Speculations about the Aquisition of Wh-Questions in Brazilian Portuguese

Elaine Grolla

1. Introduction

This study investigates the acquisition of wh-questions in Brazilian Portuguese (BP). It analyzes the spontaneous productions of two children, Natália and Luiza, acquiring the São Paulo dialect of BP as their native language and compares them to the spontaneous productions of two other children acquiring the Bahia dialect of BP. The data reveal an interesting pattern in the development of wh-questions in these children: for the São Paulo children, the first wh-questions have only moved wh-elements; wh-in-situ questions emerge quite late (at 3;9 years in the case of Natália and 3;11 in the case of Luiza). This pattern of development differs from what is found in the Bahia dialect, where children are reported to start off with wh-in-situ (Lessa-de-Oliveira (2003)). The same is also found in child French, where wh-in-situ is the first wh-question to emerge and the preferred strategy.

These different paths in the development of wh-questions across different systems raise interesting questions related to economy principles in acquisition. It is usually assumed that in-situ wh-questions are more economical than moved-wh questions as they involve no wh-movement. If children obey economy principles in the acquisition process (as claimed in Hamann (2006); Jakubowicz (2004); Jakubowicz and Nash (2001); Zuckerman (2001) and Zuckerman and Hulk (2001), among others), how could we account for the different paths in the development of wh-questions (wh-in-situ in particular) in these different systems?

The answer I will provide, although a tentative one, lies in different analyses for wh-in-situ in these different systems. The paper is organized as follows. Session 2 describes wh-questions in adult BP. Section 3 presents the acquisition data in both dialects of BP and what has been reported in the literature for child French. Section 4 discusses Zuckerman's (2001) proposal relating the order of emergence of wh-constructions in

children's data to economy principles and frequency in the input. Section 5 is the conclusion.

2. Wh-questions in adult Brazilian Portuguese

BP questions do not display I-to-C movement, neither on yes/no questions nor on wh-questions (cf. (1a)-(1b-e)).[1] There are four types of wh-questions in BP spoken in São Paulo (SP), in the southern part of Brazil, as shown in (1b-e) below:

(1) a. *O   João está lavando o carro?*   (Yes/no)
         The João is   washing the car
         'Is John washing the car?'

     b. *O que o João comprou?*   (Moved-wh)
         What the João bought
         'What did John buy?'

     c. *O que **que** o João comprou?*   (Wh-que)
         What that the João bought
         'What did John buy?'

     d. *O que **é que** o João comprou?*   (Wh-é-que)
         What is that the João bought
         'What is it that John bought?'

     e. *O João comprou o quê?*   (Wh-in-situ)
         The João bought what
         'What did John buy?'

I analyze the moved-wh construction as involving movement of the wh-element to spec,CP, as illustrated in (2a) below. Evidence that movement takes place is indicated by sensitivity to islands (2b). A further aspect to note is that inherently non-D-linked elements like *que diabo* 'what the hell' must be moved to the left periphery (2c/d) (cf., Hornstein, Nunes and Grohmann 2005: 43).[2]

(2) a. *[$_{CP}$ O que$_i$ [$_{IP}$ o João comprou t$_i$]]*
             What   the João bought

     b. **O que a Maria reclamou [depois que o João comprou]?*
         What the Maria complained after that the João bought
         'What Mary arrived after John has bought?'

    c.   *Que diabo você comeu?*
        What devil you ate

    d.   **Você comeu que diabo?*
        You   ate   what devil
        'What the hell did you eat?'

Constructions of the *Wh-que* type also involve movement of the wh-element to spec,CP (3a). Just like moved-wh constructions, in *wh-que* constructions there is sensitivity to islands (3b). If *que* 'that' is inserted, the wh-element cannot remain in situ (3c). In this type of construction, there is no emphasis, but instead, a neutral interpretation.

