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CHAPTER 11

Some syntactic and pragmatic aspects of WH-in-situ in Brazilian Portuguese.

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11.1 INTRODUCTION: OUR GOALS

The study of WH-in-situ constructions has uncovered some interesting facts in the languages displaying them. One of the curious properties found is that in some languages there seems to be optionality, with the WH element appearing either in situ or moved. However, one would not expect optionality in these grammars. If movement is a costly operation (as opposed to merge, for example), and if grammars seek more economical derivations, WH-in-situ constructions should always be the preferred strategy over moved WH, with no optionality possible. Therefore, these languages pose a challenge to current minimalist theories. On the other hand, as far as we know, it has gone almost unnoticed that even in languages with optional WH-in-situ, there are cases in which they are obligatory. Most of the works mentioning that fact are concerned with WH-in-situ in islands (cf. Cheng 2009; Reglero and Tricio 2013). In this chapter we explore this type of data, namely cases of obligatory WH-in-situ in a language where in general WH-in-situ is optional. The language under scrutiny is Brazilian Portuguese (BP). The chapter is organized as follows. In section 11.2, we present a detailed description of the syntactic conditions in which WH-in-situ is optional, forbidden, and obligatory in BP. Section 11.3 examines the pragmatic conditions (if any) under which WH-in-situ is allowed in BP. Section 11.4 discusses an analysis for the obligatory WH-in-situ cases in BP. Section 11.5 includes our final remarks.

11.2 DATA

11.2.1 WH-in-situ and moved WH

Classical approaches to WH-in-situ (cf. Cheng 2009, for a comprehensive review) assume that there are languages in which WH-in-situ is the only way to ask questions, as in Japanese and Chinese, and there are languages in which it alternates with moved WHs, as in French and BP. In other languages, such as English, questions with WH-in-situ are restricted to echo and multiple questions.¹

In BP, questions with the WH-in-situ are not restricted to echo-questions. It is an alternative way of asking real, information-seeking questions. Comparing it to a closely related language, European Portuguese (EP), we can observe interesting differences. According to Duarte (2000), EP licenses WH-in-situ in matrix and embedded clauses, but it is restricted to echo-questions. Lopes-Rossi (1996), in a historical study comparing WH-questions in EP and BP, found only 2.8 percent of WH-in-situ questions in her data from twentieth-century EP whereas in BP she found 32.4 percent for the same period, as detailed below.

The reason for this difference between the two languages can be traced back to the nineteenth century. Lopes-Rossi (1996) observes that in the nineteenth century, WH-questions in BP followed the word order WH-verb-subject, which is still possible in EP today. In the twentieth century, this word order was replaced by two other word orders in BP: WH-subject-verb and WH-in-situ.²

1. Cf. Section 11.3 for contexts in which some English WH-in-situ questions are grammatical even if their interpretation is not echo; neither are they instances of multiple WH-questions. In any event, for all the languages considered here, we leave aside cases of questions with more than one WH element, such as 'who bought what?' However, it must be noted that multiple WH-questions in BP, although perfectly grammatical in simple sentences, are completely excluded in islands, a remarkable fact that deserves a separate study.

2. The WH-subject-verb order is shown by Lopes-Rossi's (1996: 64) examples reproduced here (the information in parentheses relates to the corpus from which the sentences were taken):

- (i) O que ela te disse, Luíza? (EP, first half of the nineteenth century)
What she you told, Luíza?
'What did she tell you, Luíza?'

- (ii) Onde você estuda? (TV)
Where you study?
'Where do you go to school?'

WH-in-situ:

- (iii) Brigou por quê? (Azevedo, second half of the nineteenth century)
Fought why?
'Why did you fight?'

The WH-verb-subject word order decreases from around 45 percent in the nineteenth century to 12.5 percent in the twentieth century. Conversely, the production rates of both WH-subject-verb and WH-in-situ increased over time. In the first half of the nineteenth century, the rate of WH-subject-verb was 1.4 percent. In the second half of the twentieth century, it increased to 16 percent. For WH-in-situ, it went from 0 percent to 32.4 percent in the same periods.

Thus, the types of WH-questions found in contemporary BP have become quite different from the picture found in EP. In order to start exploring the types of questions found in BP, we first present the grammatical contexts in which the alternation between moved WH and WH-in-situ in BP can be seen.

A. Matrix clauses with a null C⁰.

- (1) a. O que você viu?
what you saw
'What did you see?'
b. Você viu o quê?
you saw what

B. Complement tensed clauses with a null matrix C^{0,3}

- (2) a. O que você disse que ela viu?
what you said that she saw
'What did you say that she saw?'
b. Você disse que ela viu o quê?
you said that she saw what

C. Root infinitives as matrix interrogatives

- (3) a. O que ('que) fazer numa situação dessa?
what to do in a situation of-this?
'What to do in a situation like this?'
b. Fazer o que numa situação dessa?
to do what in a situation of-this?

3. As we will see in section 11.2.2, C⁰ can have an overt complementizer in WH-questions. When it is null, the WH can remain in situ. However, when it is overt, the WH must move to Spec CP.

D. WH-interrogatives embedded in indirect questions:

- (4) a. Oque a Maria perguntou se o João comeu?
what Mary asked if John ate?
'What is the thing such that Mary asked if John has eaten this thing?'

- b. A Maria perguntou se o João comeu oquê?
Mary asked if John ate what?

E. Null subject sentences in which the null subject is interpreted as a generic noun phrase:

- (5) a. Onde compra caneta (aqui perto)?
where buys pen (here near)?
'Where can pens be bought (near here)?'
- b. Compra caneta onde (aqui perto)?
buys pen where. (here near)?

In all these contexts, it seems that the choice between moved or in-situ WHs can be made on the basis of discourse factors.

11.2.2 Obligatory WH-movement

Nevertheless, there are grammatical contexts in which even the languages allowing optionality do not admit WH-in-situ. In BP, these contexts are:

A. Matrix or embedded clauses with an overt matrix C^o (cf. Miotto 1994):

- (6) a. Oque que (a Maria disse que) você viu?
what that (the Mary said that) you saw
'What did (Mary say that) you see/saw?'
- b. *Que (a Maria disse que) você viu oquê?
que (the Mary said that) you saw what

B. Cleft interrogative sentences:

- (7) a. Oque é que você viu?
what is that you saw
'What is it that you saw?'
- b. É oque que você viu?
Is what that you saw
'What is it that you saw?'

