Wh-interrogatives and word order

In the previous chapter, I have discussed the word order effects that result from the interaction between the constraints that derive the unmarked word order in Spanish and those related to information structure. In this final chapter, I discuss the effects on word order that result from the interaction of these two sets of constraints with the constraints that govern the behavior of *wh*-interrogatives. My central claim about the word order of *wh*-interrogatives is that fronted *wh*-operators in Spanish have the Pole as their landing site, all else being equal. Accordingly, they satisfy the EPP and make fronting of an agent subject or a dative experiencer unnecessary. However, a conflict arises when there is both a topic and a *wh*-operator in the representation, since the Pole is also the landing site of topics, as discussed in §4. I argue that the relative word order of topics and *wh*-operators that is observed in this case can be understood as the result of the interaction between the TOPFIRST constraint, the constraints that penalize vacuous structure, and the constraint that derives *wh*-movement in the first place.

5.1 *Wh*-interrogatives in Spanish

In this section, I introduce the two issues that will be the subject of analysis in this final chapter, both of which are related to *wh*-movement in interrogative clauses. The first one concerns the relative word order of fronted *wh*-operators with respect to subjects that would occupy the preverbal position in the unmarked case. The second issue concerns the relative word order of fronted *wh*-operators with respect to fronted topics. The discussion of these issues in this section is essentially descriptive. I delay theoretical considerations until sections §5.2 and §5.3.

One of the most notable and amply studied characteristics of Spanish is that, in a number of dialects in this language, the preverbal position cannot be occupied by the subject when a *wh*-operator is fronted in interrogative clauses (Meyer 1972, Torrego 1984, inter alia). This is shown by the examples in (1–3) from Mexican Spanish.

(1) a. Qué compró Juan?
   What bought Juan
   'What did Juan buy?'

b. *Qué Juan compró?
   what Juan bought
   (2) a. Cuándo compró Pedro el periódico?
   when bought Pedro the newspaper
   'When did Pedro buy the newspaper?'

b. *Cuándo Pedro compró el periódico?
   when Pedro bought the newspaper

There are no uniform judgments across speakers of Mexican Spanish for *WH-Subj-V* examples with *reason* operators in matrix clauses like (3). The double interrogation mark (??) is meant to indicate that judgments from most of the speakers consulted run from slightly deviant (?), to ungrammatical. However, some speakers do accept (3b). For reasons that will become clear in what follows, I assume that there are two different varieties of Mexican Spanish, which are minimally different in this respect. In this chapter, I only provide an analysis of the variety illustrated in (1–3) since, as we shall see, *wh*-interrogatives in this variety display an interesting matrix-subordinate asymmetry. The analysis of the variety where (3b) is acceptable, which does not display this asymmetry, is included in Appendix A.
(3) a. Por qué compró Pedro el periódico?
'Why did Pedro buy the newspaper?'

b. ¿Por qué Pedro compró el periódico?
'Why Pedro bought the newspaper'

However, it is also well-known that not every variety of Spanish behaves in this way. Torrego (1994) noted for Peninsular Spanish that preverbal subjects are not allowed when the wh-operator corresponds to an argument, as shown in (4), but they are permitted otherwise, as shown in (5). It is also well-known that the Caribbean varieties of Spanish allow preverbal subjects with any kind of wh-operator (see Suñer 1994), as shown in (6).

(4) Peninsular Spanish (Torrego 1994)
a. Qué querían esos dos?
'What did those two want?'
b. *Qué esos dos querían?
'What those two wanted'

(5) a. Cuándo Juan consiguió por fin abrir la puerta ayer?
'When did John finally get to open the door yesterday?'
b. Por qué Juan quiere salir antes que los demás?
'Why does Juan want to leave before the others?'

In his cross-dialectal OT analysis of wh-questions in Spanish, Bakovic (1998) discovered that there is an intricate implicational relationship among the types of wh-phrases that can co-occur with preverbal subjects in any given variety of this language.

Given the scale in (7) (see §3.2), if preverbal subjects are allowed with a wh-operator with a semantic role X, then they are also allowed with wh-operators with every semantic role less prominent than X.

(7) Bakovic (1998: 37)

In other words, if a variety of Spanish allows a direct object operator to co-occur with a preverbal subject, then it allows every kind of wh-operator to do so. This corresponds to the Caribbean variety illustrated in (6). Similarly, if a variety allows for preverbal subjects to co-occur with a manner-of-phrase, then it also allows them to co-occur with a preverbal subject. Crucially, there is no equivalent scale that is well-known across varieties of Spanish. Therefore, the phenomena described above do not correspond to an implicational hierarchy among the types of wh-phrases that can co-occur with preverbal subjects in Peninsular Spanish. The gap in this scale is a direct result of the absence of wh-operators in Spanish (Kaplan 1969).

(6) Caribbean Spanish (Suñer 1994)
a. Qué Ivan dijo de eso?
'What did Ivan say of that?'
b. Cuando un implante dental es exitoso?
'When is a dental implant successful?'

However, it is also well-known that not every variety of Spanish behaves in this way. Therefore, the phenomena described above do not correspond to an implicational hierarchy among the types of wh-phrases that can co-occur with preverbal subjects in this language.
variety that, say, allows preverbal subjects to co-occur with \textit{wh}-operators but not with \textit{reason} operators. Bakovic further discovered that some varieties display matrix-subordinate asymmetries in this respect. Descriptively, some varieties allow for preverbal subjects to co-occur with \textit{wh}-operators in embedded interrogatives where this would not be allowed in matrix interrogatives. The cases where preverbal subjects co-occur with \textit{wh}-operators in embedded interrogatives follow the same implicational relation discussed above, but there is a further implicational relationship at play here. If preverbal subjects are not allowed with \textit{wh}-operators of type \textit{x} in embedded interrogatives, then this pattern is also disallowed in matrix questions, but not vice versa. As noted by Bakovic, this means that there are varieties of Spanish where preverbal subjects in embedded interrogatives are allowed to co-occur with more kinds of \textit{wh}-operators than in matrix interrogatives, but there is no variety in his survey where preverbal subjects in matrix interrogatives are allowed to co-occur with more kinds of \textit{wh}-operators than in embedded interrogatives.

The variety of Mexican Spanish under consideration here is in fact a variety that displays such a matrix-subordinate asymmetry. In contrast with (3b), preverbal subjects are allowed to co-occur with a \textit{reason} operator in embedded interrogatives, as shown in (8a).

\begin{itemize}
  \item (8a) \textit{Yo quiero saber \[ por qué Pedro compró el periódico\].} \\
  \textit{I want to know why Pedro bought the newspaper.}
\end{itemize}

However, when the \textit{wh}-operator is a \textit{manner} operator, there is no is considerable evidence that an inversion (i.e., I-to-C) analysis of Spanish interrogatives is not adequate. I address this issue in detail in §5.3.

It is important to note that this phenomenon is not dependent on the specific nature of the matrix verb. In Spanish the sentential complements of verbs of illocution, such as \textit{preguntar} ‘ask’, allow CP recursion, as shown in (1-3), (9) and (10). The relevance of the contrasts in (8-10) for our analysis is straightforward. In an analysis where fronted \textit{wh}-operators occupy the Pole position (see §2.3.1) the pattern observed in Mexican Spanish in (1-3), (9) and (10) is unsurprising. Since the \textit{wh}-operator occupies the Pole position, it also satisfies the EPP and fronting of the subject, as discussed above. However, when the \textit{wh}-operator is a \textit{manner} operator, there is no recursion in LDEF. The relevant facts are shown in (3b).

\begin{itemize}
  \item (3b) \textit{Yo quiero saber \[ cómo Pedro arregló la tele\].} \\
  \textit{I want to know how fixed the T.V.}
\end{itemize}
becomes unnecessary. However, the presence of both a preverbal subject and a reason wh-operator in (8a) now requires an explanation.

The second issue that I address in this chapter concerns the relative word order of fronted topics and wh-operators. In Spanish, topics precede wh-operators, as is well-known (see Meyer 1972, Fontana 1994, Zubizarreta 1998, inter alia). This is the case both when the topic corresponds to a subject and to a non-subject, as shown in (11).

(11) a. Juan cuándo llegó? [Top - Wh] Juan when arrived ["When did Juan arrive?"

b. Los discos quién los compró? [ACC - CL] bought ["Who bought the records?"]

The reverse order is not possible, as shown in (12) for a DO topic.

(12) *Quién los discos los compró? [Wh - Top] [ACC - CL] bought ["Who bought the records?"]