(3)   a.   *[$_{CP}$ O que$_i$ [$_C$ que] [$_{IP}$ o João comprou t$_i$]]*
                          What   that   the João bought

    b.   **O que que a Maria   riu   [depois que o João comprou]?*
        What that the Maria laughed after that the João bought
        'What Mary laughed after John bought?'

    c.   **Que o João comprou o quê?*
        That the João bought what

The *Wh-é-que* question derives from cleft sentences (cf., Kato (1993); Kato and Mioto (2002); Lopes-Rossi (1996) and Mioto (1994), (2001)). First, there is movement of the wh-element to the first Spec,CP, then to the second one (4a). Island effects are also detected (4b). In this construction, the wh-element cannot stay in-situ (4c). For some speakers, the insertion of *é que* gives rise to an emphatic interpretation; for other speakers (me included), a neutral interpretation is also possible:

(4)   a.   *[$_{CP2}$ O que$_i$ [$_C$] [$_{IP}$ pro é [$_{CP1}$ t$_i$ [$_C$ que] [$_{IP}$ o João comprou t$_i$]]*
                  what   is   that   the João bought

    b.   ** O que é que a Maria riu   [depois que o João comprou t]?*
        What is that the Maria laughed after that the João bought
        'What is it that Mary laughed after John bought?'

    c.   ** É que o João comprou o quê?*

The analysis for the *wh-in-situ* construction assumed here is based on Kato (2004). Kato proposes that this construction is just an apparent in-situ case. Kato observes that, differently from French, in BP wh-in-situ questions have falling intonation differing from yes/no questions, which have rising intonation. Kato proposes that the falling intonation is due to a

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clause-internal FP position, which has a null [+wh] head.[3] The wh-element moves to Spec,FP (a projection above vP), as shown in (5a) and then IP moves to Spec,CP (as shown in (5b)). No island effects are detected, as the whole IP moves to Spec,CP (5c):

(5)   a.   *[$_{CP}$ [$_C$ Q_{+wh}] [$_{IP}$ O João$_j$ comprou$_k$ [$_{FP}$ o que$_i$ [$_{VP}$ t$_j$ t$_k$ t$_i$]]]]*
          the João bought   what

      b.   *[$_{CP}$ [$_{IPm}$ O João comprou o que] [$_C$ Q_{+wh}] [$_{IP}$ t$_m$]]*

      c.   *A Maria reclamou [depois que o João falou o que]?*
          The Maria complained after that the João said what
          'Mary complained after John said what?'

All of these options available in BP are not entirely interchangeable. Although a complete analysis of these question types is still lacking, there are syntactic, morphological and pragmatic restrictions that favor one or another construction. For example, as mentioned before, if *que* 'that' is placed in C^0, the wh-element cannot remain in-situ. Also, the wh-element *que* 'what' cannot remain in-situ (only if it is the complement of a preposition, see note 2). The wh-word *por que* 'why' cannot remain in-situ if it is used in a type of 'invitation/suggestion' question, as shown below:

(6)   *Por que você não senta aqui?*
         Why   you   not sit here
         'Why don't you have a sit here?'

(6) can be interpreted in two ways, as a suggestion (i.e., as an invitation for the interlocutor to have a seat) or as a real question, seeking an answer. As a real question, it can have an in-situ counterpart, but as a suggestion it can't. Pires and Taylor (2007) observe some discourse-pragmatic requirements that can license wh-in-situ (both in BP and in English). They propose that wh-in-situ is possible when the information being requested is expected by the speaker to be part of the common ground (the common knowledge of the participants of the conversation). For example, the wh-phrase in (7B) below can be in-situ because the set of possible answers is part of the common ground. (8), on the other hand, is considered infelicitous as it does not satisfy the common ground conditions:

(7)   A: *I did not sell those strange pictures.*
         B: *You didn't sell what strange pictures?*

(8)   You approach a colleague at work and ask, out of the blue:
        B: # *Você conhece quem em São Paulo?*
        C: # *You know who in São Paulo?*

My dialect is clearly more permissive than Pires's, as (8B) is a perfectly fine wh-question to me. Although the differences in judgment, I agree that there appear to exist some factors that favor one type of strategy or another (although they have not been clearly defined yet). Following Zuckerman (2001), I will assume that optionality in word-order does not exist. In Zuckerman's (2001: 53) words: "two structures that differ in word-order cannot be the result of the same numeration. This is the direct result of economy of derivation and thus holds for both adult language and child language."