- c. *É que você viu oquê?
is that you saw what

C. Embedded interrogative WH clauses:

- (8) a. Ele perguntou o que ((é) que) a Maria viu.
he asked what ((is) that) Mary saw
'He asked what Mary saw.'

- b. *Ele perguntou ((é) que) a Maria viu oquê.
he asked ((is) that) Mary saw what

D. Questions with inherently non-D-linked elements:

- (9) a. Que diabo (que) você comeu?
what devil (that) you ate
'What the hell did you eat?'

- b. *Você comeu que diabo?
you ate what devil

In all these contexts, only moved WHs are grammatical. In some cases, the selectional properties of the C head are responsible for obligatory WH-movement.

11.2.3 Obligatory WH-in-situ

In some languages allowing optionality there are contexts in which only the WH-in-situ construction is possible. In BP, the relevant contexts are:

A. Strong islands (as relative clauses or adjunct clauses) (cf. Negrão 2000):

- (10) a. *Que livro (que) a Maria admira [o autor que escreveu]
which book (that) Mary admires the author who wrote
- b. ?A Maria admira [o autor que escreveu que livro]
Mary admires the author who wrote which book
'Which is the book x such that Mary admires the author who wrote x?'

- (11) a. *Oque você vai no quarto [fazer t]?
what you go in-the bedroom [to-do]
- b. Você vai no quarto [fazer o quê]?
you go in-the bedroom [to-do what]
'You are going to your room to do what?'

Notice that, in the case of (11), extraction is possible if the sentence is the complement of the matrix verb (in which case, *ir* 'go' is in fact an auxiliary verb, responsible for the future tense interpretation), as shown in (12):

- (12) *O* *que* *você* *vai* *fazer* *t* *no* *quarto*?
'What will you do t in the bedroom?'

B. Clauses with clitic or anaphoric definite null subject:

Question (13a) was uttered in the context of a dialogue between mother and child. The child says "I said ... I said ..." and then the mother asks (13a). Example (13b) shows that the question with moved WH is impossible:

- (13) a. *Falou* *o* *que*?
said what?

- b. **O* *que* *falou*?
what said?
'What did you say?'

C. Structures in which apparently there is no sentential functional projection where the WH could be moved to:⁴

- (14) a. *O* *dodoi* *de* *quem*?
The scratch of whom?
b. **De* *quem* *o* *dodói*?
of whom the scratch?

4. We do not commit ourselves to any particular analysis to the examples in (14) and (15). It may be the case that we are dealing with a DP or an AdvP, but it can also be the case that we are facing a small clause structure. However, it is not clear that small clauses are islands in Portuguese, as revealed by the dubious status of the sentences in (i)–(iv):

- (i) ?*Você* *acha* *a* *Maria* *apaixonada* *por* *quem*?
you find the Mary in love with whom?
(ii) ?* *Por* *quem* *você* *acha* *a* *Maria* *apaixonada*?
with whom you find the Mary in love?
'With whom do you think Mary is in love?'
(iii) *Você* *considera* *a* *Maria* *apaixonada* *por* *quem*?
you consider the Mary in love with whom?
(iv) ?*Por* *quem* *você* *considera* *a* *Maria* *apaixonada*?
with whom you consider Mary in love?
'With whom do you consider Mary in love?'

- (15) a. *Junto* *com* *quem*?
together with whom?

- b. **Com* *quem* *junto*?
with whom together?

In all these grammatical contexts, WH-movement is forbidden. In the case of strong islands, it is clear that movement is not allowed because the sentence containing the WH has its Spec CP position already occupied by some operator. Example (13) illustrates a constraint particular to BP. Cases like (14) and (15), which are supposed to be examples of elliptical structures, have yet to be examined.

In any event, it is necessary to find the means to interpret the obligatory WH-in-situ constructions in BP, a problem discussed in section 11.4.

11.3 PRAGMATIC CONSTRAINTS

In this section we discuss the pragmatic conditions that might be involved in the licensing of WH-in-situ. We discuss Pires and Taylor's (2007) proposal and a somewhat similar proposal made by DeRoma (2011). Based on data from adults and children, we conclude that none of them is able to completely capture the restrictions on WH-in-situ in BP. We then propose a modification of DeRoma's proposal in order to better account for the data.

Pires and Taylor (2007) argue that only under specific discourse-pragmatic conditions can WH elements remain in situ. They list a series of pragmatic contexts where WH-in-situ is possible, both in BP and in English. In general, WH-in-situ is possible when there are requests for specific information about something already mentioned immediately prior or for more information about something already mentioned, as the following examples illustrate:

- (16) A: I made desserts.
B: You made [what kind of desserts]?
B: *Você* *fez* [*que* *tipo* *de* *sobremesa*]?
(17) A: I made many different kinds of desserts.
B: So, you made [how many cookies]?
B: *Você* *fez* [*quantos* *biscoitos*]?

Example (ii), with the verb 'achar' (*think*), seems to indicate that WH-movement out of small clauses is ungrammatical, but example (iv), with the verb 'considerar' (*consider*), sounds better. Whatever the best analysis turns out to be, our point here remains the same: the projections of functional categories supposedly present in these structures are not enough or suitable to allow WH-movement. The exact structure involved in these examples is a matter for future research.

The authors claim that WH-in-situ interrogatives are also possible if certain properties of the extralinguistic context make the question felicitous:

(18) B sees his friend reading something:

- B: You're reading what?
B: *Você(es) tá lendo o quê?*

For these authors, WH-in-situ in single WH-questions requires specific discourse-pragmatic conditions in English and in BP. The different types of WH-in-situ questions are special in that the set of possible answers to them is part of the Common Ground (CG), a concept found in Stalnaker (1978, 2002, quoted by Pires and Taylor 2007: 5).

