LF pied piping as responsible for the lack of Subjacency effects in LF. In sum, it is shown above that the position of the interrogative Q particle $d\omega$ determines the well-formedness of wh questions in Sinhala, and that the distribution of the Q element is naturally accounted for if it is assumed that the constituent specified by the Q element is sensitive to Wh movement at LF. The distinguishing properties of Sinhala wh questions demonstrated above clearly show that movement of a wh phrase is not allowed over too long a distance even in LF, and this fact receives a natural explanation if Subjacency is held to be a constraint imposed on LF Wh movement.

2.3. **Mechanism of Pied Piping and Sinhala $\textit{aei}$ ‘why’**

In the discussion to this point we have been exploiting the idea that pied piping is responsible for the apparent lack of Subjacency effects at the LF level. In the following, we will go a step further and suggest that the key mechanism to LF pied piping is suffixation of the Q element $d\omega$ (in Sinhala). We will argue here that in Sinhala, pied piping formation is possible with ordinary wh phrases, since they are not construed as inherent wh operators, but as indeterminate pronouns whose quantificational force is determined by an external Q element. In connection with this point, we will further argue that what we need to assume is that the Q element serves as a question-domain marker (henceforth, a Q-domain marker), which determines the quantificational domain of a wh phrase, and that the strings of elements marked by the Q-domain
marker undergo LF Wh movement and are moved to a position where a wh phrase can take scope.

The validity of our claim is confirmed if we turn our attention to a class of wh phrases which never co-occur with *da* but show Subjacency effects. This exceptional class of wh phrases includes the wh phrase *aei* 'why'. Keeping in mind that it is the Q element *da* that determines the quantificational force of ordinary wh phrases in Sinhala, consider the following simple wh questions:

(22) (a) Chitra *aei* paatiya-ṭa naawe?
Chitra why party-DAT not came
"Why didn’t Chitra show up at the party?"

(b) Chitra monwa-ḍa kəranne?
Chitra what-Q is doing
"What is Chitra doing?"

Interestingly, we see from (22) that a remarkable difference between the wh phrase *aei* ‘why’ and other wh phrases like monwa ‘what’ is apparent in the way the Q element is realized in syntax. While the wh word *aei* does not derivationally combine with a Q element, insertion of the Q particle is required of a wh phrase like monwa. Since *aei* is required to stand alone without combining with a Q element, the sentence loses its grammatical status if the wh phrase *aei* occurs with the Q element, as exemplified below:

(23) *Chitra aei-də paatiya-ṭə naawe?
Chitra why-Q party-DAT not came
"Why didn’t Chitra show up at the party?"

In contrast, the presence of a Q morpheme is obligatory with a wh phrase like monwa, and the sentence is unacceptable if it does not occur in combination with a Q element in syntax, as shown below:

(24) *Chitra monwa kəranne?
Chitra what is doing
"What is Chitra doing?"

The crucial fact is that the wh phrase *aei*, in opposition to regular
wh phrases, is proscribed from co-occurring with a Q element, which we assume to serve as a Q-domain marker. The apparent anomaly of \( \texttt{æi} \) may be deduced from the assumption that \( \texttt{æi} \) amalgamates its associated Q element \( d\circ \) in its lexical entry (i.e. in its meaning). This is a perfectly plausible assumption, especially in view of the fact that \( \texttt{æi} \) can exceptionally serve as a quantificational expression without combining with a Q element.

To some extent, the view that \( \texttt{æi} \) amalgamates the Q element \( d\circ \) in its lexical entry and serves as an inherent wh operator is buttressed by the fact that a variant of \( \texttt{æi} \), i.e. \( \texttt{mok\,ædæ} \), indeed includes the Q element \( d\circ \) in it. (This wh word can roughly be glossed as ‘what the hell’ and it is used synonymously with \( \texttt{æi} \) in Sinhala.) Interestingly, the Q element which appears as a part of the wh phrase is inseparable from the stem, and the entire wh phrase behaves as if it were a single wh word, just like \( \texttt{æi} \).