The description above refers to the possibilities found in the dialect spoken in São Paulo (henceforth SPP). There is a dialect spoken in the state of Bahia (henceforth BAP), in the northeastern part of Brazil, with some distinct properties.

The first difference is that, besides the types of wh-constructions described above, BAP has a fifth one: *é-wh-que*, which is not possible in SPP. I will assume that it is derived from cleft sentences (similarly to *wh-é-que* construction). As shown below, the wh-element moves only to the intermediate spec,CP (9c) (data taken from Lessa-de-Oliveira 2003: 41):

(9)   a.   *É o que que você quer?*
                Is what that you want
                'What is it that you want?'
        b.   *É quem que tá tomando banho?*
                Is who that is taking a shower
                'Who is it that is taking a shower?'
        c.   *[IP pro é [CPI o que_i [C que] [IP você quer t_i]]*

The second difference is that non-D-linked expressions like *que diabo* 'what the hell' may remain in-situ, a totally excluded possibility in SPP. Thirdly, the frequency of wh-in-situ in the BA dialect is much higher. Lessa-de-Oliveira (2003) reports that the input of one child studied by her had 80% of wh-in-situ questions out of the total of wh-questions. In the SP dialect, the frequency in one child's input revolved around 9%. Finally, the dialect spoken in Bahia is very distinct from the one spoken in São Paulo.

There are not only lexical and syntactic differences, but also intonational differences as well. Given the intonation differences (that have not yet been clearly analyzed) and the fact that even non-D-linked expressions may remain in-situ, we could speculate that wh-in-situ questions in this dialect do not involve movement to the clause internal FP, as in SPP. It is possible that in BAP wh-in-situ involves no movement at all, as has been claimed in Lessa-de-Oliveira (2003).

Both dialectal variants of wh-in-situ in BP differ from wh-in-situ in French. In French, wh-in-situ is only allowed in matrix questions, but in BP, it is allowed in embedded questions as well (French data below taken from Cheng and Rooryck 2000):

(10)   a.   *Jean a acheté **quoi**?* (French)
               João comprou o quê? (BP)
               'John has bought what?'
       b.   **Marie pense que Jean a acheté **quoi**?* (French)
               Maria acha que o João comprou o quê? (BP)
               'Mary thinks that John has bought what'

Another restriction found in French but not in BP is that wh-in-situ cannot be preceded by quantifiers, negation, or modals:

(11)   a.   *# Tous les étudiants ont rencontré **qui**?* (French)
               *Todos os alunos encontraram **quem**?* (BP)
               'All the students have met who'
       b.   *# Il n'a pas rencontré **qui**?* (French)
               *Ele não encontrou **quem**?* (BP)
               'He didn't meet who'
       c.   *# Il peut rencontré **qui**?* (French)
               *Ele pode encontrar **quem**?* (BP)
               'He can meet who'

In French, negative answers are not legitimate answers to in-situ wh-questions, but they are good answers to wh-in-situ questions in BP:

(12)   Question: a.   *Marie a acheté **quoi**?* (French)
                   b.   *A Maria comprou **o quê**?* (BP)
                           'Mary bought what'
       Answer: a'.   *??Rien.* (French)

   b'. *Nada.* (BP)
      'Nothing'

  Finally, according to Cheng and Rooryck, French wh-in-situ questions have the same intonation as yes/no questions. As mentioned above, the intonation of wh-in-situ questions in BP is different in the two dialects. While in SPP yes/no questions and wh-in-situ questions have different intonation patterns, in BAP this is not completely clear. All of these differences suggest that wh-in-situ are in fact distinct phenomena in these systems.

  In sum, in BP we find two dialects with different properties with respect to wh-questions. These properties are also different in BP on the one hand and in French on the other.

3. The Acquisition Data: SPP, BAP and French

Studies on the acquisition of wh-questions in French have shown that children do not start producing all types of wh-constructions at the same time. Considering the analyses available in the literature on the spontaneous productions of eight children (Philippe analyzed in Crisma (1992); Hamann (2000), (2006) and Hulk (1996); Augustin, Louis and Marie analyzed in Hamann (2000), (2006); Lea, Max and Anne analyzed in Plunkett (1999), (2004) and Fabien analyzed in Weisenborn, Roeper and De Villiers (1991)), the general pattern is that, in their initial stages, children prefer wh-in-situ questions over moved-wh.[4] Zuckerman (2001) makes the interesting observation that French-speaking children prefer the wh-in-situ strategy in their early stages, despite their lower frequency in the input.