Common Ground can be defined as information that was previously given in the discourse or in the extralinguistic context and that is shared (or assumed by the speaker to be shared) by speaker and hearer. Pires and Taylor (2007) propose that WH-in-situ in English and BP will be possible when the information being requested is expected (by the speaker) to be part of the CG. One prediction of this analysis is that WH-in-situ, in the contexts in which it is syntactically possible, is not freely optional in Portuguese. The authors claim that if WH-in-situ has to satisfy the CG conditions noted previously, the following sentences are infelicitous in the context:

(19) You approach a colleague at work and ask, out of the blue:

- B: *#Você conhece quem em São Paulo?*
B: *#You know who in São Paulo?*

In completely "out-of-the-blue" contexts, Pires and Taylor (2007) argue that only moved WH-questions are possible. In what follows, we discuss Pires and Taylor's hypothesis by bringing in data from a sociolinguistic study and from an experiment conducted with adults and children.

Oushiro (2010), in a sociolinguistic study with 53 interviews, investigates the contexts where WH-in-situ questions are favored and disfavored. She classifies these contexts into three types:

- (20) (i) universal presupposition contexts
(ii) cultural presupposition contexts
(iii) discourse presupposition contexts

Universal presuppositions are the ones that are always true, being naturally shared by all speakers, and they cannot be negated. Examples like the following illustrate this (Oushiro 2010: 635):

(21) a. E você nasceu quando?
and you were born when
'When were you born?'

- b. E cê tá morando onde agora?
and you are living where now
'Where do you live now?'

Cultural presuppositions, although they can be negated, are considered knowledge usually shared by almost everyone:

(22) a. E ela trabalha com o quê?
and she works with what
'With what does she work?'

- b. Cê votou em quem pra presidente ... na última eleição?
you voted in who for president ... on the last election
'For whom did you vote in the last presidential election?'

Although not everyone works and not everyone votes, it can be usually assumed that most people work and vote (especially in Brazil, where it is obligatory to vote).

Finally, discourse presuppositions are the ones introduced by the discourse (adapted from Oushiro 2011: 82 [irrelevant parts omitted]):

(23) A: e você sabia que hoje em dia "a gente" é considerado um pronome pessoal do mesmo jeito que "eu você tu eles"?
'And did you know that "a gente" [informal form of 'we'] is considered a personal pronoun, just like "I you they"?'
B: não sabia.
'I didn't know.'

- B: mas é considerado aonde?
But it is considered [a pronoun] where?

Here we can see that the presupposition of the question (the fact that the expression 'a gente' is considered a regular pronoun) is established as a common ground between speakers A and B after speaker A puts it into discourse. If it were not, B's question would be anomalous.

Oushiro reports that out of a total of 199 in-situ-WH-questions in her corpus, 50.6 percent of them have a universal presupposition, 35.4 percent have a cultural presupposition, and 21 percent have a discourse presupposition. In terms of relative weight, the figures are .71 for universal, .55 for cultural, and

.38 for discourse presuppositions. Therefore WH-in-situ is favored in universal presupposition contexts and disfavored in discourse presupposition contexts. Grolla and Alvarez (2010), in a study concerning the acquisition of WH-in-situ, arrive at similar results. They interviewed 10 adults and 18 children between 3.8 and 6.5 years of age. The experiment was an elicitation task where children talked to a puppet and were encouraged to ask him questions. There were two parts to the experiment. Part I was "controlled" in the sense that children were guided in the questions they were supposed to ask, as illustrated by the following:

(24) *Background: Fiona scolded Shrek for not taking his shower. Now she's not talking to him. The child is asked to help Shrek by asking questions to Fiona.*

Experimenter: Shrek wants to know where Fiona went. She went somewhere he doesn't know. Can you ask her?⁵

Expected questions: Aonde você foi? (*Where did you go?*)

Você foi aonde? (*You went where?*)

Experimenter: Shrek is hungry, but he doesn't know where the food is. Fiona kept it somewhere and he wants you to ask her.

Expected questions: Onde você guardou a comida?

(*Where did you store the food?*)

Você guardou a comida onde?

(*You stored the food where?*)

Observe that, in these cases, the experimenter introduced a sentence that updated the CG, with information about Fiona's leaving the house or the fact that she bought food and stored it somewhere in the kitchen. So, when the child asked a question, he or she had all this CG linguistically established (which we henceforth call "discourse CG").

In the second, noncontrolled part of the experiment, Fiona leaves the room to play with her friends and Shrek is left alone with the child. He tells the child that he or she can ask him anything. No information is introduced; the child asks questions without a discourse CG established.

Following Pires and Taylor's (2007) hypothesis, Grolla and Alvarez (2010) expected to find more WH-in-situ in the first part of the experiment, which contained clear discourse CG. Conversely, they expected to find fewer cases of WH-in-situ in the second part of experiment, as in this case no CG was linguistically provided.

5. The lead-in sentence offered by the experimenter stopped at "can you ask her?" The rest of the question was not provided, in order to prevent the child from simply repeating what the experimenter had said.

In the adults' results, a total of 124 WH-questions were produced. In the controlled part of the experiment, all 51 questions produced were with the WH moved to the left periphery. In the noncontrolled part, there were 69 moved WH-questions and 4 WH-in-situ questions. Similar results were found for the children: 162 WH-questions were produced in total. In the controlled part, there were 79 WH-questions with moved WH and no WH-in-situ. In the noncontrolled part, there were 77 moved WH-questions and 6 WH-in-situ questions. The results show that WH-in-situ questions were mainly produced in universal presuppositions contexts. In these cases, the presupposition was not introduced by discourse but was implicit, as part of the knowledge universally shared by speakers (cf. (25a) and (25b)). WH-in-situ was also produced in situations where no discourse was introduced but the nonlinguistic context was enough to introduce the CG, as shown in example (25c). It is worth noticing that no out-of-the-blue questions were produced.

(25) Universal presupposition contexts:

a. Vocês comem o que de comida?

You eat what as food

'What kind of food do you eat?'

b. Você escreve com que mão?

You write with what hand

'With what hand do you write?'

Nonlinguistic context (situation): Child takes a piece of paper with names written on them and asks:

c. Aqui tá escrito o quê?

Here is written what

'What is written here?'

These results are surprising, if we consider Pires and Taylor's (2007) hypothesis. WH-in-situ was produced only in the noncontrolled part of the experiment, both by adults and children, where no discourse CG was provided. In the contexts where a clear indication of the possible answers to the question was linguistically provided (the controlled part), no WH-in-situ was produced by children and adults. This suggests that Pires and Taylor's hypothesis is not enough to capture the distribution of WH-in-situ in BP. Note that Oushiro's (2010) and Grolla and Alvarez's (2010) results are similar: most of the WH-in-situ questions involved universal presuppositions, which were not linguistically provided. When clear discourse presuppositions were provided, such as in the controlled part of the experiment, no WH-in-situ was produced.