Within an analysis of the left periphery along the lines of Rizzi (1997), this fact would follow if in Spanish all Topic Phrases dominate the phrase whose specifier hosts the wh-operator (a Focus Phrase in Rizzi 1997). This would be in contrast with what is observed in Italian, where there are Topic Phrases both above and below the Focus Phrase. However, the Spanish pattern cannot be reduced to (13b), since when the reason operator in embedded interrogatives is involved, we find exactly the order [FocP [TopP ...] ], which is not permitted under (13b). This is shown in the examples in (14). Notice that this is the reverse order from the one observed in (11).

(14) a. Yo quiero saber [por qué ayer llegó tarde Juan]. [Wh - Top] [ACC] [DAT] ["I want to know why yesterday arrived late Juan."]["I want to know why Juan arrived late yesterday."]

We have good reason to think that the subject in (11a) is a topic, since it corresponds to the subject of an unaccusative verb. Hence, it would not otherwise appear in the preverbal field, as discussed in §3 and §4.3.
Furthermore, when the reason wh-operator is involved in Mexican Spanish embedded interrogatives, the order [TopP [FocP [ ... ]]] is disallowed, again contrary to (13b). This is shown in (16), to be compared with (14).

(16)

a. ??Yo quiero saber [ayer por qué llegó tarde Juan].
   I want to know [yesterday why arrived late Juan]

b. *Yo quiero saber [al presidente por qué les toman esa clase de fotos].
   I want to know to-the president why DAT they take that class of photos

In an exploded CP analysis like (13), the data in (14) and (16) cannot be accounted for straightforwardly. Such an analysis would need to stipulate a template of C-related projections ([TopP [FocP [ ... ]]]) for embedded interrogatives with reason operators, and a different template altogether ([TopP [FocP [ ... ]]]) for all other cases. Furthermore, even if this were a possibility such an analysis would still need to provide an explanation of why this asymmetry exists in the first place.

One may try to find a solution to this problem in the fact that reason adverbials behave differently from other kinds of adverbials in some languages. For instance, Rizzi (1990) suggests that reason wh-operators are base-generated in [Spec, C], in contrast with other kinds of operators. There are two reasons why such an analysis is unattractive. First, this analysis would still not explain the matrix-subordinate asymmetry observed in Mexican Spanish. If we claim that (8) and (14) are possible because the reason operator can be base-generated in a position above the position occupied by the subject or topic, we still need to explain why this is a possibility in embedded but not in matrix interrogatives. Notice that we cannot go around this problem by suggesting that only embedded clauses have a CP layer, since wh-operators and fronted topics in matrix clauses are equally hosted in C-related projections in an exploded CP analysis. Second, such an analysis would fail to capture the fact that the pattern of Mexican Spanish simply corresponds to a point in a larger continuum, as discussed in Bakovic (1998). In other words, in Mexican Spanish preverbal subjects can only co-occur with reason operators (in embedded interrogatives) but as we have seen, other varieties allow this pattern with a wider variety of operators, and Suñer's data in (15) suggests that this pattern extends to preverbal topics too.

My analysis of topicalization (§4.3) does not involve Topic Phrases, and so it avoids these problems altogether. However, the data in (11-12), (14) and (15) still require an explanation. Clearly, simply stipulating that TOPIC FIRST is undominated in Mexican Spanish, as assumed in §4.3, will not suffice. This is because the wrong result would be derived for (14) where the wh-operator precedes the topic.

In the remainder of this chapter, I provide an analysis of the facts from Mexican Spanish. I argue that the sensitivity of [Spec, I] to the semantic role of the constituent that occupies it is crucial for understanding the matrix-subordinate asymmetry discussed above, which in turn provides further evidence for the notion of the Pole.
Clausal Typing Hypothesis (Cheng 1991: 30)

Every clause needs to be typed. In the case of typing a wh-question, either a wh-particle in C₀ is used or else fronting of a wh-word to the Spec of C₀ is used, thereby typing the clause through Spec-head agreement.

Cheng thus develops a transformational analysis where the scope and absorption properties of wh-operators are universally satisfied at LF. The difference between languages that show overt wh-movement vs. those that do not ultimately corresponds to a difference between languages that do not have true interrogative complementizers (and which accordingly resort to wh-movement to signal the clause as an interrogative) and those that do.

Cheng's analysis explains why in clauses with multiple wh-phrases like (18), one of the wh-phrases stays in-situ. In order to satisfy the typing requirement, it is only necessary to move one of them to Spec-CP; all other movement is ruled out by Economy of Movement.

(18) [CP Who bought what]? (Cheng 1991: 30)

Ackema & Neeleman (1998a, 1998b) develop an OT analysis of wh-interrogatives closely related to Cheng's. They propose that in languages like English, interrogative

I will not follow Cheng with respect to this last point, though, which brings with it the conclusion that English complementizers like whether and if are not inherently interrogative (see Cheng 1991 for discussion). Although I will have relatively little to say about the typology that emerges from the OT analysis that I develop building on Cheng (1991), we will see that in such an OT analysis we are not forced to conclude that languages can only have one of the two typing mechanisms in (17).

This is in contrast with the Wh-Criterion of Rizzi (1996), for which examples like (18) are problematic. See Rizzi (1996) for discussion and for a possible solution.

Q-MARKING

A question must be overtly Q-Marked. In a question, assign a [+Q] feature to the constituent corresponding to the proposition.


Q-MARKING requires that in questions, the proposition that is immediately subjacent to CP (VP in Ackema & Neeleman 1998a) be assigned the feature [+Q]. In the case of languages subject to Q-Marking, there are two ways in which this can occur. The first one is when the [+Q] feature is provided by a wh-phrase. In this case,

(20) John wonders [if you have seen the soccer match].

The second way is when the [+Q] feature is provided by a wh-phrase in this case:

(21) Wh-question in Clauses' They proposed that in the clause the English interrogative

Economy of Movement

is not needed. Instead, the clause through Spec-CP is needed.
What have you seen?

This proposal explains why adjunction of the wh-operator to IP (or VP in Ackema & Neeleman's terms) in English, as in (22), is not an option, since the appropriate Spec-head configuration is not established.

As in Cheng (1991), a central characteristic of this proposal is that wh-movement (in some languages) is independent from scope considerations. However, in contrast with Cheng's proposal, in Ackema & Neeleman's analysis there are languages where overt wh-movement is related to scope, namely, the Slavic languages which show multiple wh-movement. They propose that besides Q-MARKING there is a constraint Q-SCOPE that requires wh-operators to c-command the constituent corresponding to the proposition. In languages like English, S-TAY outranks Q-SCOPE. As a result, once one wh-operator has been fronted to satisfy Q-MARKING in cases of multiple-wh, the other wh-operators remain in-situ. In contrast, the Slavic languages which show multiple wh-movement are characterized by a ranking where Q-SCOPE outranks S-TAY, with the result that all wh-operators are fronted to their respective scope positions in the left periphery of the sentence.

There are two minor technical issues that are somewhat problematic for the Q-MARKING analysis, though. The first concerns subject wh-operators. Following standard OT assumptions, in this case the subject does not move beyond the position where it is assigned Case ([Spec, V]) in Ackema & Neeleman's proposal), as in (23).

But now the VP that corresponds to the proposition is not assigned the [Q] feature in a head-complement configuration.

It is my sense, however, that Ackema & Neeleman's Q-MARKING analysis (where the scope of wh-operators is not specified in the input) is not incompatible with analyses where scope is specified in the input, as in Legendre et. al. (1995) and Legendre et. al. (1998). When contrasted with these analyses, the result would be that wh-movement in languages like English and Spanish is not the result of mapping the scope in the input to the surface representation (i.e., it is not a Faithfulness-to-scope issue). Crucially, it seems to me that the scope specifications in the input would still be relevant for deriving the interpretive properties of wh-operators. As a result, I believe that the most comprehensive analysis of wh-movement in languages like English and Spanish would be one that takes into account the interaction between Q-MARKING and constraints that require Faithfulness to the scope properties in the input. Here I will not attempt to develop such a proposal, though, since the interpretive properties associated with scope are not crucial for accounting the surface word order of wh-operators in Spanish.

Further notice that the distinction between wh-fronting derived by clause typing and wh-fronting derived by scope opens the possibility for an alternative to the analysis of the partial wh-movement facts developed in McDaniel (1989) for German and Romani. In partial wh-movement, a wh-expletive is found in a higher specifier position than the one occupied by the wh-operator that it is associated with. However, as noted by McDaniel, this has the consequence that the wh-operator in partial wh-movement ends up in a Spec-CP position that is [-WH], in contrast with what is observed with full wh-movement. In other words, a fronted wh-operator marks the clause as interrogative in full wh-movement but not in partial wh-movement. Given Ackema & Neeleman's proposal, this is not entirely surprising. It is possible that in the former case the wh-operator simultaneously moves to take scope and to mark the clause as interrogative, whereas in the latter case it just moves to have scope over the open proposition. This is a possibility that I leave open for future investigation.
To solve this problem, Ackema & Neeleman (1998a) propose that feature percolation is an alternative way of Q-marking. The subject wh-operator in (23) provides the verb with the [Q] feature, which then percolates to the VP, satisfying Q-MARKING. Although this is not a serious problem, ideally the effects in (20), (21) and (23) should all be derived by the same mechanism.