  In BP, the development of wh-questions takes two distinct paths. Children acquiring BP in São Paulo display a different pattern from children acquiring BP spoken in Bahia. While children in Bahia display the same development as French children (with wh-in-situ appearing before moved-wh and being the preferred strategy in production), children in SP follow the opposite: they start with moved-wh and only after more than 3 years and a half, do they start producing rare examples of wh-in-situ.

  The SPP data to be discussed here are from Natália (from the University of Campinas – UNICAMP – project on Language Acquisition) and Luiza (from the University of São Paulo – USP – project). Natália's data are

comprised of 53 audiotape-recording sessions. The child was recorded once a week, every week, from 2;0 to 4;0 years of age. Luiza's data are comprised of 65 videotape-recording sessions. She was recorded once a week, every week, from 1;10 to 5;6 years of age. Natália is from Campinas, a city near São Paulo and Luiza was born and raised in São Paulo.

Up to 3;9 years of age, Natália produced only questions with the wh-element in the left periphery. After 3;9, questions with the wh-element in-situ started to appear. In Luiza's data, the first occurrence of wh-in-situ was at 3;11 years. Examples of the children's productions are shown below:

(13) a. *O que ele tá fazendo aqui?* (L 3;0)
          What he is doing   here
          'What is he doing here?'
     b. *Onde que eu vou montar?* (L 4;9)
          Where that I will assemble
          'Where will I assemble (it)?'
     c. *Como é que você está?* (L 2;9)
          How is that you are
          'How is it that you are?'
     d. *Quem foi que deu?* (L 2;4)
          Who was that gave
          'Who was it that gave (it)?'

(14) a. *Eu quero brincar   com quê?* (N 3;11)
          I   want   play-inf with what
          'What do I want to play with?'
     b. *Esse é o que?* (L 4;6)
          This is what
          'What is it?'
     c. *Tá escrito o que?* (L 4;11)
          Is written what
          'What is written?'

The table below compares the production of wh-questions in Luiza's input and in Luiza's and Natália's corpora:[5]

Table 1. Wh-questions in Luiza's input and in Luiza's and Natália's data[6]

Question	Luiza's Input	Luiza	Natália
Moved-wh[7]	31,1% (224)	73,5% (303)	66% (344)
Wh-que	38,2% (274)	20,9% (86)	29,4% (153)
Wh-é-que	21,4% (154)	3,9% (16)	2,9% (15)
Wh-in-situ	9,3% (67)	1,7% (7)	1,7% (8)
Total	100% (719)	100% (412)	100% (520)

The children's data are quite different from the adult data. While in the input we find around 9% of wh-in-situ questions, Natália and Luiza produced less than 2% of such constructions. Conversely, while in the input we find around 30% of moved-wh, children produced more than double, 66% in the case of Natália and 73% in the case of Luiza. The production of *wh-é-que* is also quantitatively different in children and adult. In Luiza's input, the frequency of *wh-é-que* revolves around 20%, while Luiza and Natália produced less than 4% of such constructions.

It is worth noting that Natália's and Luiza's data are similar to what was found in the data of other three children (Gabriela, Raquel and André) acquiring SPP studied in Sikansi (1999). These data corroborate the numbers found in the present study: in the production of the three children, there were only 02 wh-in-situ questions out of a total of 209 wh-questions. These children also display similar figures to the ones studied here as they also produced more moved-wh (total of 161 cases). The second most produced strategy is *wh-que* (with 29 productions) and the third one is *wh-é-que* (with 17 cases).