That ordinary wh phrases are indeterminate pronouns with no quantificational force is readily verified by the fact that they are allowed to combine with any type of Q element. For instance, the Sinhala wh word \( \texttt{mon\,æwa} \) ‘what’ may come with the interrogative Q particle \( d\circ \) and then it can be used as an interrogative pronoun. If the wh phrase occurs in combination with \( t \), which expresses a universal quantificational force, then the wh word comes to mean ‘everything’. If it combines with \( \texttt{hari} \), which has an existential quantificational force, then the wh phrase comes to express the meaning of ‘something’.

On the other hand, the claim that the wh word \( \texttt{æi} \) is an inherent interrogative pronoun can be confirmed by the fact that the wh word \( \texttt{æi} \) is usable only as an interrogative operator (without an accompanying Q particle), and lacks forms in which it is combined with a Q particle. This peculiarity of \( \texttt{æi} \) obviously comes from the fact that \( \texttt{æi} \) includes the meaning of an interrogative Q particle in its lexical meaning. Since the wh word \( \texttt{æi} \) cannot be construed
with any quantificational particle whatsoever, forms like \( \text{* } \textit{aei-d}\text{ }, \text{* } \textit{aei-t} \) and \( \text{* } \textit{aei-hari} \) are not well-formed.\(^{11}\) This wh word, being an inherent wh operator, can only be used as an interrogative phrase expressing the sense of ‘why’. In any event, the important point to note here is that the wh word \( \text{* } \textit{aei} \) is subject to a syntactic constraint disallowing its co-occurrence with a Q-domain marker.

Since \( \text{* } \textit{aei} \) is distinguished from other common wh phrases in that it cannot be associated with a Q element, which serves as a Q-domain marker, it is naturally expected that \( \text{* } \textit{aei} \) will not trigger any syntactic effect of pied piping. This prediction is borne out, as evidenced below:

\[
(25) \quad \text{*Oyaa [Chitra \textit{aei gatt\textalpha}] pot\textomega kieuwe?}
\]

you Chitra why bought book read

“You read the book that Chitra bought why?”

The fact the wh word \( \text{* } \textit{aei} \) is prevented from appearing in a syntactic island shows that \( \text{* } \textit{aei} \) is necessarily extracted from the island at LF and displays a Subjacency effect. The fact that example (25), in which \( \text{* } \textit{aei} \) is embedded inside a complex NP, is ungrammatical gives us a good indication that \( \text{* } \textit{aei} \) cannot pied pipe the island.

Furthermore, notice that since \( \text{* } \textit{aei} \) cannot be associated with an independent Q element, which is capable of defining the quantificational domain of a wh phrase, the addition of a Q element to the island does not help:

\[
(26) \quad \text{*Oyaa [Chitra \textit{aei gatt\textalpha}] pot\textomega-de kieuwe?}
\]

you Chitra why bought book-Q read

“You read the book that Chitra bought why?”

The fact that the wh word \( \text{* } \textit{aei} \) in Sinhala in no way participates in pied piping provides us with a piece of evidence that only a wh phrase which can be construed with an external Q element serving

\(^{11}\) There is a dialect of Sinhala in which \( \text{* } \textit{ae}i\text{ } \textit{-d}\text{ }\) is possible, but this form is generally impossible. This fact has been pointed out to me by Dileep Chandralal (p.c.).
as a Q-domain marker may be susceptible to pied piping. As is clear from examples involving \textit{æi}, the presence of an overt Q-domain marker is required in order for the formation of pied piping to take place.

It must be noted at this point that Nishigauchi (1986, 1990) attributes the discrepancy in pied pipability between ‘why’ and other wh phrases to categorial features such as \([+ \text{N}]\) and \([- \text{N}]\). Nishigauchi (1986, 1990) assumes that if a wh phrase is embedded in an island, the internal movement of the wh phrase (in addition to the movement of the entire island) is effected and that the features of the wh phrase percolate up to the top node of the island upon this internal movement. Under his account, the possibility of pied piping depends on whether the percolation process is legitimized or not. In order to ensure that pied piping applies only to regular wh phrases, he postulates that ‘why’ possesses the feature \([- \text{N}]\), and other regular wh phrases \([+ \text{N}]\). Under his account, if ‘why’ appears inside a complex NP, then the features associated with ‘why’ never reach the top node, because the complex NP contains the conflicting feature \([+ \text{N}]\). On the other hand, no such problem arises with regular wh phrases, because no feature mismatch occurs in the percolation process. The pied piping operation, then, may apply to regular wh phrases. This percolation mechanism ensures that the pied piping operation is excluded if ‘why’ is contained within a complex NP island.