The second problem is somewhat more delicate. Ackema & Neeleman (1998a) note that their analysis predicts that (24) should be a possible output in English (with a non-echo reading), contrary to fact. This is because the interrogative complementizer is all that is needed to Q-mark the VP, so the wh-operator does not need to be fronted.

(24) *Mary wonders if John loves who.

To solve this problem, Ackema & Neeleman (1998a) propose the redefinition of Q-MARKING in (25). This redefinition implies that every wh-operator in a clause must "discharge" (i.e. transfer) its own [Q] feature on the VP. For this to happen, every wh-operator must be in the appropriate Spec-Head configuration in the output. This condition is not met in (24), where who stays in situ. Its [Q] feature is not "discharged" on the VP and so Q-MARKING is violated.

Alternatively, if the analysis developed in §2.1.2 is adopted, this problem does not arise in the first place. This is because in this analysis the minimal matrix clause is IP and not VP, so the subject in (23) would be in [Spec, I] and not in [Spec, V] to begin with.

The new definition still rules out multiple wh-fronting in English. This is because only one wh-operator can be in the appropriate Spec-Head configuration to transfer its [Q] feature to the head that will ultimately Q-mark the VP. Fronting of more than one wh-operator thus results in extra violations of STAY that cannot improve the structure with respect to Q-MARKING.

However, it seems to me that this new definition dilutes too much the distinction between wh-movement driven by clause typing and wh-movement driven by scope considerations. In both cases every wh-operator must be fronted, but in languages where wh-movement is driven by clause typing, multiple wh-fronting happens to be ruled by the fact that only one wh-operator can be in the appropriate Spec-Head configuration that will allow it to transfer its [Q] feature to the VP.

To tackle these issues, I propose the effects of Q-MARKING can be reduced to a condition that requires the head of the highest phrase in the Extended Projection to bear the feature [Q]. This is closer in spirit to Cheng's original proposal and avoids the two complications of the Q-MARKING analysis. I formalize this condition as in (26).

Under the assumption that multiple specifiers are not allowed in languages like English, Ackema & Neeleman (1998a) do not explicitly make this assumption, but it is clearly necessary for their analysis to go through.

Notice that once (25) is adopted, constructions with wh-in situ violate Q-MARKING once for every wh-operator that stays in situ, which is not the case with the first definition of this constraint. See Ackema & Neeleman (1998a) for details.
(26) INTERROGATIVE CLAUSE CONDITION (ICC)

A clausal Extended Projection is interrogative iff the head of the highest phrase in the Extended Projection bears the feature [Q].

I follow Ackema & Neeleman in assuming that this constraint can be satisfied in two different ways. The first is when the head of the highest phrase in the extended projection inherently bears the [Q] feature (i.e. by *whether* or *if* in English).

The second is by Spec-head agreement between a *wh-*operator and the highest head in the extended projection.

However, like Cheng (1991) and Rizzi (1996), and contra Ackema & Neeleman (1998a), I assume that the head involved can be either overt or null.

Specifically, I follow Cheng (1991) in assuming that in English subordinate interrogatives the appropriate Spec-head configuration is established between the fronted *wh-*operator and a null functional head, as in (27).

In this I depart from analyses like Kayne (1990) where *whether* is analyzed as an XP. This assumption will have no consequences in the discussion that follows.

Ultimately this implies that there must be two different sets of *wh-*operators, those that bear the feature [Q] and relative operators, which do not. This is indeed the case in German, as reported in McDaniel (1989:598), and it is also partly confirmed in Spanish, where there are interrogative operators like *por qué* 'why' which cannot be used in relative clauses and relative operators that cannot be used in interrogative clauses, such as *por el cúal* 'why', *al que* '(to)whom', *cuyo* 'whose', etc. The important point is that nothing in principle rules out a language with partial or total homophony among the operators in both sets.

In Ackema & Neeleman's analysis, the appropriate Spec-head configuration can only be established with an overt head. I-to-C movement in English matrix interrogatives then becomes necessary to establish the required Spec-Head configuration between a fronted *wh-*operator and an overt head. For English subordinate interrogatives Ackema & Neeleman (1998a) propose that the Spec-head configuration is established between the fronted *wh-*operator and an overt complementizer that is part of the input. The complementizer is then deleted in order to satisfy the OT-constraint that corresponds to the Doubly Filled Comp Filter (Pesetsky 1998). Instead I follow the analysis in Grimshaw (1997), where I-to-C in English matrix interrogatives is instead the result of the high ranking of the Ob-HD constraint, and its absence in subordinate interrogatives is the result of the high-ranking PRE-EP constraint (which penalizes movement into the highest head position of a subordinate extended projection). See also §5.4.

The analysis of *wh-*interrogatives that results from the ICC captures Grimshaw's (1997, 2000) observations about Economy of Projection and is compatible with the analysis of *wh-*movement in English in Grimshaw (1997). Following Grimshaw (1997), when the *wh-*operator has to land in Spec-IP for independent considerations (i.e. Case for a subject *wh-*operator), it does not need to move any further (see (28a) below). In terms of my proposal this is because the ICC can be met without the need to project another phrase above IP. *I* acquires the [Q] feature through Spec-head agreement with the *wh-*operator in Spec-IP and the ICC is satisfied. When Spec-IP is already occupied, CP is projected to host the *wh-*operator in its specifier, as in (28b).

I-to-C movement follows from the high ranking of Obligatory Head (Ob-HD) in English. The necessary Spec-head configuration is now established between the *wh-*operator and the inflectional head in C. In this way, I-to-C movement in English (1997) proceeds to the right of the extended head (Ex-H) in accordance with the IC-Projection Head (IC-PH) in (28).

Another consequence of the ICC is that the *wh-*operator can now be moved into the highest head position of a subordinate extended projection, whereas before it did not have a position available to it. This is important because it allows for the phenomenon of *wh-*movement in English (1997) to be explained in terms of the high ranking of the Ob-HD constraint, and the ICC can be met without the need to move any further (see (28a) above).

I-to-C movement in English (1997) follows from the high ranking of Ob-HD, whereas before it did not have a position available to it. This is important because it allows for the phenomenon of *wh-*movement in English (1997) to be explained in terms of the high ranking of the Ob-HD constraint, and the ICC can be met without the need to move any further (see (28a) above).

The presence of the ICC in English is therefore compatible with the presence of I-to-C movement in English.

(27) a. [IP Who ate the bagels?]

b. [CP What did [IP John eat]?

Notice that another consequence of this analysis is that selection is no longer a problem (cf. Grimshaw 1997). A verb like *wonder* simply selects a [Q] sentential complement.
complement, as defined by the ICC. As long as the head of the highest phrase in the extended projection bears the feature \[Q\], it does not matter if the sentential complement is CP or IP. In both cases the result is head-to-head selection, as illustrated in (29).

(29) a. I wonder \[CP which coat \[C Ø \[IP you should wear\] \[Q\].

b. I wonder \[CP if \[IP he saw her \[Q\].

c. I wonder \[IP who can bring the bagels \[Q\].

To address the problem presented by (24) (*Mary wonders if John loves who*), we need to consider how the ICC relates to the input. I assume that the interrogative value of a clause is specified in the input by an abstract morpheme \[Q\] (Baker 1970). The input of a *wh*-question like (30a) thus corresponds to (30b).

(30) a. What did you buy?

b. \(< \[Q\] buy (x, y), x=[2nd.Sing], y=[+wh] >

It is important not to confuse the abstract morpheme \[Q\] with the operator \[Q\] of Legendre et. al. (1998), who also build on Baker's (1970) analysis. In my proposal \[Q\] is just an abstract morpheme that specifies an interrogative value, as in Baker's original analysis (it can be thought of as the shorthand notation of [+interrogative]). It does not represent a given scope, and I have only included it in the present discussion for the sake of exposition. (11) shows how an interrogative \[Q\] operator (as in (24)) can select a sentence in the output, in the OT analysis.