The order of emergence of wh-question constructions in the speech of Natália and Luiza are shown below:

Table 2. Age of first appearance of wh-questions in Luiza's and Natália's data

Question	Luiza	Natália
Moved-wh	2;0	2;2
Wh-que	2;0	2;9
Wh-é-que	2;3	3;2
Wh-in-situ	3;11	3;9

Although Natália took longer to acquire all of the strategies, the order of emergence is similar in both children: moved-wh and *wh-que* are the first ones to emerge, followed by *wh-é-que*. Wh-in-situ is the last one to emerge in both children's data.

A completely different pattern of emergence is found in children acquiring BAP. Lessa-de-Oliveira (2003) investigates the acquisition of wh-questions by two children from Bahia, whose parents were also from that region. The children, Luana and Ester, were recorded once a week every week from 18 to 28 months. The recording sessions lasted 30 minutes each. The author analyzed not only the children's production, but also the frequency of wh-questions in the children's input. In the input of one child, the frequency of wh-in-situ questions was around 50% and in the input of the other it revolved around 80%. These figures are much higher than the one reported for the São Paulo region. The table below, which was built based on the data taken from Lessa-de-Oliveira (2003), shows the frequency of each construction in the children's input and in their corpora:

Table 3. Wh-questions in the children's input[8] and in Luana's and Ester's data

Question	Luana's input	Luana's data	Ester's input	Ester's data
Wh-in-situ	81.7%	76,6% (111)	53,5%	25,4% (52)
Moved-wh	5,7%	15% (22)	25,4%	70,2% (144)
Wh-é-que	4,3%	4,8% (07)	9,8%	2,5% (05)
Wh-que	6%	2,8% (04)	9,4%	1,9% (04)
É-wh-que	2,3%	0,8% (01)	1,9%	0
Total	100%	100% (145)	100%	100% (205)

The order of emergence of the different strategies are shown in the table below:

Table 4. Age of first appearance of wh-questions in Luana's and Ester's data

Question	Luana	Ester
Moved-wh	1;8	1;6
Wh-in-situ	1;7	1;9
Wh-que	1;7	2;1
Wh-é-que	2;2	1;11
É-wh-que	2;3	-

Although the two children's data do not display the same order of emergence, wh-in-situ and moved-wh are the first structures to appear. *Wh-é-que* and *é-wh-que* are the last ones (Ester has not produced *é-wh-que* in the period of recording sessions).

In sum, children acquiring French start off producing wh-in-situ and after a little while start producing moved-wh, followed by the other types of strategies available in their target language. In the initial stage, the preferred strategy is wh-in-situ. In BAP, moved-wh and wh-in-situ emerge

quite early; wh-in-situ is their preferred strategy as well. The other wh-constructions emerge after a short period.

On the other hand, children acquiring SPP start with moved-wh and *wh-que*, followed by *wh-é-que*. Only after a long period of time (around 3;9 years) wh-in-situ emerge in their speech, being the least preferred strategy.

4. Economy in Acquisition

Zuckerman (2001) investigates the acquisition of 'optional' movement in several languages, like wh-movement in French, auxiliary+infinitive structures in Dutch, inversion in Hebrew, among other constructions. He assumes that children adopt principles of economy to select among alternatives in the process of language acquisition. His hypothesis is that, when a case of apparent optionality arises in the input, the most economical candidate will be chosen. He argues that the acquisition of 'optional' operations, like wh-movement in French, involves balancing two factors: the input and children's tendency for economy. This balancing gives rise to early stages in acquisition where children prefer the more economical strategy; that is, the one with fewer movements.

Considering the number of movements involved in order to derive wh-questions in French, Zuckerman (2001) presents a hierarchy from the most costly strategy to the most economical:

(15)   a.   *Comment as-tu   fait ça?*   (Inversion)[9]
                    how   have-you done that
                    'How did you do that?'

          b.   *Comment est-ce-que tu   as   fait ça?* (Wh+ESK)
                    How   ESK   you have done that
                    'How did you do that?'

          c.   *Comment tu as fait ça?*   (Fronting)
                    how   you have done that
                    'How did you do that?'

          d.   *Tu   as   fait ça comment?*   (Wh-in-situ)
                    You have done that how?
                    'How did you do that?'