Nishigauchi’s proposal, however, fails to provide a key to the condition which determines the well-formedness of LF pied piping, and there is good reason to believe that treating pied piping as sensitive to categorial features is simply wrong.\(^{12}\) First, consider the following:

\begin{equation}
(27) \text{*Chitra [Ranjit æi hambə unə hinda] saturen inne?}
\end{equation}

\(^{12}\) The present discussion is based on Sinhala examples, but basically, the same arguments apply to Japanese.
Chitra Ranjit why meet became because happy was
“Chitra was happy because she met Ranjit why?”

Note that the ‘because’ clause in (27), which is an adverbial adjunct, is seen as having the same categorial feature [− N] as \( \textit{aei} \). If the feature analysis by Nishigauchi were correct, it would be anticipated that the sentence in (27) should be well-formed, since the island has the same categorial feature as the wh phrase.\(^{13}\)

(Under the assumptions held by Nishigauchi, the percolation process should be legitimized.) But this prediction is not verified.

The claim that the identification of pied piping is not made by the percolation mechanism can further be reinforced if we look at the example below, which involves the wh phrase \( \textit{kohoma} \) ‘how’:

(28) Chitra [Ranjit kohom\* hamb\* une hinda] -d* satuten
Chitra Ranjit how meet became because-Q happy inne?

was

“Chitra was happy because she met Ranjit how?”

Notice that in (28), the adjunct island, i.e. the ‘because’ clause, is pied piped by the Q-domain marker \( \textit{d} \), and the sentence is grammatical. That \( \textit{kohoma} \) is able to appear within an island poses a problem for an analysis which is based on categorial identity, since \( \textit{kohoma} \) is an adverbial expression, which is categorized into the same class of wh phrases as \( \textit{aei} \).\(^{14}\) Unlike \( \textit{aei} \), however, \( \textit{kohoma} \) can be combined with a Q element, which can specify the quantifica-

\(^{13}\) The grammatical status of (27) depends on whether an intervening CP is [+ N] or neutral with respect to its categorial feature. Under the assumptions held by Nishigauchi (1986), however, the prohibition against pied piping should be in force in the case at hand.

\(^{14}\) Regular wh phrases, to the exclusion of \( \textit{aei} \), generally pattern alike with regard to pied piping, irrespective of whether they are arguments or adjuncts, and can be embedded in a syntactic island:

(i) (a) [Ranjit kohedi gatt\*] pota-d\* honda?
Ranjit where bought book-Q interesting
“The book that Ranjit bought where was interesting?”
tional domain of a wh phrase and hence can pied pipe an island, as in (28). 15)

It goes without saying that if the Q element *da* is directly attached to the wh phrase, then the sentence turns out to be ill-formed. This is illustrated in (29):

(29) *Chitra [Ranjit kohomə-*də hambə unə hinda] satutən Chitra Ranjit how-Q meet became because happy inne?
was

"Chitra was happy because she met Ranjit how?"

Given the strong correlation between the attachment of a Q element and LF pied piping, it should be obvious that our analysis, which utilizes a Q-domain marker to define a pied piping constituent, is favored over Nishigauchi's treatment in terms of categorial identity, since Nishigauchi's analysis falls short of accounting for the phenomena of pied piping in an explanatorily satisfying manner.

All in all, the fact that if the wh word *ai* is embedded in a syntactic island, the sentence is unacceptable shows that *ai* cannot pied pipe the island and displays the effect of an island violation. Moreover, since *ai* cannot be combined with an independent Q-

(b) [Ranjit kawəda gattə] potə-*də honə?
Ranjit when bought book-Q interesting

"The book that Ranjit bought when was interesting?"

These sentences should be ruled out as unacceptable if we take the argument-adjunct dichotomy as grammatically crucial for the determination of pied piping, but the sentences are well-formed. Needless to say, there are several ways of avoiding this conclusion. For instance, see discussion by Huang (1982b), Aoun, Hornstein and Weinberg (1987), Rizzi (1990) among others.