DeRoma (2011) suggests that Pires and Taylor's (2010) hypothesis should be modified in such a way that, for a WH-in-situ to be possible, what needs to

be in the CG is not the possible answers but the presupposition of the non-WH portion of the question itself. So, for a question like “you eat what as food?”, for example, it must be established that you eat food. This is precisely the context provided in the controlled part of the experiment in Grölla and Alvarez’s (2010) study. For example, in one trial, it is said that Fiona stored the food somewhere but Shrek does not know the place. This context provides exactly the presupposition of the non-WH portion of the question, a context in which DeRoma would predict WH-in-situ to be favored. Yet no questions of this type were produced.

However, comparing Pires and Taylor’s (2010) and DeRoma’s (2011) proposals, we believe that DeRoma’s analysis seems more suitable to account for the data. In universal presupposition contexts (which favors WH-in-situ), the context (and not the linguistic discourse) provides the non-WH portion of the question. So, in order to account for the data, we propose a modification of DeRoma’s hypothesis as follows: WH-in-situ is more likely to occur when the presupposition of the non-WH portion of the question is encoded in the nonlinguistic CG.

The results of Grölla and Alvarez’s (2010) study indicate that the use of WH-in-situ is more frequent when the CG is not linguistically provided in the discourse but other contextual items not mentioned in the utterance prior to the question are included. Therefore, it seems necessary to make the definition of CG sharper: the information shared by all individuals of a community, for example, must be taken into consideration, and not just the linguistic discourse. Given that presuppositions come not only from the context but also from cultural and universal knowledge shared by the speakers, it seems unreasonable to think of both types of questions—with moved WH and with WH-in-situ—without a CG, that is, as completely out of the blue. Hence, questions (be it with moved WH or WH-in-situ) completely out of the blue are infelicitous. The following example, cited by Pires and Taylor (2007) as infelicitous as a WH-in-situ question, is also infelicitous as a moved WH-question:

(26) You approach a colleague at work and ask, out of the blue:

B: # Você conhece quem em São Paulo?

You know who in São Paulo

B: # Quem você conhece em São Paulo?

Who you know in São Paulo

‘Who do you know in São Paulo?’

In fact, the only possible question in such a context is a yes/no interrogative:

(27) Você conhece alguém em São Paulo?

‘Do you know anyone in São Paulo?’

WH-questions presuppose existence; hence, WH interrogatives (of what-ever type) will be inappropriate in contexts unable to guarantee this condition. This is corroborated by Oushiro’s (2010) data: she reports that she found no question (be it with moved WH or WH-in-situ) in out-of-the-blue contexts in her corpus.

The language acquisition and sociolinguistics results discussed here point to the same conclusion, namely, that linguistic CG disfavors WH-in-situ and contexts with universal presuppositions (not linguistically provided) favor it. However, we do not find 100 percent of WH-in-situ in universal presupposition contexts and 0 percent of WH-in-situ in contexts with linguistic CG. Rather we find only a general tendency, and it is still possible to have WH-in-situ with linguistic CG, although this is less probable. Given that even this more refined analysis, considering different kinds of CG, is not able to clearly predict the licensing conditions for WH-in-situ in BP, it is necessary to seek an analysis where grammatical restrictions play a central role. This is discussed in the next section.

11.4 AN ANALYSIS OF WH-IN-SITU IN BP

One of the main topics concerning the discussion on WH-in-situ is: Must WH-in-situ always display covert movement? The fact that WH-in-situ can take wide scope like moved WH phrases is an argument for some kind of movement. However, it may be the case that it is not the WH phrase that moves but something else. For example, Bošković (1998), examining data from French, proposes that there is insertion in LF of a [+wh] complementizer (which explains why there is no WH-in-situ out of root domains in French). This author also proposes that LF movement is necessarily feature movement (which explains the sensitivity of WH-in-situ in French to negation, for example).⁶ Nevertheless, BP has no comparable restrictions: WH-in-situ is available in embedded sentences as well as in negative sentences, as shown in (28a) and (28b), respectively:

(28) a. O João disse que o Pedro comprou o quê?

The John said that the Peter bought what

‘What did John say that Peter bought?’

6. Cf. Cheng and Rooryck (2000), who, in a rather distinct way, also propose feature movement at LF in order to explain the facts in French. These authors propose the existence of an intonation morpheme that licenses both WH-in-situ and yes/no questions and is realized by the rising intonation present in these structures. Being compatible with both structures, this morpheme in French is underspecified and must be assigned a value—wh or y/n—in order to be properly interpreted. This is achieved by movement at LF of the wh-feature to C, which explains the properties WH-in-situ exhibits in French. Apparently optional, WH-in-situ is attested, if there is no intonation morpheme in the numeration, only WH-movement is possible.

- b. O Pedro não come o quê?
The Peter not eat what
'What doesn't Peter eat?'

Alternatively, the wide scope interpretation can be obtained by other interpretative mechanisms. Reinhart (1998), for example, argues that there is no movement in Logical Form (LF) of WH-in-situ constituents. The way in which their interpretation is determined is given by a choice function, that is, a function applying to a set and yielding an individual member of the set. This mechanism is available to argument DPs but not to adverbial WH-in-situ. The prediction made by this hypothesis is that BP native speakers should see some contrast between (29a) and (29b), and also between (30a) and (30b):

- (29) a. ?A Maria viu quando o Pedro consertou o quê
The Mary laughed when the Peter fixed what
(com chicle)?
(with chewing gum)

'What did Mary laugh when Peter fixed t with chewing gum?'

- b. ??*A Maria viu quando o Pedro consertou o
The Mary laughed when the Peter fixed the
carro como?
car how

'How did Mary laugh when Peter fixed the car t?'

- (30) a. ?O Pedro conheceu a mulher que consertou o
The Peter knew the woman that fixed the
carro de que maneira?
car in which way

'In which way did Peter know the woman that fixed the car t?'

- b. *O Pedro conheceu a mulher que consertou o carro como?
The Peter knew the woman that fixed the car how?
'How did Peter know the woman that fixed the car t?'