The least economical derivation is inversion, as it involves two movements: wh-movement and verb movement to C. Wh+ESK is the

second on the hierarchy. It involves the fronting of a wh-word (other than *que* 'what') followed by insertion of the marker *est-ce que*. Following Rooryck (1994), Zuckerman analyzes *est-ce que* as a complex Q-morpheme, an unanalyzed chunk base generated in C. Fronting without inversion is the second more economical strategy, as it involves movement of the wh-element, but no verb movement. The wh-in-situ strategy is the most economical of the constructions above, as it involves no wh-movement nor verb movement.

Considering this hierarchy, Zuckerman (2001: 98) proposes that the least costly strategy should be the preferred one by children; the most costly one should be the least preferred. However, he argues that economy is not the only relevant factor in acquisition. The author reasons that children's preferences should also be influenced by what appear in the input. The structures that appear frequently in the input, even if they are less economical, might influence children to hypothesize intermediate rules that allow them to parse and produce these structures. As a result, his prediction is not for a total absence of the less economical structures and a 100% production of the most economical one, but rather for preferences that favor the economical structure, in comparison to adult-preferences. His underlying hypothesis is that children begin with a general preference for the most economical option, and based on the frequency of the less economical option in the input, they produce the less economical option more and more frequently until it reaches the frequency in adult speech.

As for the status of these wh-in-situ strategies and their discourse-pragmatic licensing, Zuckerman and Hulk (2001: 89) suggest that: "the claim that children use economy principles to select among the variants is based on the assumption that children are not sensitive to those delicate pragmatic or stylistic differences. Economy principles are relevant only when the child does not find a semantic/pragmatic difference between the variants."

Therefore, even if wh-in-situ in adult BP and French has some discourse-pragmatic restrictions that are so difficult to spell out, as mentioned in section 2 above, we could work with the hypothesis that children opt for wh-in-situ as an economy strategy (in the systems where they are in fact economical) and do not worry about these pragmatic differences between the alternatives in these initial stages.

Based on the economy metric presented above, Zuckerman (2001: 98) makes the following predictions: "when comparing children's wh-questions with those of their parents (as representative of the input), we

should find that: (a) children use fewer Inversion and WH+ESK questions than their parents do; (b) Children use more wh-in-situ questions than their parents do."

He interviewed 33 French-speaking children (from 4;0 to 5;9 years of age) and 22 adults in an eliciting task. Children produced almost no inversion, although adults used it in 62% of the cases. The Wh+ESK strategy is produced in 5% of the adult responses and 0% in children's responses. Children produced fronting more often than adults did, but Zuckerman suggests that this might be an experimental artifact as the stimuli had an embedded form with the fronting option, which could have made children prefer this strategy in their responses. Children also produced more wh-in-situ than adults.

Comparing his results to existing data from the seven children mentioned in the begining of section 3, Zuckerman observes that the preferences of children in his study and in the existing data are similar: children begin with wh-in-situ and no inversion, then acquire fronting, Wh+ESK and inversion, in that order.

Based on Zuckerman's proposal, we can build the hierarchy from the least to the most economical structures in BP as follows:

(16)   SPP:
        Wh-in-situ/w*h-é-que* (2 movements)
        Wh-qu/moved-wh (1 movement)

(17)   BAP:
        Wh-é-que (2 movements)
        Moved-wh/*wh-qu/é-wh-que* (1 movement)
        Wh-in-situ (no movement)

As described in section 2, in SPP, wh-in-situ is not a real in-situ case, involving 2 movements: first, the wh-element moves to spec,FP (a clause-internal position) and then IP moves to spec,CP. In BAP, on the other hand, wh-in-situ may be seen as a real in-situ case, with no movement involved. If this analysis is on the right track, in one dialect (BA) wh-in-situ is the most economical strategy, but in the other (SP), it is one of the most costly. Therefore, the predictions for BP are going to vary depending on the dialect.

It is interesting to note that in both dialects the most economical strategies are also the most frequent. Therefore, we should expect them to

emerge first and be the preferred ones by children. In SSP, moved-wh and *wh-que* should emerge first. *Wh-é-que* should be the third structure to appear, followed by wh-in-situ.