Consider now the following. In an OT analysis, it is possible to assume that complementizers are never part of the input, as in Grimshaw (1997) (see also Asudeh 2001). This is a reasonable assumption, since the input is nothing more than a predicate-argument structure plus tense/aspect specifications, plus scope specifications for certain kinds of elements. Accordingly, I assume that the presence of a complementizer in the output representation violates FULL-INTERPRETATION. I also adopt the assumption of Grimshaw (1997) that the presence of a complementizer in the output representation imposes the constraint FULL-INTERPRETATION, which is expressed as the condition on the output in the syntactic representation.

In the analysis of the data presented by Grimshaw (1997), it is assumed that the presence of a complementizer in the output representation involves the constraint FUL-INTERPRETATION, which is expressed as the condition on the output in the syntactic representation. However, as discussed in footnote 12, a proposal along these lines is compatible with an analysis where an operator in the input determines the scope of *wh*-operators. This is in contrast with Bakovic & Keer (2001), where complementizers are proposed to be part of the input in order to account for the optionality of *that* in English subordinate clauses. Although I cannot address Bakovic & Keer's analysis in detail, two observations are relevant here. First, Bakovic & Keer's proposal is devised to avoid the numerous problems that result from the analyses of optionality in Grimshaw (1997) and Pesetsky (1998). However, more recent analyses of optionality, such as Boersma & Hayes (2001), equally avoid the problems of the earlier analyses and do so without the need to make special assumptions about the input. Second, in any event it is not immediately clear if Bakovic & Keer's analysis of *that* (and the issues of optionality that engendered it) is relevant for interrogative complementizers, since these are essentially obligatory.
(32) INPUT: \(< [Q](love (x, y)), x=John, y=\[wh]\> 

a. Mary wonders \([\text{who} \text{ John loves}]\).

b. Mary wonders \([\text{if John loves who}]\).

c. Mary wonders \([\text{John loves who}]\).

With the ranking \text{FULL-INTERPRETATION} >> \text{STAY}, the optimal candidate is the one that moves the \[wh\]-phrase to Spec-CP (candidate 32a), since this is less costly than to insert a complementizer in the representation. Candidate (32b), which does insert a complementizer, is ruled out by its fatal violation of \text{FULL-INTERPRETATION}.

Trivially, candidate (32c) loses because of its violation of ICC, since in this case there is neither a \[wh\]-phrase nor a \[Q\] complementizer to signal the clause as an interrogative.

However, a crucial characteristic of my proposal is that in the absence of a \[wh\]-phrase, the ranking ICC >> \text{FULL-INTERPRETATION} does force the insertion of an interrogative \[C\], because otherwise the ICC would be violated. This is shown in tableau (33).

Tableau (33) shows how the absence of a \[wh\]-phrase would lead to the insertion of an interrogative \[C\], according to my proposal. As discussed in \S5.1, 'external subject' \[wh\]-interrogatives and 'internal subject' \[wh\]-interrogatives in Mexican Spanish are treated in distinct ways.

Having characterized my assumptions on the conditions responsible for the fronting of \[wh\]-operators in languages like English and Spanish, I now proceed to provide an account of the word order properties of \[wh\]-interrogatives in Mexican Spanish.

5.3 Matrix interrogatives in Mexican Spanish

5.3.1 Basics of the analysis

Consider again matrix \[wh\]-interrogatives in Mexican Spanish. As discussed in \S5.1, preverbal subjects cannot co-occur with \[wh\]-operators of any kind in this environment. The relevant examples are repeated in (34).

(34)a. Por qué compró Pedro el periódico? 

b. ??Por qué Pedro compró el periódico?

Following the analysis developed in chapters \S2-4 and the characterization of \[wh\]-interrogatives in \S5.2, my proposal is that \[wh\]-operators in Spanish move into the \text{Pole to satisfy the ICC}. The structure of (34a) under this analysis is presented in (35).
In the present section in English a possible Head movement is depicted in Figure 3. It shows the correspondence between word order of a movement operation that derive the corresponding sentence word order by means of a movement operation in the appropriate Spec-Head configuration. At this point it is worth comparing the analyses in (35) with alternative analyses.

5.3.2 Against inversion analyses

However, WH-VO is clearly an acceptable word order, as shown by the common evidence in Spanish and other languages, because of their violation of the EPP. The inversion word order is observed in 8.3.2 that VO order is observed in Spanish. This is needed when a movement would otherwise be needed or because of a "causal" construction where one assumes that the EPP is determined by movement. According to the analyses in (35), a WH-movement can be found in IP Eléctric. A different WH-movement would be a deeper embedding can be found in IP Eléctric. A different WH-movement would be a deeper embedding.
Translating Torrego's proposal into contemporary terms, in example (34a) the subject does occupy the preverbal "subject" position, but movement of the verb from I to C derives the observed surface order, as illustrated in (38).

(38) [CP Por qué compró [IP Juan [t [VP t [j [el periódico ]]]? why bought Juan the newspaper]

From this perspective, (34b) and similar examples (examples (1b) and (1c) in §5.1) are ungrammatical because the verb has failed to move from I to C. This analysis is adopted in its essentials in the OT analysis of Spanish wh-interrogatives in Bakovic (1998), which I now discuss in more detail, since it is directly relevant to our analysis. Recall Bakovic's observation that the possibility of having a preverbal subject co-occur with a wh-operator obeys an implicational relationship along the scale in (7), repeated here as (39):

(39) ARGUMENT > LOCATION > MANNER > REASON

As discussed in §5.1, a variety of Spanish allows a direct object to co-occur with a preverbal subject. If a variety of Spanish allows a direct object to co-occur with a preverbal subject, then it allows every kind of wh-operator to do so. If a variety of Spanish allows a direct object to co-occur with a preverbal subject, then it allows argument wh-operators but not manner wh-operators. But there is no variety that, say, allows preverbal subjects to co-occur with a manner wh-operator. Consider now matrix interrogatives in one of the dialects in Bakovic's survey, Dialect-F. In this dialect, location wh-operators can co-occur with a preverbal subject, but argument wh-operators cannot. This is shown in (40).

(40) SPANISH DIALECT-F (Bakovic 1998):

a. Dónde Miguel se fue? [where Miguel went. 3s ]'Where did Miguel go?'

b. *Qué Miguel se comió? [what Miguel ate. 3s ]
c. Qué se comió Miguel? [what ate. 3s Miguel] 'What did Miguel eat?'

In Bakovic's Extended Projection analysis (see §2.1.1), as in Torrego's original pre-CP analysis the subject is base-generated as the NP sister of VP, and the inversion transformation adjoins the verb to S when there is a wh-operator in COMP. Torrego's inversion rule is further specified to apply only when the wh-operator corresponds to an argument, since adjunct wh-operators do not trigger "inversion" in the variety of Spanish she considers. In the inversion case (40c), a second VP is projected to host the operator in its specifier. Since Bakovic assumes (contra Grimshaw 1997) that GEN does not generate projections with a null head, the verb obligatorily moves into the head position of the second VP. The resulting structure is illustrated in (41a).

In Bakovic's analysis, wh-fronting is derived by a high-ranking OPERATOR-SCOPE constraint similar to the Q-SCOPE constraint of Ackema & Neeleman (1998b).
In contrast, Bakovic suggests that when there is no inversion, as in (40a), the fronted wh-operator is adjoined to the VP that immediately dominates the subject, as in (41b). Although Bakovic's analysis is different from Torrego's on this point, what is common to both analyses is that the verb occupies a different position in wh-interrogatives with inversion than it does in declaratives, just like the highest inflectional head does in English.

(41)
a. \[ VP2 qué i se comió k ]
   \[ VP1 Miguel tk ti ]
   what ate.
   3s Miguel

b. \[ VP1 dónde i [ VP1 Miguel se fue ti ] ]
   where Miguel went.
   3s

To account for the contrast in (40), Bakovic proposes that the **O-P-SPEC** constraint of Grimshaw (1997), which requires operators to occupy a specifier position, be decomposed into the markedness hierarchy in (43). In this hierarchy each operator type has a separate **O-P-SPEC** constraint referring to it. Each of these constraints states that the corresponding operator must be in a specifier position:

(42) **O-P-SPEC**
    Syntactic Operators must be in specifier position. (Grimshaw 1997)

(43) Argument**O-P-SPEC** >> Location**O-P-SPEC** >> Manner**O-P-SPEC** >> Reason**O-P-SPEC**.

The hierarchical relation in (43) states that even though all kinds of operators must be in a specifier position, it is more important for operators that correspond to arguments to occupy such a position than for all other kinds of operators. Descending the hierarchy, it is more important for location operators to be in a specifier position than for manner and reason operators to do so, etc.