However, judgements are not so clear-cut. In fact, it seems that only *why*-sentences are completely excluded from islands. Most speakers find locative and manner adjuncts degraded in relative clauses but judge them as less degraded in adjunct islands. There are even speakers who see no contrast at all between the sentences in (29) and (30). Hence, even if choice functions are our best alternative to explain the facts in BP (including the cases of ellipsis discussed in section 11.2), it is clear that it cannot be the whole story. In any event, we assume that the interpretative problem can be solved along the lines outlined previously, and we now turn our attention to the syntactic problem.

Kato (2004, 2013) proposes that there are two kinds of WH-in-situ in BP: *echo questions* (exhibiting rising intonation, like yes/no questions) and *ordinary questions* (showing falling intonation, like declarative sentences). Her hypothesis is that these two types of WH-in-situ have different sources:

- (31) a. the *echo*-question is the real in situ case; its intonation pattern is given by the interrogative operator Q also present in yes/no questions.
b. the ordinary question is a fake in-situ case: the WH undergoes short movement to a lower FocusP position (cf. Belletti 2004), where it has its WH-features checked. The FP position in the periphery of vP assigns falling intonation to the sentence, the same present in sentences with information focus on the object, for example.

Elaborating somewhat on Hornstein, Nunes, and Grohmann's (2005) proposal, Kato (2004) assumes that BP has three different complementizers with different properties:

- (i) a lexical *que*_[+wh] present in C⁰ forces the WH-phrase to move to its Spec:

- (32) [_{CP} Quem [_C *que*_[+wh]] [_{IP} você viu t_{WH}]]]
who that you saw
'Who did you see?'

- (ii) a null \emptyset _[+wh] present in C⁰ prevents the WH-phrase from moving to Spec CP: this is the real in-situ construction. This complementizer is responsible for the movement of IP to Spec CP (cf. Kayne 1994) and also triggers the rising intonation, characteristic of yes/no questions and *echo* WH-in-situ questions:

- (33) a. [_{CP} Q [_{IP} Você viu a Maria]] → [_{CP} [_{IP} você viu a Maria], [_C Q [_{IP} t_i]]]
You saw the Mary
'Did you see Mary?'

- b. [_{CP} Q [_{IP} Você viu quem]] → [_{CP} [_{IP} você viu quem], [_C Q [_{IP} t_i]]]
You saw who?
'You saw WHO?'

7. Note that the lexical complementizer *que*_[+wh] must also have a [+finite] feature, as the ungrammaticality of (i) shows (cf. the example in (3) in the text):

- (i) *O que que fazer numa situação dessas?
what that to do in-a situation of-this

- (iii) a null $\emptyset_{[i,wh]}$ that, when chosen, enables two possibilities—both displaying the falling intonation characteristic to WH-questions: (a) wh-checking of moved WH constructions takes place at the left periphery, in C_i , as in (34a); (b) wh-checking of the “in-situ” WH constructions takes place at the Focus projection above VP, an A' -position (cf. Belletti 2001), as shown in (34b):

(34) a. [_{CP} Quem [_C Ø [_{wh}]] [_{IP} você viu t_{WH}]]
who you saw

b. $[_{CP} Q [_{IP} \text{ voc\`e } v_{iu} [_{FP} \text{ quem } [_{F'} \emptyset_{(wh)}]]]]$
 you saw who
 'Who did you see?'

This approach leads us to the conclusion that there is no optionality at all between moved WH and WH-in-situ; in fact, there are different complementizers, each one with a different set of features.

Kato's (2004) analysis is the first one noting and attributing theoretical importance to the difference in intonation patterns between echo and real information-seeking WH-in-situ question in PB. This approach assumes a close relation between prosody and syntax,⁸ producing two interesting testable predictions: (i) echo WH-in-situ and yes/no questions have the same intonation pattern, and (ii) real information WH-in-situ questions and declarative sentences with information focus on the object or answering out-of-the-blue WH-questions also share the same prosody.

To test these predictions, we conducted a pilot experiment in acoustic phonetics.

It turns out that Kato's claims are partially confirmed: as we can see in Figures 11.1 and 11.2, echo WH-in-situ shares with yes/no questions the same intonational pattern, in particular in the very end of the sentences.⁹

Figure 11.1 shows the pitch contours of an echo WH_i-in-situ *A Maria levou o QUE?* (*Mary has brought WHAT?*) uttered in a context like “Mary has brought a cooked skunk to dinner”; Figure 11.2 exemplify a yes/no question *A Maria levou o Zé?* (*Has Maria taken Ze?*) uttered in a context such as “Maria went to a party in her office and we don’t know whether her boyfriend, Zé, was with her,” where the subject is not part of the focus.

8. However, Kato's (2004, 2013) works make reference only to the prosody of the last part of the sentence and do not pay attention to other intonation clues as duration, for example.

9. It is noteworthy that, even if the two structures are very similar in their endings, many differences can be observed between the two intonation patterns, the most visible being a much higher H tone on the subject of the *y/n* question. Clearly, a native speaker does not mistake one structure for the other.

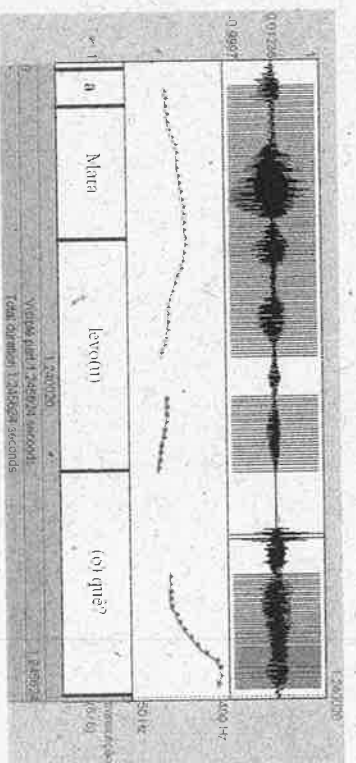


Figure 11.1 Wave form, energy and pitch contours of the echo WH-in-situ sentence *A Maria levou O QUE?*

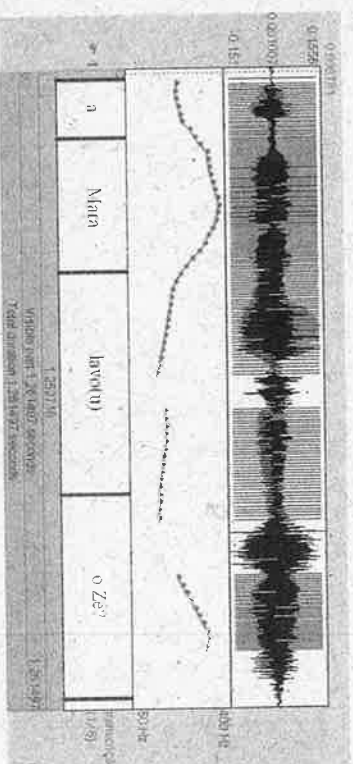


Figure 11.2 Wave form, energy and pitch contours of the yes/no question *A Mara levou o Ze?*

The second parallel drawn by Kato (2004) is a more difficult matter to settle: although it is true that both sentences exhibit a raising tone on the verb and a final falling tone, it is also clear that the range of the movements are very different, as shown in Figures 11.3 and 11.4.