15) This generalization holds true for monə heetuwak nisaa 'for what reason', as the grammaticality of (i) shows:

(i) [Ranjit monə heetuwak nisaa gattə] potə-*də honə?
Ranjit what reason for bought book-Q interesting

"The book that Ranjit bought for what reason was interesting?"
domain marker, the absence of pied piping effect with \(aei\) points out that the determination of a pied piped constituent is indeed effected by the addition of a Q-domain marker to the island. This in turn indicates that as long as a wh phrase is allowed to co-occur with an external Q-domain marker, it is possible to pied pipe an island. The array of data given here makes it clear that the simple rule of Q-domain marker suffixation identifying a pied piped constituent does all the work necessary for LF pied piping.

3. **Weak Crossover**

A question to be addressed now is whether there is any positive evidence that supports the view that Sinhala instantiates pied piping (and Wh movement) in the mapping of S-structure onto LF. By way of answering this question, let us consider whether or not Sinhala wh questions exhibit Weak Crossover effects. Since Weak Crossover can, as often discussed in the literature, be taken to be symptomatic of the existence of a 'quantifier' rule, we can provide some evidence for the existence of LF Wh movement if we find Weak Crossover effects in Sinhala wh questions.

In order to examine the effect of Weak Crossover, it is important to see first what type of pronoun can count as a bound variable in Sinhala. In Sinhala a null pronominal can be construed as a bound pronoun, as illustrated below:

(30)(a) Kauru-ti [Ranjit e\(i\) hambo wennə issella]  
who-Q Ranjit meet become before  
kataa kiiwa.  
complaint said  
"Everyone complained before Ranjit met him."

(b) Kau-dəi [Ranjit e\(i\) hambo wennə issella]  
who-Q Ranjit meet become before  
kataa kiiwe?  
complaint said
“Who complained before Ranjit met him?”

In both cases, the indexed zero pronoun can be interpreted as bound by the coindexed quantified expression, and this fact shows that a zero pronoun qualifies as a bound variable (if it is within the scope of a quantifier).

Now, let us turn to Weak Crossover cases. First, following Koopman and Sportiche (1982), we assume that typical Weak Crossover obtains in the configuration in which the trace of a quantifier arising from Wh movement (or QR) fails to c-command a coindexed variable and vice versa. Bearing this in mind, consider the contrast in acceptability between the sentences below:16)

(31) (a) Chitra [Ranjit ei kiwanna issella] ee-pot\textsubscript{e}i
Chitra Ranjit read before that-book
kieuwa.

read

“Chitra read that book before Ranjit did.”

(b) ?*Chitra [Ranjit ei kiwanna issella] mon\textsubscript{e}-pot\textsubscript{e} -d\textsubscript{e}i
Chitra Ranjit read before what-book -Q
kieuwe?

read

“What book did Chitra read before Ranjit did?”

(c) ?*Chitra [Ranjit ei kiwanna issella] mon\textsubscript{e}-pot\textsubscript{e} -t\textsubscript{l}
Chitra Ranjit read before what-book -Q

16) Although a Weak Crossover effect is observed in an example like (31b), this effect vanishes if the object NP is fronted by scrambling:

(i) Mon\textsubscript{e}-pot\textsubscript{e}-d\textsubscript{e}i Chitra [Ranjit ei kiwanna issella] t\textsubscript{l} kieuwe.
what book-Q Chitra Ranjit read before read

“Chitra read what book before Ranjit did?”

Hoji (1985) argues, based on Japanese examples, that a sentence like (i) is a parasitic gap construction and that the parasitic gap is licensed by the syntactic movement, i.e., scrambling, of the wh phrase into A-bar position. Saito (1990), on the other hand, argues that since the gap does not show a Subjacency effect, it cannot be a parasitic gap. For detailed discussion on this issue, see Saito (1985, 1990) and Hoji (1985).
kieuwa.

"Chitra read every book before Ranjit did."

Since the contrast in acceptability between (31a) on the one hand and (31b)-(31c) on the other is quite comparable to what we observe in the English examples below, it seems reasonable to attribute the ungrammaticality of (31b) and (31c) to Weak Crossover:

(32) (a) Hisi mother loves Johni.
(b) ?*Whoi does hisi mother love?
(c) ?*Hisi mother loves everyonei.