Given Bakovic's assumptions about sentential structure in Spanish (i.e., that an SVO sentence, for instance, corresponds to the VP in which every argument is generated) the presence of a wh-phrase requires that a second VP be projected in order to satisfy the constraints in (43), all else being equal. However, given Bakovic's assumption that **GEN** does not generate projections with a null head, a conflict now emerges between the constraints in (43) and **S-TAY** that is not incurred when there is only one VP (as in (41b)). Under these assumptions, adorning **S-TAY** with a wh-operator in (41a) results in a violation of **STAY** that is not incurred when there is only one VP (as in (41b)). The verb must move into the head position of VP2, which is the highest-ranking argument in English, after which the VP1 relation is preserved.

Bakovic's analysis of Dialect-F in (40) then runs as follows. This is a dialect that displays the ranking Argument**O-P-SPEC** >> **S-TAY** >> Locative**O-P-SPEC**. When the wh-operator is an argument as in (41a), the high-ranking Argument**O-P-SPEC** forces the projection of a second VP to host the operator in its specifier. The verb moves into the head position of the second VP and the inversion candidate (44a) in the tableau below wins. Candidate (44b), which instead adjoins the operator to VP, loses because of its violation of Argument**O-P-SPEC**.

- **S-TAY** is a higher-ranked constraint than **O-P-SPEC**.
- Argument operators must be in specifier position, and this is more important than for all other kinds of operators.
- In contrast, Bakovic suggests that when there is no inversion, the wh-operator is adjoined to the VP that immediately dominates the subject.
But when a locative operator is involved, then the adposition candidate wins.

In dialects of Spanish which show obligatory inversion in matrix clauses for all kinds of operators, like Mexican Spanish, STAY will be ranked below all of the hierarchy in (43).

However, a considerable number of works, most notably Goodall (1991a, 1991b), Suñer (1994) and Ordóñez (1997), have argued that the inversion analysis of Spanish is not adequate. These authors have provided extensive evidence that the verb is in the same position in both declaratives and wh-interrogatives, and that this position corresponds to a class of adverbs which Goodall (1991a) and Suñer (1994) have called class 4 of adverbs. These adverbs are adjoined to the I' level, and behave exactly like their English counterparts in that they can precede the highest inflected element when there is no wh-movement, as in (46).

(46) a. [IP John barely could see the screen from that seat.]
   [IP Juan apenas veía la pantalla desde ese asiento.]
   
   *Juan barely saw the screen from that seat.*
   *Juan apenas veía la pantalla desde ese asiento.*

These authors note that in English, where I-to-C movement is attested, wh-fronting modifies the relative order of the adverb with respect to the highest inflected element. This can be seen in (47), where the adverb now appears after both the subject and the modal. But as noted by these authors, in Spanish, when the high adjoined element that can be seen in (47), where the subject now appears after both the preverbal subject and the highest inflected element, the relative order of the adverb with respect to the highest inflected element does not change.

The sentence *Juan barely could see the screen from that seat.* can be analyzed as follows:

```
(46)  a. [IP John barely could see the screen from that seat.]
    [IP Juan apenas veía la pantalla desde ese asiento.]
```

In this way, a notable characteristic of Bakovic's analysis when compared with previous analyses of these facts is that it does not need to stipulate for each different dialect of Spanish when preverbal subjects are allowed to co-occur with a fronted wh-operator. In the way, a notable characteristic of Bakovic's analysis when compared with previous analyses of these facts is that it does not need to stipulate for each different dialect of Spanish when preverbal subjects are allowed to co-occur with a fronted wh-operator.
shown in (48). This shows that the verb is in the same position in declaratives and interrogatives.

(47)  
1. From which seat could John barely see the screen?
2. *From which seat barely could John see the screen?

(48) Desde cuál asiento apenas veía Juan la pantalla?

Suñer (1994) further notes that it is unlikely that this is the result of adverbs like apenas 'barely', being head-adjoined to the verb, since the same pattern is observed in sequences with more than one adverb and/or with the sentential negation no. This is shown in (49), from Suñer (1994: 346).

(49) A quién ya casi no le escribes tú cartas?

Suñer further points out that, contrary to what inversion analyses assume, the post-verbal position of subjects in wh-interrogatives in Spanish does not provide evidence that the verb has moved beyond the position it occupies in declaratives. This is most clearly seen in the fact that in the varieties that allow wh-operators and preverbal subjects to co-occur, the position occupied by the subject can alternatively be occupied by a topic (see §5.1). As shown in (50), in this case the subject indeed occupies a post-verbal position. However, it is clear that the verb has not moved into the head position of the phrase that hosts the wh-operator in its specifier, (C₀).

(50) Suñer (1994: 351)

Por qué a Paco ya no lo aguanta nadie?

Lastly, my own data from ellipsis (example (36c), repeated here as (51)) presents a further argument against the inversion analysis. Concretely, the fact that the presence of a polarity head to the right of the fronted wh-operator is required, and, more importantly, that the presence of the verb is not tolerated in Spanish constructions (sec §7.1.3) is hard to reconcile with the inversion analyses. Because the presence of a polarity head is required and a further requirement against the inversion analysis, it does not provide support to the position occupied by the subject can alternatively be occupied by a topic (see §5.1). As shown in (52), the verb is in the same position in declaratives and interrogatives.

(52) Gloss and free translation are my own.

See Suñer (1994) for a similar argument that relies instead on data from sluicing.
Summing up, the evidence presented above points to the conclusion that the verb occupies the same position in Spanish wh-interrogatives that it does in declaratives, which disconfirms an inversion analysis of wh-interrogatives. My analysis in (35) is consistent with this conclusion, since the verb is located in I₀ and the wh-operator in [Spec, I] (i.e. the Pole). Crucially, since the Pole is the landing site of wh-operators and since the Pole is sensitive to the semantic role of the constituent that occupies it, the facts discovered by Bakovic can now be accounted for by the markedness constraints in the Pole hierarchy instead. This is a welcome result, since the constraints in the Pole hierarchy also account for unmarked word order and multiple topicalization. Analyzing the word order facts in wh-interrogatives with these constraints thus provides a unified account of these phenomena.

5.3.3 Interrogative wh-Operators in the Pole

Consider now how the interaction between the INTERROGATIVE CONDITION (ICC) and the constraints developed in §3 and §4 accounts for the word order facts observed in matrix wh-interrogatives in Mexican Spanish. Recall that pre-verbal subjects are not tolerated in this context with any kind of wh-operators.

(52) a. ¿Por qué compró Pedro el periódico?
   'Why did Pedro buy the newspaper?'

In contrast, this possibility is not available with the markedness constraints developed in Bakovic (1998), since these constraints are specific to operators.

(53) *Por qué Pedro compró el periódico?

Since a reason operator in Mexican Spanish can move into the Pole to satisfy the ICC (see (35)), this indicates that ICC outranks *Pole/Reason. As shown in tableau (53), the candidate that avoids a violation of *Pole/Reason by leaving the wh-phrase in situ loses because of its violation of the ICC, since the clause's interrogative specification in the input is not signaled in the output representation.

I
INPUT: <[Q] buy (x, y; z), x=Pedro (Ag), y=the newspaper (Th); z=[wh] (Reason)>

ICC
*Pole/Reason

f. ¿Por qué Pedro compró el periódico?

Both (52a) and (52b) in turn are explained by Economy of Structure. Moving the subject into the Pole and also fronting the wh-operator requires projecting extra structure. In order to arrive at (52b), where the subject occupies the Pole position, there are two different possibilities. In one, the wh-operator is left-adjoined to IP; this violates *ADJUNCTION and also the ICC, because the wh-operator is not in a Spec-Head configuration with the highest head of the extended projection. In the other, an extra (vacuous) XP is projected in order to host the operator in its specifier, which satisfies the ICC but violates *VACUOUS-XP. Both alternatives are suboptimal when compared with the candidate where the wh-operator occupies the same position in Spanish-wh-interrogatives that it does in declaratives. Since a reason operator in Mexican Spanish can move into the Pole to satisfy the ICC, the evidence presented above points to the conclusion that the verb occupies the same position in Spanish-wh-interrogatives that it does in declaratives.
in the Pole simultaneously satisfies the ICC and the EPP without projecting any extra structure. The analysis is presented in tableau (54). Recall that the evidence from topicalization in §4.3 already determined that *VACUOUS-XP and *AJUNCTION outrank *Pole/Reason. We cannot yet determine the ranking of ICC with respect to the constraints that penalize vacuous structure, since any ranking of these three constraints will give the right result in this case. Accordingly, for the sake of exposition, ICC is kept separate from these constraints in the tableau.

(54) ‘Why did Pedro buy the newspaper?’