Although it seems that such a close relation between prosody and syntax cannot be completely supported by the data, it is clear that intonation can be a clue for a syntactic structure or a syntactic operation, a point to which future research must return.

In what follows, we turn our attention to Kato's (2004, 2013) claim that echo and real information WH-in-situ questions have different structures. In particular, it would be expected that in structures in which the WH-in-situ is not the direct object but the indirect object or an adjunct phrase of manner, for example, some differences in word order between echo and real information WH-in-situ questions should be found. The data show that this is not the case:

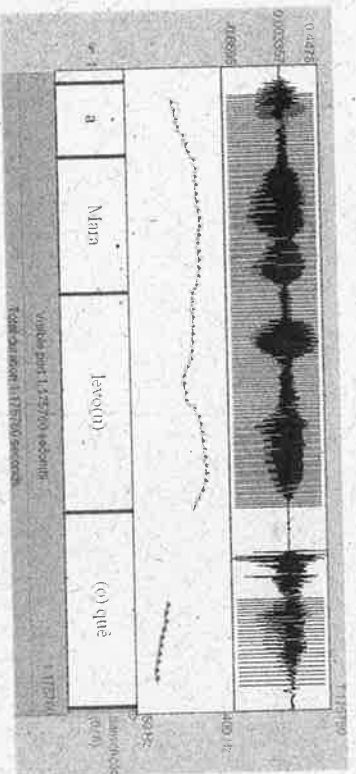


Figure 11.3 Wave form, energy and the pitch contour processed by the MOMEL script of the ordinary WH-in-situ *A Maria levou o quê?*

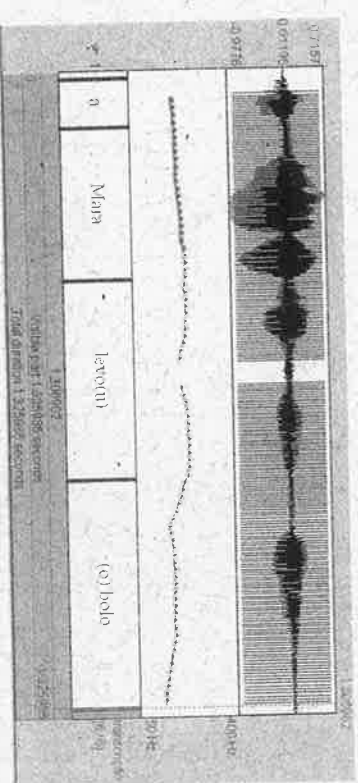


Figure 11.4 Wave form, energy and the pitch contour processed by the MOMEL script of the out of the blue declarative *A Maria levou o bolo*

- (35) a. O Pedro deu esse presente pra quem? (real question)
Peter gave this gift to whom
‘To whom did Peter give this gift?’
b. O Pedro deu esse presente PRA QUEM? (echo question)
c. O Pedro deu pra quem esse presente? (real question)
d. O Pedro deu PRA QUEM esse presente? (echo question)
- (36) a. O Pedro viu a Maria como? (real question)
Peter saw Mary how
‘How did Peter see Mary?’

- b. O Pedro viu a Maria COMO? (echo question)
c. O Pedro viu como? a Maria? (real question)
d. O Pedro viu COMO? a Maria? (echo question)

Moreover, assuming different structures for echo and real information-seeking WH-in-situ as in Kato’s proposal makes a wrong prediction concerning the possibility of stress shift. Nunes and Santos (2007) observe that null categories are not alike in this respect: *pro* blocks stress shift while traces do not have this effect. If Kato’s analysis is correct, we would expect some difference on stress shift possibilities on echo WH-in-situ and on what she calls fake WH-in-situ, since only in the latter could we have a trace thanks to the movement of the WH-phrase to the lower FocusP. In particular, in parasitic gap constructions (PG), the prediction would be that, since there is no trace in echo WH-in-situ structures, the “parasitic” null object would be a *pro*. Hence, no stress shift should be allowed, like in instances of no A-bar movement as (37a, a’); on the other hand, in the real information-seeking WH-in-situ structures, as in moved WH structures exemplified in (37b, b’), stress shift in the embedded sentence would be grammatical, given the trace in the matrix sentence. However, as we see in (37c, c’) and (37d, d’), no stress shift is possible in WH-in-situ interrogatives, as echo or fake ones (examples adapted from Nunes and Santos 2007: 127):

- (37) a. Eu encomendei esse livro [depois que ela^{ok} perdeu *pro* ontem]
a’. Eu encomendei esse livro [depois que ela^{ok} perdeu *pro* ontem]
I ordered this book after that she lost yesterday
‘I ordered his book after she had lost it yesterday’
b. [Que livro] você encomendou t_i [depois que ela^{ok} perdeu PG ontem]?
b’. [Que livro] você encomendou t_i [depois que ela^{ok} perdeu PG ontem]?
which book you ordered after that she lost yesterday
‘Which book did you order after she lost yesterday?’
c. Você encomendou que livro [depois que ela^{ok} perdeu *pro* ontem]?
c’. Você encomendou que livro [depois que ela^{ok} perdeu *pro* ontem]?
you ordered which book after that she lost yesterday
d. Você encomendou QUE LIVRO [depois que ela^{ok} perdeu *pro* ontem]?
d’. Você encomendou QUE LIVRO [depois que ela^{ok} perdeu *pro* ontem]?
you ordered WHICH BOOK after that she lost yesterday

The judgments reported by Nunes and Santos (2007: 127) do not contain echo WH-in-situ sentences, but in any case they suggest that WH-in-situ

interrogatives always behave like (37a, a'), as opposed to moved WH-questions, like (37b, b'). Even if these judgements are subtle, they are robust. These facts lead us to abandon the difference in structural representation of echo and real information-seeking questions in BP. We adopt the more conservative idea that in-situ questions are in fact in-situ, as suggested by stress shift facts, independently of their intonation or their interpretation.