If we are correct, the contrast in grammaticality which we find in (31) can be accounted for by the assumption that whereas the ordinary NP in (31a) is not moved by LF movement, the wh word and the quantified phrase in (31b) and (31c) are fronted by LF Wh movement and QR respectively, yielding a configuration in which an operator binds two variables, neither of which c-commands the other, as in (33):

(33) (a) [mon-pot-d*i [Chitra [Ranjit e1 kiwanna issella]
       ti kieuwe]
(b) [mon-pot-ti [Chitra [Ranjit e1 kiwanna issella]
       ti kieuwa]

The ungrammatical status of (31b) and (31c) is garnered from an LF construal which incurs a Weak Crossover violation. If our analysis is correct, then it is predicted that we will not observe any Weak Crossover effect if the trace arising from LF Wh movement c-commands the zero pronominal. This is indeed the case, as shown in (34):

(34) (a) Mon-pot-d*i [Ranjit e1 kiewanna issella]
       what-book-Q Ranjit read before
       wikinunee?
       was sold
“What book was sold before Ranjit read it?”

(b) Mon-pot-ti [Ranjit e; kiəwanna issella] what-book-Q Ranjit read before wikinunaa.

was sold

“Every book was sold before Ranjit read it.”

As indicated by (35), no Weak Crossover configuration arises in the case of (34), since the subject NP which is moved by a quantifier rule at LF c-commands the zero pronoun:

(35) (a) [mon-pot-d*i ti [Ranjit e; kiəwanna issella] wikinunee]

(b) [mon-pot-ti ti [Ranjit e; kiəwanna issella] wikinunaa]

This shows that the structural notion of ‘c-command’ is crucial for the well-formedness of a zero pronoun as a bound variable.

The same facts obtain for wh questions that contain a wh phrase within a syntactic island (as well as quantified sentences). It is argued in Choe (1987), Nishigauchi (1986) and others that the LF movement of a pied piped constituent can be evidenced by looking at a Weak Crossover effect in a wh question with a pied piped constituent. As we will see below, this argument goes through in Sinhala as well. Now, let us consider the contrast in acceptability between the following sentences:

(36) (a) Chitra [Ranjit e; gannə issella] [ [Ram liyəpu] potə] Chitra Ranjit buy before Ram wrote book wikka.

sold

“Chitra sold the book which Ram wrote before Ranjit bought it.”

(b) ?*Chitra [Ranjit e; gannə issella] [ [kauru liyəpu] potə-dəi wikke? Chitra Ranjit buy before who wrote book -Q sold

“Chitra sold the book that who wrote before Ranjit
bought it?"

The same pattern of distribution as (31a) and (31b) shows up in the pair of sentences above, in which the simple NPs ee-potə ‘that book’ in (31a) and monə-potə-daə ‘what book’ in (31b) are replaced with the complex NPs [Ram liyəpu] potə ‘the book that Ram wrote’ and [kauru liyəpu] potə-daə ‘the book that who wrote’, respectively.

The familiar pattern of acceptability exhibited in these sentences shows that (36b), but not (36a), involves the LF movement of a pied piped constituent. In (36a), no conceivable movement of the NP [Ram liyəpu] potə is involved in the LF component, so that the coindexing of the entire NP with the zero pronoun is permissible. In the case of (36b), in contrast, such coindexing is forbidden.

The fact shows that the NP [kauru liyəpu] potə, which is pied piped by the Q element, undergoes Wh movement at the LF level and that the movement yields a structure with the Weak Crossover configuration, as in (37):

(37) [ [kauru liyəpu] potə-daə [Chitra [Ranjit e₁ ganna issella] ti wikke] ]

Furthermore, just as is the case with (34a), which is associated with the movement of the simple wh phrase monə-potə-daə, we do not observe any Weak Crossover effect, if the whole complex NP [kauru liyəpu] potə-daə is situated in subject position, as demonstrated by (38):

(38) [Kauru liyəpu] potə-daə [Ranjit e₁ ganna issella] wikinunee?

who wrote book-Q Ranjit buy before was sold

"The book that who wrote was sold before Ranjit bought it?"