INPUT: <[Q] buy (x, y; z), x=Pedro (Ag), y=the newspaper (Th); z= [wh]

a. [IP por qué compró [VP Pedro el periódico]].

b. [IP por qué [IP Pedro compró [VP el periódico]]].

b. [XP por qué [ø][IP Pedro compró [VP el periódico]]].

c. [XP por qué [ø][IP Pedro compró [VP el periódico]]].

d. [XP [ø][IP Pedro compró [VP el periódico]]].

e. [XP [ø][IP Pedro compró [VP el periódico]]].

The analysis gives the same result for wh-operators with other semantic roles, since *Pole/Reason is the highest ranked of the constraints in the Pole Hierarchy. In all these cases the most harmonious candidate is the one where the wh-operator occupies the Pole, satisfying the ICC (and the EPP) and avoiding any violations of *VACUOUS-XP and *AJUNCTION.

Consider now the relative word order of wh-operators and fronted topics. As discussed in §5.1, topics invariably precede wh-operators in Mexican Spanish matrix clauses. Examples are presented in (55).

(55) a. Pedro por qué se fue?
b. ??Por qué Pedro se fue? c. Los discos quién los compró? d. *Quién los discos los compró?

The analysis developed so far, where fronting of topics is triggered by TOPICFIRST and fronting of wh-operators is triggered by the ICC, derives these word order effects without the need for any extra machinery. This is shown for (55c-d) in tableau (56). Recall from §4.3 that we had already determined that TOPICFIRST outranks *AJUNCTION.

(56) ‘Who bought the [records] TOP?’

INPUT: <[Q] buy (x, y), x=[wh] (Ag), y=the records (Th), y=topic>

a. [IP Los discos [IP quién [VP los compró [VP]].

b. [IP Los discos los compró [VP quién]].

b. [IP quién compró [VP los discos]].

c. [IP quién [IP los discos los compró [VP]].

d. [IP quién [IP los discos los compró [VP]].

e. [XP quién [ø][IP los discos los compró [VP]]].

f. [XP Los discos [ø][IP quién los compró [VP]]].

The analysis is presented in tableau (56).
The optimal candidate (56a) satisfies ICC by placing the wh-operator in the Pole, and TOPICFIRST by adjoining the topic to IP. All other candidates are less harmonious. Candidate (56b) satisfies TOPICFIRST by placing the topic in the Pole, and leaves the wh-XP in-situ, thus avoiding any violations of *VACUOUS-XP and *ADJUNCTION. However, the clause is not signaled as an interrogative in this case, in discrepancy with the input, and so ICC is fatally violated. 3.2 Candidate (56c) instead satisfies ICC by having the wh-operator in the Pole and avoids any violations of *VACUOUS-XP and *ADJUNCTION by leaving the topic in its base position, but now the violation of TOPICFIRST is fatal. Consider candidates (56d) and (56e), where the wh-operator precedes the topic. Candidate (56d) achieves this by placing the topic in the Pole and adjoining the wh-phrase to IP. This violates both ICC, since the highest head of the extended projection is not in a Spec-Head configuration with the wh-phrase, and TOPICFIRST, since the wh-phrase c-commands the topic. Candidate (56e) is similar, but it satisfies ICC by projecting a vacuous XP and placing the wh-phrase in the specifier. However, TOPICFIRST is still violated and a violation of TOPICFIRST leads to the failure of ICC. The evidence that will allow us to determine the correct ranking of ICC, VACUOUS-XP, and TOPICFIRST is found in the word order observed in subordinate interrogatives, which I address in the following section. Crucially, echo questions are not true interrogatives. My analysis predicts that an input like (56) without the [Q] morpheme would have (56b) as its output (since the ICC would not be at stake in this case), and the existence of (56b) with an echo reading confirms this prediction.

5.4 Embedded interrogatives

Recall from §5.1 that in subordinate interrogatives in Mexican Spanish a preverbal subject is allowed when the wh-operator is a reason operator, but not with other operators. The relevant contrast is repeated in (57).
I want to know why Pedro bought the newspaper.'

In order to address this problem I assume first of all that, in accordance with the Extended Projection analysis, embedded interrogatives are IPs and not CPs, all else being equal (see Doherty 1993 and Grimshaw 1997: also our discussion in §5.2).

Now, there are two observations that are crucial for understanding the contrast between (57a) and (57b). The first one is that the word order in (57a) is not the only option for embedded interrogatives with reason operators. The subject can occupy the position specified from the position section in the left-peripheral head. For example, a subject is an option in the XP-VSO sentences analyzed in §4.3, where the subject is a topic in XP-SVO.

The second relevant observation is that, as mentioned in §5.1, the position occupied by the subject in (57a) can alternatively be occupied by a fronted topic. When the subject is not specified as a topic (i.e., example (58)), it surfaces in the post-verbal field, just like in the Topic-VSO sentences analyzed in §4.3, and in the Wh-VSO matrix interrogatives from the previous section.

Recall now from the previous sub-section that when there is both topicalization and wh-movement in interrogatives, the wh-operator is fronted to the Pole position and the topic is adjoined to IP. This same pattern is observed in embedded interrogatives, when there is both topicalization and wh-movement in interrogatives. The subject is fronted to the Pole position in (57a), and in the XP-VSO matrix interrogatives from the position section in the left-peripheral head. For example, a subject is an option in the XP-VSO sentences analyzed in §4.3, where the subject is a topic in XP-SVO.

In order to address this problem I assume first of all, in accordance with the Extended Projection analysis, that embedded interrogatives with reason operators are IPs. However, some examples are presented in (60). However, in the XP-VSO matrix interrogatives from the position section, the subject can occupy the position specified from the position section in the left-peripheral head. For example, a subject is an option in the XP-VSO sentences analyzed in §4.3, where the subject is a topic in XP-SVO.

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with one exception all speakers consulted reject this possibility when the \textit{wh}-operator is a reason operator, as shown in (61) (compare with the examples in (59)).

(60) a. \textit{Yo quiero saber \[ al presidente, cómo le van a hacer llegar esa carta\].}
    
    'I want to know how they are going to get that letter to the president.'

d. \textit{Yo quiero saber \[ ayer, cómo llegó Pedro\].}
    
    'I want to know how Pedro got here yesterday.'

d. *\textit{Yo quiero saber \[Pedro por qué compró el periódico\].}
    
    'I want to know why Pedro bought the newspaper.'

d. *\textit{Yo quiero saber \[al presidente por qué le toman esa clase de fotos\].}
    
    'I want to know why they are taking that class of photos to the president.'

We can now begin to understand the pattern observed in (57-61) as follows. The structures in (60) and (61), where the topic is adjoined to the IP complement of the matrix verb, violate the prohibition against adjunction to complements (Chomsky 1986, McCloskey 1992, Grimshaw 1997). In this sense, these structures are more marked than the corresponding matrix interrogatives where a topic is adjoined to IP.

Consider now the examples in (61). These structures further have a reason operator as the Pole, and expressions with a reason semantic role constitute the most marked of the speakers in my survey finds every instance of this pattern perfect. At present, I have no explanation for this fact.

This might help explain why the examples in (60) are generally less than perfect.
In §2 I proposed as a working hypothesis that in structures with vacuous XPs like (62), it is the specifier of IP which corresponds to the Pole, not specifier of XP. Consequently, a property of (62) is that the wh-operator is not in the Pole. Embedded interrogatives like (63), where a negative XP occupies the immediate preverbal position, corroborate this hypothesis, since the Negative Pole Condition (§2.3.2) targets the Pole and not the highest specifier of the Extended Projection.

\[\text{(63)}\quad \text{Yo quiero saber [XP por qué Ø [IP nadie dijo nada].}}\]

'I want to know why nobody said nothing'

The examples in (62) and (63) further highlight the importance of the distinction between the Pole and the highest specifier of the extended projection. As we have seen in the analysis so far, the two coincide in many cases, but crucially not in the ones here. This is most clearly observed in the way in which (62) and (63) comply with the ICC. Previously we had seen cases where a fronted wh-operator satisfies the ICC by landing in the Pole, which also happened to be the highest specifier in the extended projection. In the structures in (62) and (63), the wh-operator is also in the highest specifier of the extended projection, and the ICC is satisfied because the wh-operator is in a Spec-Head configuration with the highest head of the extended projection.

At present I have no evidence that would allow us determine unequivocally if XP in (62) corresponds to a fully vacuous XP or to a recursion of IP. Settling this matter will not be crucial for the analysis, though.