In any event, Kato's (2004) analysis of BP, resorting to a set of complementizers, makes very precise predictions concerning the distribution of the different types of WH structures. Elaborating somewhat on her proposal, let us see how Kato's hypothesis deals with the data examined in section 11.2. The data concerning apparent optionality are explained on the basis of the choice of the different complementizers: the null $\emptyset_{[+wh]}$ is responsible for the (echo or real information) WH in-situ version of the interrogatives in (1) to (5),¹⁰ while the $\emptyset_{[-wh]}$ is responsible for the version with moved WH (in which case it is generated in the head of CP).

On the other hand, as far as the obligatory WH-movement version is concerned, we have either the lexical *que* occupying C (including the case of cleft interrogatives) or a selectional requirement of the matrix predicate (which requires WH-movement to the embedded Spec CP even if the complementizer is null). The only case for which this hypothesis does not provide an immediate analysis is the case of inherently non D-linked cases, as in (9). Given the special lexical character of this WH expression, in particular its impossibility to refer, we are led to suppose that it is impossible to use the choice function mechanism to arrive at an interpretation for this DP, a matter that deserves further research.

Kato's hypothesis faces more difficulties in explaining the obligatory WH-in-situ cases. The sentences analyzed are those presented in (10) to (15), which exemplify the following syntactic constructions: strong islands (relative clauses in (10) and adjunct clauses in (11)), definite null subjects (exemplified in (13)) and truncated structures (as in (14) and (15)). In all these cases, the chosen complementizer is the $\emptyset_{[-wh]}$. The problem is to relate this complementizer to the Q morpheme, which is ultimately responsible for the interpretation of these sentences as questions. The original proposal builds the relation postulating remnant movement of the sentence to Spec CP, but this is clearly impossible in the case of strong islands. We need to find another way to relate the Q morpheme to the WH-in-situ in strong islands.

At this point it is interesting to seek new ways of thinking about these old problems in the recent literature. In order to deal with cross-linguistic differences in interrogative constructions, the Minimalist Program, for example

10. It is not clear how the hypothesis that this complementizer has the ability to force remnant movement of the sentence to Spec CP, as in Kato's original proposal, deals with the sentences in (3).

(which assumes that narrow syntax is universal), tries to find other elements that could be responsible for the distinctions at the interfaces. It is therefore not surprising to find researchers playing with more than simply the WH operator and its variable, such as Kato (2004, 2013) and Cheng and Rooryck (2000). A particularly interesting work in this respect is Reglero and Ticio (2013) on Spanish WH-in-situ. Assuming a non-movement approach, since WH-in-situ inside islands is possible in this language, they arrive at a unified analysis of WH-in-situ in both the nominal and clausal domains.

Their hypothesis, built on the work of Cable (2010), is that Spanish possesses two Q-particles in the lexicon: one that agrees with the WH-phrase and triggers its movement and another that does not agree with the WH-phrase and enters the derivation in ForceP. Thus different Q-particles associated with a copy theory of movement partially explain the Spanish WH-in-situ facts. Other characteristics of the phenomenon are explained by an interface language-specific restriction, namely, the fact that the Nuclear Stress Rule in Spanish requires the most prominent element of the sentence or DP (its focus) to be at the very right edge in order to receive main stress.

It is not our aim here to defend this specific analysis or any other, because it is not our intention to assume a particular version of the Minimalist Program. Our point here is just to note that we have to have one more element to be able to complete the picture: a Q-morpheme, null or realized by intonation, or many types of complementizers, or something else. For the time being, we leave this question for future work, keeping our attention on the specific constraints languages exhibit.

One of the interesting observations of Reglero and Ticio's (2013) work is that a phonological rule that is mandatory in Spanish declarative sentences—the Nuclear Stress Rule—is also active in WH-in-situ constructions. What we see in BP is the same: in BP the stress rule applying in declaratives does not require the final position to be the most prominent element of the sentence; the same is true of WH-in-situ sentences, which means that it is perfectly possible to have “medial” WH-in-situ, as seen in examples like (35c–d) and (36c–d). Yet more interesting is the fact that WH-in-situ interacts with the null subject phenomenon. This is the reason why the explanation for obligatory WH-in-situ in definite null subject constructions in BP is less direct: this is a parametric option of this grammar, not a universal impossibility, as shown by the Rio da Plata Spanish data (we thank Marcelo Villena e Andrés Saab for these data)—to be contrasted with the BP data in (13), repeated here as (38e–f):

- (38) a. Vas adónde?
(you) go where?
- b. María llegó cuándo?
Mary - arrived when?

- c. Adónde vas?
- d. Cuando llegó (María)?
- e. Falou o quê?
- f. *O que (que) falou?
What spoke?

Some scholars (cf. Figueiredo Silva 1996, 2000; Modesto 2000) have suggested that the CP system is concerned with the possibility of definite null subjects. Specially in root sentences, Figueiredo Silva observes that null subjects are impossible both in interrogative sentences and in focalized sentences in which the focus has been moved to the initial position of the sentence, as (39) shows; however, if the focalized phrase is not moved to this higher position, the sentence is acceptable, as shown by (40):

- (39) a. *O que ec comprou?
/what ec bought?/
- b. (context: – Mary will bring a salad to the dinner)
– * (Não,) A SOBREMESA ec vai trazer.
No, THE DESSERT will bring
- (40) (context: someone says: “Mary will bring a salad to the dinner”)
– ? (Não,) ec vai trazer A SOBREMESA.
No, will bring THE DESSERT

Hence, it seems that there is no incompatibility between focalized (in-situ) phrases and null subjects in BP. The problem concerns the higher projection in the CP system, where null subjects and moved WH or focused phrases will be fighting for an adequate position.