Here, it must be recognized that we observe the same Weak Crossover effect as (36b) with a sentence like (39), where the entire island comes with a Q particle expressing a universal quantificational force:
(39) Chitra [Ranjit e₁ ganna issella] [kauru liyəpu] potə-ti
    Chitra Ranjit buy before who wrote book-Q
    sold
(lit.) "Chitra sold every book that everyone wrote before
Ranjit bought it."

The unacceptability of (39) indicates that in the case of (39), the
entire island is subject to QR, and that the operation of QR yields
an LF structure which involves a Weak Crossover violation. This
fact shows that when movement of a quantified expression is ef-
ected by QR, we also observe a Weak Crossover effect.

Although the two LF movement rules discussed above, i.e.
QR and Wh movement, are not really distinguishable from each
other with regard to Weak Crossover in the sense that both move-
ment rules may give rise to Weak Crossover configurations, we
see that the Weak Crossover configuration in (37) posited for
(36b) is yielded via LF Wh movement, rather than QR, since
(36b) involves the attachment of the interrogative particle də to
the island.

In short, the Weak Crossover facts demonstrate that the pe-
culiar behavior of the zero pronoun found in (36b) and (38) auto-
matically follows if the coindexing relation between the complex
NP and the zero pronominal is analogous to that of the simple
NP and the zero pronoun in (31b) and (34a). Importantly, if the
whole island is analyzed as a constituent to get raised by Wh
movement, the notion of Weak Crossover can be naturally applied
to (36b) and (38), and all the properties of Weak Crossover ob-
served above follow in quite a straightforward manner. Unless the
whole complex NP is assumed to undergo movement with the
mediation of LF pied piping, there would be no easy way of ex-
plaining the contrast in grammaticality that obtains between (36b)
and (38).
4. Remarks on LF Representations

So far, we have been claiming that the distinguishing properties of Sinhala wh questions automatically fall out from the analysis which makes crucial use of the system of pied piping in the LF derivation of Wh movement. We have argued that the Wh question in (40a), in which the Q element $d\theta$ is adjoined to the complex NP containing *kohedi* 'where', has the LF representation in (40b):

\[(40)\text{(a)} \quad \text{[Ranjit kohedi gatt\(\theta\) pot\(\theta\)-d\(\theta\) hond\(\theta\)]} \]

Ranjit where bought book-Q interesting

"The book which Ranjit bought where was interesting?"

\[(40)\text{(b)} \quad \text{[CP [Ranjit kohedi gatt\(\theta\) pot\(\theta\)-d\(\theta\)i [IP ti- hond\(\theta\)]]} \]

In the LF construal in (40b), the entire island within which *kohedi* is contained is moved to SPEC of CP, and we claim that this movement is licit because Subjacency is obviously not violated by LF preposing of the whole island. (What is implicit in the proposed LF representation in (40b) is, as we will discuss below, that the Q element governs only the entire island, and that since the wh phrase is not vacated from its original position, the Q element does not govern the wh phrase.)

An important question that naturally arises at this point is whether or not we need to postulate the movement of the wh phrase, in addition to the movement of the entire island in a case like (40a). To be a little more specific, notice the fact that in the LF structure in (40b), which we have proposed in this paper, the wh phrase is not displaced from its original position by means of LF Wh movement. If it is assumed that the wh phrase is a syntactic operator, which needs to be located in A-bar position at the LF level, then it must be the case that further movement is required of the wh phrase in order to get the wh phrase in the right place. If so, it is quite likely that this sort of movement vio-
lates Subjacency.

There are a number of proposals for bringing about the effect that a wh phrase in an island can be exported from within the island. For example, it is claimed in Fiengo et al. (1988) that the desired results can be derived from the assumption that the movement of the island is implemented by QR, rather than LF Wh movement. According to Fiengo et al. (1988), an IP-adjoined constituent does not form a syntactic island for movement, so that LF movement of the wh phrase is possible from within the island. In such a case, an LF representation like (41) is derived from (40a):

\[
(41) \quad [CP \text{kohedi-da} [IP [Ranjit ti liyapu] pota] [IP t1 honda]]
\]

However, this proposal does not provide us with a real answer to the problem. If it is possible to apply QR to the entire NP and then extract a wh phrase, as argued by Fiengo et al. (1988), it is predicted that the Q element can be directly attached to the wh phrase, and that the sentence will not incur a Subjacency effect at LF. (Recall that the constituent marked by the Q element is moved by LF Wh movement in our account.) But the result is quite ungrammatical in violation of Subjacency, as illustrated by the ill-formedness of (42):

\[
(42) \quad *[Ranjit kohedi-da liyapu] pota hondo?
\]

Ranjit where-Q wrote book interesting

"Where was the book which Ranjit bought interesting?"