Consider now how we can account for the facts above in an OT analysis. We have seen that the constructions in (61) violate *Pole/Reason. They also violate the prohibition against adjunction to complements. This prohibition has been defined in Grimshaw (1997) as the P\_ERE-EP constraint in (64).

\[\text{(64) P\_URE-EP}\]

No adjunction takes place to the highest node in a subordinate extended projection; and no movement takes place into the highest head of a subordinate extended projection. (Grimshaw 1997:374)

I depart slightly from Grimshaw's definition by assuming that P\_URE-EP only penalizes adjunction to subordinate extended projections and not head movement. In this point we need to reformulate the definition of structural markedness in accordance with the definition in (65).

\[\text{(65) \text{P\_ERE-EP}}}\]

Local Conjunction is the operation that conjoins constraints in accordance with the definition in (65).

Grimshaw (1997) in fact notes that P\_URE-EP can possibly be understood as two different constraints for subordinate clauses, one on adjunction and one on head movement, although in her analysis of English there is no reason to separate them. However, this is not the case in Spanish. Under the assumption that most Mexican Spanish embedded interrogatives are IPs, P\_URE-EP as defined in (64) would always be violated, since the verb always moves to I\_0 in finite clauses in this language. This is the reason why I only consider the prohibition on adjunction here.
The local conjunction of $C_1$ and $C_2$ in domain $D$, $C_1 \& C_2$, is violated when there is some domain $D$ in which both $C_1$ and $C_2$ are violated. (Smolensky 1995)

The logic behind Local conjunction is that "two constraint violations are worse when they occur in the same location" (Smolensky 1995). Smolensky formalizes this by suggesting that there is a universally fixed ranking of $C_1 \& C_2$ with respect to each of its conjuncts, as in (66).

(66) Universally, $C_1 \& C_2$ dominates $C_1$, $C_2$.

Aissen (1999a) further proposes that the conjunction of a constraint $C_1$ with a subhierarchy of constraints (call it $S_1$) yields a subhierarchy of conjoined constraints (call it $S_2$) such that the hierarchical relations of $S_1$ are held constant in $S_2$. This is formalized as in (67).

(67) The local conjunction of $C_1$ with the subhierarchy $[C_2 >> C_3 >> ... >> C_n]$ yields the subhierarchy $[C_1 \& C_2 >> C_1 \& C_3 >> ... >> C_1 \& C_n]$ (Aissen 1999a)

Following these definitions, the local conjunction of $\text{P}_{\text{URE}}$-$\text{EP}$ with the Pole Hierarchy yields the markedness subhierarchy in (68). I assume that the domain relevant for evaluation corresponds to the clause.

(68) $\text{P}_{\text{URE}}$-$\text{EP} \& *\text{Pole/Reason} >> \text{P}_{\text{URE}}$-$\text{EP} \& *\text{Manner} >> ... >> \text{P}_{\text{URE}}$-$\text{EP} \& *\text{Pole/Agent}$

Introducing the constraints in (68) into the analysis has no effect on the account of word order in matrix interrogatives, because $\text{P}_{\text{URE}}$-$\text{EP}$ only targets subordinate clauses. Consider now how we can account for the facts in (57-61) with these constraints. I have suggested that when a reason $\text{wh}$-operator and a topic co-occur, an extra functional XP is projected above IP. This result is achieved by ranking $[\text{P}_{\text{URE}}$-$\text{EP} \& *\text{Pole/Reason}]$ over $*\text{VACUOUS-XP}$. This is shown in tableau (69), which corresponds to example (57a).

(69) (=57a)'I want to know [why Pedro bought the newspaper].'

\[\begin{array}{|c|}
\hline
\text{XP por qué [ø]} \\
\hline
\end{array} \]

\[\begin{array}{|c|}
\hline
\text{IP Pedro [IP por qué compró [VP el periódico]]]}
\hline
\end{array} \]

Candidate (69b) loses because it violates both components of the conjoined constraint. $\text{P}_{\text{URE}}$-$\text{EP}$ is violated because the topic is adjoined to IP and $*\text{Pole/Reason}$ is violated because the reason $\text{wh}$-operator corresponds to [Spec, I]. Candidate (69a), which corresponds to the structure in (62), emerges as the winner.

This ranking still does not explain why the reason $\text{wh}$-operator and the topic are ordered in the inverse order compared to the order of the topic and the reason $\text{wh}$-operator in other kinds of interrogatives.
This is because a candidate where the topic is in the specifier of XP also avoids a violation of [PURE-EP&*Pole/Reason], (even if the reason operator is the Pole in this case) since there is no adjunction and so PURE-EP is satisfied, as shown in (70).

(70) ‘I want to know [why Pedro bought the newspaper].’

\[\text{INPUT: } \langle \langle Q \rangle \text{ buy (x, y; z)}, x=\text{Pedro (Ag)}, x=\text{topic}, y=\text{the newspaper (Th)}; z=\{\text{why} \} \rangle \]

\[\text{PURE-EP } & \* \text{Pole/Reason} \]

\[\text{XP por qué [ø] [IP Pedro compró [VP el periódico]].} \]

\[\text{XP Pedro [ø] [IP por qué compró [VP el periódico]].} \]

With these elements in mind we can already determine that ICC outranks TOPIC-FIRST in Spanish. Otherwise the candidate where the topic precedes the wh-operator, candidate (70b) would surface as the winner.

The analysis is presented in tableau (71). Further notice these facts indicate that [Pure-EP&*Pole/Reason] also outranks TOPIC-FIRST. Otherwise the adjunction structure where the topic is the first constituent in the subordinate clause, candidate (71c), would emerge as the winner.

With this ranking, the optimal candidate in matrix interrogatives is still the one where the fronted topic precedes the wh-operator, because ICC is not a constraint on linear order. The reader can verify this result by substituting the double line that separates ICC from the other constraints in tableau (56) for a single solid line indicating a strict ranking.

This constraint conjunction analysis might appear to be somewhat ad hoc, but this mostly has to do with the specifics of the formalism. If the scale of structural markedness that we are considering in OT terms could be formalized in some other way, the conjoined constraint [PURE-EP&*Pole/Reason] would simply correspond to the point in the scale at which it is better to project a vacuous XP than to abide by Economy of Structure.
In this chapter I have extended the analysis developed in chapters 2-4 to account for the word order facts observed in Mexican Spanish. This is somewhat obscured by the fact that candidate (73a) also violates \textsc{topic-\textsc{first}}, though.

I begin with the conjoined constraints in the subhierarchy in (68). The analysis is presented in (73).

\begin{align*}
\text{\textsc{input}}: & \quad \text{arrive (x; y, z)}, \quad x=\text{Pedro} (\text{Th}); \quad y=\text{topic}, \quad z=[\text{wh}] (\text{Manner}) > \\
\text{\textsc{icc}} & \quad \text{\textsc{vacuous-\textsc{xp}}} \\
\text{\textsc{pure-\textsc{ep}} & \text{\textsc{*pole/manner}}} & \quad \text{\textsc{pole/\textsc{thematic}}} \\
\text{\textsc{pole/temporal}} & \quad \text{\textsc{pole/accusative}} \\
\text{\textsc{pole/locative}} & \quad \text{\textsc{pole/theme}} \\
\text{\textsc{pole/experiencer}} & \quad \text{\textsc{pole\textsc{-agent}}} \\
\text{\textsc{pole/reason}} & \quad \text{\textsc{pole/\textsc{agent}}} \\
\end{align*}

In this case, the candidate that projects an \textsc{xp} above \textsc{IP}, candidate (73a), loses to the candidate displaying adjunction, candidate (73c), because the former's violation of *\textsc{vacuous-\textsc{xp}} proves fatal.

The optimal candidate violates the conjoined constraint \textsc{pure-\textsc{ep} & \textsc{*pole/manner}}, but given the constraint ranking of Mexican Spanish, this is better than projecting a vacuous \textsc{xp} above \textsc{IP}. Trivially, candidate (73b), which projects a vacuous \textsc{xp} and displays the attested word order by placing the topic in [\text{Spec, X}], violates both \textsc{icc} and *\textsc{vacuous-\textsc{xp}}.

With this I conclude the analysis of the word order facts observed in wh-interrogatives in Mexican Spanish. As a summary of the analysis developed in this and in the preceding two chapters, the known rankings of the constraints involved in word order phenomena in Mexican Spanish is presented in the Hasse diagram in (74). In this diagram the notation \{\text{pure-\textsc{ep} & \textsc{*pole/manner}}, \ldots \text{pure-\textsc{ep} & \textsc{*pole/agent}}\} encapsulates all the markedness constraints that result from the conjunction of pure-\textsc{ep} with the \textsc{pole hierarchy below \textsc{pole/reason}}.