It should be noted that null subjects are not incompatible with informational focus on the object either, as shown in (41):

- (41) – Quem a Maria convidou pra jantar?
who Mary invited to dinner?
– ‘Who did Mary invite for dinner?’
– ec convidou o Paulo.
invited Paul
– ‘She invited Paul.’

However, it can be the case that (41) is in fact an elliptical structure, a matter to be discussed in the next section; the truncated structures presented in (14) and (15) are also discussed.

11.5 ELLIPTICAL STRUCTURES AND OBLIGATORY WH-IN-SITU

We now must consider the following problem: What should be said about structures like *o dador de quem?* (injury of whom?) or *junto com quem?* (together with whom?)? If they really are structures in which there is no functional projection, how can we interpret them as WH interrogatives?

A possible solution (tentative at this stage) is to explore a general property of interrogatives, shown in (42) (material in “< >” are elided):

- (42) A: O que o João comeu?
‘What did John eat?’
B: <O João comeu> maçã
‘<John ate> apple’.

The most natural answer to the question is not the full sentence but only the focused part of the sentence, which is new information, corresponding to the answer to the WH constituent. As noted by Valluvu (1993), the only part of the sentence that cannot be missing is the focused element. But how can we represent this structural possibility?

An answer to this question in the spirit of the framework adopted by Kato (2004, 2013) is to suppose that focalized elements, when they are informational focus and are the only pronounced part of the sentence, must occupy the specifier of a higher FocusP position. Hence, the answer in (42) has in fact a structure like (43):¹¹

- (43) [_{FocusP} maçã, [_{IP} <O João comeu t>]]
apple the John ate
‘Apples, John ate.’

When the answer to the question in (42) is comprised of only the focus part (“maçã”), we have a special structure, in which ‘maçã’ is in (a higher) Spec FocusP and the remaining part of the sentence is elided under identity with the relevant part of the question. How exactly does this process of elision work?

We propose an analysis based on Saab’s (2008) ellipsis theory. For this author, a constituent α can be elided if there exists an antecedent β , identical to α , and α is selected by a functional head containing an [E] feature. Hence,

11. Holmberg (2001), discussing minimal answers to yes/no questions in Finnish, proposes an analysis similar to what is being proposed here: the answer with a finite verb is derived from the full sentence, with additional movement of the finite verb to a position outside IP, followed by ellipsis of the entire IP. Although comparing these proposals would be very interesting, it would lead us far from our present concerns, and for this reason we leave aside this matter.

TP can be elided if C has the [E] feature; VP can be elided if T has the [E] feature, and so on. If we adopt this proposal, we can say that IP in (43) can be elided because the head of FocusP has the [E] feature.

The problem we have to solve here is one of locality concerning the identity requirement that holds for ellipsis: it is clear that, in the example under discussion, there exists an antecedent β , but this antecedent does not belong to the utterance of the same speaker. However, it must be noted that question/answer pairs are domains of locality for other processes, including pronominal reference, as we can see in the following:

- (44) A: Onde está a Maria?
'Where is Mary?'

B: A Ana_k disse que ela_i saiu.
'Ana_k said that she_i left.'

In out-of-the-blue contexts, B's sentence would have the interpretation in which it is Ana herself who left, a reading excluded in the dialogue, showing that even if the DP belongs to the speech of a different speaker, it counts as a possible antecedent for the pronoun.

If this set of ideas is correct, we also have an explanation for the cases of truncated structures, like *o dodoi de quem?*, in which it seems that an isolated DP is doing the job of a whole sentence. We can hypothesize that in fact this DP is an argument of a sentence, which is elided under identity, resulting in a structure like (45):¹²

- (45) [_{FocusP} [_{DP} *o dodoi de quem*]_i FocusP [_{IP} *você viu t_i*]]

Here the problem is more serious because in fact we do not have the sentence in the preceding discourse. A complete analysis of this type of case deserves a separate study.

In any case, for the most general case, it seems possible to extend the analysis and postulate movement of the focus of the sentence to Spec FocusP, yielding representations like (47) for question/answer pairs like (46):¹³

- (i) [_{IP} *você viu* [_{FocusP} [_{DP} *o dodoi de quem*]_i FocusP [_{IP} *você viu t_i*]]]

12. As observed by an anonymous reviewer, it may be the case that the structure at stake is not like (45) but rather like the following:

However, it is not clear how to implement an analysis based on ellipsis if the structure at hand is (i) because, in general, elliptical processes operate by stripping out the lower part of the tree, not the upper one.

13. These constructions can be considered examples of the "vertical syntax" discussed by Scollon (1976). According to the author, this type of interaction is crucial in children's development of syntax. Children start with a vertical syntax, with the adults'

- (46) A: Onde você está indo?
'Where are you going?'

B: Para o quarto
'To the bedroom.'

A: Fazer o quê?
'To do what?'

- (47) B: [_{FocusP} [_{para o quarto}]_i FocusP [_{IP} *eu estou indo t_i*]]

A: [_{FocusP} [_{fazer o quê}]_i FocusP [_{IP} *você está indo para o quarto t_i*]]¹⁴

Even if this analysis is tentative at this stage of the research, it can explain some properties of this construction, like the impossibility of generic interpretation for the null subject in this case: the elided material is recovered under identity with the antecedent, present in the previous utterance. The generic interpretation is perfect in a root infinitive as a matrix interrogative, as we have seen in (3), partially repeated in (48):

- (48) Fazer o quê (numa situação dessa)?
To do what (in a situation like this)?

11.6 CONCLUSION

This chapter has presented a very detailed description of the contexts in which WH elements must move or must remain in-situ and also the contexts in which both options are possible in BP. It brought some evidence against both Pires and Taylor's (2007) and DeRoma's (2011) proposals for the pragmatic licensing conditions on WH-in-situ in BP, suggesting a way of improving DeRoma's analysis in order to account for the data discussed. It has also explored Kato's (2004, 2013) proposal regarding a syntactic analysis for this construction. Although we concluded that Kato's proposal cannot account for the facts presented in this chapter, by discussing her proposal we gained a clearer picture of WH-in-situ in BP and the WH-in-situ phenomenon in general.

participation, in order to arrive at a horizontal syntax, where he or she can produce complete sentences. As we can see by this example, vertical syntax is also present in adult exchanges.

14. As a matter of fact, this movement results in an ungrammatical sentence. Here the ellipsis seems to be a rescue strategy, a powerful mechanism that must be studied in future work.

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