The ungrammaticality of (42) must result from an illicit LF movement which extracts the wh phrase from the complex NP. This fact gives us a good indication that Wh movement is not allowed over too long a distance even in LF, constrained by Subjacency. Therefore, if our analysis is correct, it is not possible to implement the idea by Fiengo et al. (1988) to derive an LF representation like (41) from the sentence in (40a).

The argument gains further support from the fact that the
same ungrammaticality obtains even if the whole island is turned into a quantified expression, with the attachment of a Q element:

(43) *[Ranjit kohedi-do liyopu] pota-t hondə?

Ranjit where-Q wrote book-Q interesting

“Every book which Ranjit bought where was interesting?”

In (43), the whole island is understood as a quantified expression, since the island is followed by a Q element expressing a universal quantificational force. If the assumption maintained by Fiengo et al. (1988) is extendable to Sinhala, the sentence is predicted to be well-formed. However, Sinhala clearly does not allow this possibility, and hence we can conclude from this that LF Wh movement is not capable of extracting a wh phrase from a position internal to an IP adjoined constituent. In short, the Sinhala sentence in (43) shows that the arguments by Fiengo et al. (1988) do not hold, at least, for Wh movement facts in Sinhala.

These considerations seem to show us that a wh phrase within an island is affected by LF Wh movement, and does not move from its original position. This is indeed what we would like to propose here. Essentially, this proposal amounts to saying that a wh phrase, if embedded in an island, does not serve as a syntactic operator, and that in such a case, the wh phrase is not moved by LF Wh movement, the sole operator being the entire island.

In connection with this point, notice that some sort of binding relation must obtain between the Q element and the wh phrase, since the wh phrase is an indeterminate word. We claim, contra Nishigauchi (1986, 1990), that this type of binding relation is established if the wh phrase is contained within a constituent marked by the Q element. This means that while the Q element governs the island to which it is attached, it does not have a government relation with the wh phrase. This makes the relation between the Q element and the wh phrase different from the relation between
the Q element and the island which contains the wh phrase in it.

The question is whether this analysis finds an empirical support. A piece of suggestive evidence that supports the view can indeed be obtained by looking at the contrast in acceptability between the sentences below (with the intended bound variable interpretation for the zero pronoun):

(44)(a) [Kauru liyəpu] potə-daɾ [Ranjit e₁ kiəwanna issella] who wrote book-Q Ranjit read before wikinunee?
was sold
“The book that who wrote was sold before Ranjit read it?”

(b) *[Kaurul liyəpu] potə-daɾ [Ranjit e₁ hambə wennə who wrote book-Q Ranjit meet become issella] wikinunee? before was sold
“The book that who wrote was sold before Ranjit met him.”

In (44a), the empty pronoun can be evaluated as a bound variable having the complex NP [kauru liyəpu] potə ‘the book that who wrote’ as its antecedent, while the zero pronoun cannot be anaphoric to the wh phrase embedded in the island, i.e. kauru ‘who’, as illustrated in (44b).

It is important to keep in mind that the bound variable interpretation for the zero pronoun is available if a quantified expression serving as a syntactic operator holds a c-command relation with the zero pronoun (at LF). The binding facts in (44) indicate that the complex NP may serve as a syntactic operator in its entirety, whereas the wh phrase embedded within the island does not. If the wh phrase were extracted from the island, as in (41b), (with or without subsequent LF reconstruction) (cf. Chomsky (1981)), then it would be expected that the zero pronoun in (44b) could be
bound by the wh phrase *kauru*. But the facts are not in accord with the prediction.