(74) Final Ranking of constraints for Mexican Spanish.

\begin{align*}
\text{\textsc{icc}}, \quad \text{\textsc{pure-\textsc{ep} & \textsc{*pole/reason}}} \\
\text{\textsc{pole/\textsc{thematic}}}, \quad \{\text{pure-\textsc{ep} & \textsc{*pole/manner}} \ldots \text{pure-\textsc{ep} & \textsc{*pole/agent}}\} \\
\text{\textsc{pole/temporal}} & \quad \text{\textsc{pole/locative}} \\
\text{\textsc{pole/\textsc{accent}}} & \quad \text{\textsc{pole/\textsc{theme}}} \\
\text{\textsc{pole/experiencer}} & \quad \text{\textsc{pole/\textsc{agent}}} \\
\text{\textsc{pole\textsc/-reason}} & \quad \text{\textsc{pole/\textsc{agent}}} \\
\end{align*}

5.5 Conclusions

In this chapter I have extended the analysis developed in chapters 2-4 to account for the word order facts observed in wh-interrogatives in Mexican Spanish. This
Appendix A

In §5 it was mentioned that there are varieties of Spanish that do not show matrix-subordinate asymmetries with respect to the kinds of \textit{wh}-operators that are allowed to co-occur with preverbal subjects (Bakovic 1998). Some speakers of Mexican Spanish in fact display a variety of this kind. For these speakers, preverbal subjects and reason \textit{wh}-operators are allowed to co-occur both in matrix and in subordinate interrogatives. Examples are presented below.

\begin{verbatim}
(1) MEXICAN SPANISH: VARIETY B

a. Por qué Pedro compró el periódico?
   why Pedro bought the newspaper
   'Why did Pedro buy the newspaper?'

b. Yo quiero saber [por qué Pedro compró el periódico].
   I want know why Pedro bought the newspaper
   'I want to know why Pedro bought the newspaper.'
\end{verbatim}

Here again it is possible to develop a straightforward account of these varieties by appealing to the sensitivity of the Pole position to the semantic role of the constituent that occupies it. I suggest that in Variety B of Mexican Spanish, a vacuous XP is projected in both subordinate and matrix interrogatives to host the \textit{reason} \textit{wh}-operator in its specifier (recall that in the variety of Mexican Spanish analyzed in §5 this only happens in subordinate interrogatives, not in matrix ones). The structure of the interrogatives in (1) thus corresponds to (2).
In the varieties that show a matrix-subordinate asymmetry, the relevant facts can be accounted for by embedding *VACUOUS-XP among the constraints of the Pole Hierarchy. Concretely, Variety B of Mexican Spanish is characterized by the ranking in (3), where *Pole/Reason outranks *VACUOUS-XP.

(3) ICC >> ... >> *Pole/Reason >> *VACUOUS-XP >> *Pole/Manner ...

As in the analysis in §5, undominated ICC ensures that fronted *wh-operators have to land in the highest specifier of the extended projection, which rules out the possibility that the word order of the interrogatives in (1) is the result of adjunction of *reason wh-operators to IP. However, the ranking *Pole/Reason >> *VACUOUS-XP now determines that the most harmonious structure is no longer one where the *reason...

Preverbal subjects are not allowed to co-occur with *reason and other *wh-operators though, since *VACUOUS-XP still outranks *Pole/Manner and the rest of the constraints in the Pole Hierarchy. As I leave to the reader to verify, all the symmetric varieties discussed in Bakovic (1998) can be accounted for in the same way. Consider Variety C in Bakovic (1998). In this variety, preverbal subjects are also allowed to co-occur with *manner and other *wh-operators.

PREVERBAL SUBJECTS

<table>
<thead>
<tr>
<th></th>
<th>1:a:</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP</td>
<td></td>
</tr>
<tr>
<td>ICC</td>
<td></td>
</tr>
<tr>
<td>*Pole/Reason</td>
<td></td>
</tr>
<tr>
<td>*VACUOUS-XP</td>
<td></td>
</tr>
<tr>
<td>*Pole/Manner</td>
<td></td>
</tr>
</tbody>
</table>

(4) "Why did Pedro buy the newspaper?"

INPUT: <[Q] buy (x, y; z), x=Pedro (Ag), y=the newspaper (Th); z= [wh] (Reason) >

(a) [IP por qué compró [VP Pedro el periódico]].

(b) [IP por qué [IP Pedro compró [VP el periódico]].]

(c) [XP por qué [ø] [IP Pedro compró [VP el periódico]].]

In the varieties that show a matrix-subordinate asymmetry, the relevant facts are determined by the fact that *reason...

[Diagram]

[Diagram of the Pole Hierarchy with *Pole/Reason and *VACUOUS-XP]
In my analysis this pattern is derived by further demoting *VACUOUS-XP on the Pole Hierarchy, yielding the ranking *Pole/Location >> *VACUOUS-XP >> *Pole/Theme. Under this ranking, it is better to project a vacuous XP than to have a location *wh-operator in the Pole position. The analysis is presented in (6).

(6) 'Where did Miguel go?'

\[
\text{INPUT: } \langle [Q] \text{ go (x; y), x=Miguel (Ag); y= [wh] (Loc)} \rangle
\]

\[
*\text{Pole/Location} \ast \text{VAC} \ast \text{XP}
\]

\[
\ast \text{Pole/Location} \ast \text{XP}
\]

\[
\text{XP donde [ø] [IP Miguel se fue [VP]]].
\]

\[
\text{IP donde se fue [VP Miguel].}
\]

However, since *VACUOUS-XP outranks *Pole/Theme, when the *wh-operator corresponds to the direct object, the optimal structure is the one where the *Pole/Theme appears, when the *Pole/Location.

\[
*\text{Pole/Theme} \ast \text{VAC} \ast \text{XP}
\]

\[
\ast \text{Pole/Theme} \ast \text{XP}
\]

\[
\text{XP qué [ø] [IP Miguel se comió [VP]]].
\]

\[
\text{IP qué se comió [VP Miguel].}
\]

Furthermore, since *Pole/Reason and *Pole/Manner outrank *Pole/Locative, preverbal subjects will also be allowed to co-occur with *reason and *manner *wh-operators. In this way, my analysis predicts that structures involving ordered subjects (who appear in the thematic or preverbal field (i.e. *wh-V-Subj, candidate (b) in tableau (6))) will also be allowed to co-occur with reason and manner.

In my analysis this pattern is derived by further demoting *VACUOUS-XP on the Pole Hierarchy, yielding the ranking *Pole/Location >> *VACUOUS-XP >> *Pole/Theme. Under this ranking, it is better to project a vacuous XP than to have a location *wh-operator in the Pole position. The analysis is presented in (6).

(6) 'What did Miguel eat?'

\[
\text{INPUT: } \langle [Q] \text{ eat (x, y), x=Miguel (Ag), y= [wh] (Th)} \rangle
\]

\[
*\text{VAC} \ast \text{XP} \ast \text{Pole/Theme}
\]

\[
\ast \text{VAC} \ast \text{XP} \ast \text{Pole/Theme}
\]

\[
\text{XP qué [ø] [IP Miguel se comió [VP]]].
\]

\[
\text{IP qué se comió [VP Miguel].}
\]

*Pole/Reason and *Pole/Manner outrank *Pole/Locative, preverbal subjects will also be allowed to co-occur with *reason and *manner *wh-operators. In this way, my analysis predicts that structures involving ordered subjects (who appear in the thematic or preverbal field (i.e. *wh-V-Subj, candidate (b) in tableau (6))) will also be allowed to co-occur with reason and manner.

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(6) 'What did Miguel eat?'

\[
\text{INPUT: } \langle [Q] \text{ eat (x, y), x=Miguel (Ag), y= [wh] (Th)} \rangle
\]

\[
*\text{VAC} \ast \text{XP} \ast \text{Pole/Theme}
\]

\[
\ast \text{VAC} \ast \text{XP} \ast \text{Pole/Theme}
\]

\[
\text{XP qué [ø] [IP Miguel se comió [VP]]].
\]

\[
\text{IP qué se comió [VP Miguel].}
\]
experiencer, if present, is expected to move to \([\text{Spec}, \text{I}]\) to satisfy the EPP, all else being equal. In other words, the analysis predicts that XP-VSO sentences should not be possible in this variety of Spanish when XP is a reason adverbial, but they should be possible when XP corresponds to any other kind of topic. One should be careful to note that this analysis, however, does not predict that XP-VSO with reason topics will be entirely unattested in every variety of Spanish where *Pole/Reason outranks *V Acuous. This is because the VSO order will still emerge as the winner when the input is specified as [thetic] (§4.3.4) in those varieties where (in contrast with Mexican Spanish), T Thet-C on outranks EPP. This prediction will need to be tested in future research.

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