It should be noted that the Sinhala facts are also at variance with Nishigauchi's (1986, 1990) analysis based on unselective binding. Before proceeding, let us first note that in Sinhala, since an NP expression is turned into a quantified expression with the addition of a Q element, we can assume that that *[kauru liyəpu] potə*-də* is a quantified phrase headed by the Q element, as in *[QP [NP [kauru liyəpu] potə] -də]*. If this view is correct, what c-commands the zero pronoun in the sentences in (44) is the quantified phrase (QP) headed by the Q element and so we can check the construal of the Q element by looking into what can bind the zero pronoun. Given this assumption, we can readily demonstrate that Nishigauchi's argument for the unselective binding analysis fails to hold in Sinhala.

In Nishigauchi's analysis, a Q element is taken as serving an unselective binder, and when a wh phrase is embedded in a syntactic island, both the island and the wh phrase are assumed to get governed by the Q element. Under Nishigauchi's analysis, it is assumed that the government relation between the Q element and the wh phrase obtains when the feature of the wh phrase, [+WH], is percolated up to the entire island (through a percolation chain). If Nishigauchi's analysis is correct, it is predicted that the wh phrase and the island should be on a par with regard to variable binding, since both of them are bound by the Q element in unselective fashion. (Nishigauchi (1986, 1990), in fact, argues for the presence of this type of binding relation, basing his discussion on Japanese data. 17) But this is clearly not the case in Sinhala, as indicated by the pair of sentences in (44). In the face of the ex-

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amples in (44), therefore, it should be obvious that Nishigauchi's analysis cannot be maintained in Shinhala.

The fact that the zero pronoun can in no way be bound by the wh phrase embedded in the island can be taken as evidence showing that the Q element does not license the wh phrase in a way similar to the island. It is true that a wh phrase must be associated with a Q element in some way, but this does not necessarily lead us to conclude that a wh phrase must be construed with a Q element under government. In view of the fact that there is a contrast in acceptability between (44a) and (44b), it is more feasible to state that movement of a wh phrase is motivated only if it is governed by a Q element without pied piping, and that if a wh phrase is embedded in a syntactic island, no movement is instantiated. If the analysis is correct, then this means that the binding relation may be established between the Q element and the wh phrase if the wh phrase is contained in the island to which the Q particle is attached.

In conclusion, the data given in (44) shows that being a wh phrase does not suffice to qualify as a syntactic operator that must undergo Wh fronting. The distribution of a Q element in a wh question indicates that whatever is associated with a Q element under government is understood as a syntactic operator, and nothing else. All in all, it can be concluded from this that a wh phrase embedded in an island cannot acquire the status of a syntactic operator at all, and hence that it does not undergo LF Wh movement.

5. Conclusion

In this paper, we have shown, based on Sinhala data, that LF Wh movement is constrained by Subjacency, and that the apparent immunity to Subjacency is drawn from LF pied piping. In the course of the discussion, we have seen that regular wh phrases are
indeterminate words whose quantificational force has to be defined in terms of a Q element. It has been claimed that as a Q element in Sinhala serves as a Q-domain marker, the operation of pied piping is performed by suffixation of a Q particle to a syntactic island. It has also been argued that the incompatibility of pied piping with a ‘why’ expression is due to the fact that it is an inherent wh operator, which cannot be combined with a Q element. The proposed analysis strongly suggests that LF Wh movement bears a striking similarity to S-structure movement in regard to Subjacency.
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LF バイドバイピング：シンハラ語からの証明

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さらに，本稿では，シンハラ語のデータをもとに，通常の WH 句は，不定語であり，その量化の力は，外部の Q 要素によって決定されるために，統語におけるバイドバイピングの操作が可能になることを示す．シンハラ語の場合，Q 要素は，WH 句の量化領域を決めるマーカーであって，WH 句が島に付加される Q 要素によって束縛を受けることにより，バイドバイピングが可能となる．このような主張の正しさは，バイドバイピングを許さないような WH 句を見ることによって確認でき，シンハラ語の場合，このような WH 句は，その意味の中に Q 要素の意味を含んでしまって，外部の Q 要素と共起しない固有の WH 演算子である．このようなバイドバイピングを許さない WH 句の特徴は，Nishi-
uchi (1986, 1990) において主張されているような WH 句の [+]N [−N] といった語彙性は、パイドパイピングの可能性とは直接関連がないことを示しており、パイドパイピングの可能性は、WH 句が独立の Q 要素によって量化領域が決定できるか否かによって決定されるということを示している。

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