In BAP, wh-in-situ is the most economical strategy and the most frequent. Therefore, it should be the first to emerge. Considering moved-wh questions, Ester's input has 25% of frequency of such construction, a high rate if compared to the rates in Luana's input, where it has only 5,7%. Given that it involves one wh-movement and that it is frequent in Ester's input, Ester should produce it quite early. Given that it is not so frequent in Luana's input, it could emerge a little latter in this child's speech. The *wh-que* strategy involves one wh-movement. Given that it is also not frequent, it should emerge after wh-in-situ. *Wh-é-que* is the most costly construction and not very frequent in children's input. Therefore, it should emerge latter. Finally, *é-wh-que* involves one movement (being more economical than *wh-é-que*), but it has only 2% of frequency in both children's input. Therefore, it could be the last one to emerge.

Confronting these predictions against the data presented in the previous section, we observe that in the case of SPP, they are fully corroborated. Both Luiza and Natália start producing the most economical and more frequent strategies in their input. They are not only the first ones to emerge but also the preferred ones: there is more moved-wh in children's data than in their input (66% (Natália), 73% (Luiza) vs. 31% (input)). Conversely, there are fewer cases of *wh-é-que* and wh-in-situ in children's data than in their input.

In the case of BAP, the order of emergence can also be seen as confirming evidence for Zuckerman's proposal. The early emergence of wh-in-situ and moved-wh and the fact that *wh-é-que* and *é-wh-que* emerge latter are in accordance with this view.

5. Conclusion

At first glance, the apparent 'exotic' developmental course in the acquisition of wh-questions in SPP (if compared to BAP and French) receives a natural explantation if we adopt two assumptios: (a) in-situ wh-questions in SPP are not real in-situ cases, but involve movement; (b) language acquisition is driven by economy principles. These assumptions lead us to predict that wh-in-situ will not emerge early and will not be the preferred strategy by young children acquiring this dialect. Conversely,

children acquiring BAP will acquire it early and will prefer this strategy given that it is the most economical strategy and the most frequent one.

The speculative nature of this study leaves open an important issue related to the evidence children acquiring the different dialects of BP rely on in order to correctly analyze SPP wh-in-situ as involving movement and BAP wh-in-situ as involving no movement. Kato's (2004) analysis for wh-in-situ in SSP is based on the different patterns of intonation found in yes/no questions on the one hand and in wh-in-situ questions on the other. It is certainly desirable to establish a similar comparison in BAP and then a cross-dialectal comparison between SSP and BAP. Intonation patterns in wh-questions and in yes/no questions are doubtlessly a promising venue for further investigation on this issue.

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Notes

1.   The order V-S is found with copula and unaccusative verbs (example (iii) taken from Kato and Mioto 2002: 77):
   (i)   *O que é isso?*
          What is it
   (ii)   *Onde tá a bala?*
          Where is the candy
   (iii) *Com quem surgiu esse conceito?*
          With whom appeared this concept
          'With whom did this concept appear?'

2.   The wh-word *que* 'what' can stay in-situ only if it is the complement of a preposition, as shown below:
   (i)   **O João comprou quê?*

The João bought what

(ii) *O João cortou o pão com quê?*
   The João cut the bread with what
   'With what did John cut the bread?'

It should be noted that there is another wh-word meaning 'what': *o que*. Contrary to what happens with *que*, *o que* can be moved to the left periphery of the sentence and can also remain in-situ, as shown in the text.

3. Kato's analysis is based on Belletti's (2001) proposal. Belletti (2001) proposes a clause internal FP projection, an A'-position above vP. Focalized constituents and wh-constituents can present variation in word-order within vP because the clause internal A'-region has TopP projections below and above FP (similarly to Rizzi's (1997) proposal for the left periphery). Examples from Italian (i)-(ii) and BP (iii)-(iv) are provided below:

(i)   *Che cosa há restituito   a Maria Gianni?*   (Belletti 2001: 75)
       What   has given back to Maria Gianni
       'What has Mary given back to John?'

(ii)   [Gianni$_i$ há [$_{TopicP}$ [$_k$ e$_i$ restituito e$_j$ a Maria] [$_{FocusP}$ [$_j$ le chiavi]
       [$_{TopicP}$ [$_{VP}$ e$_k$]]]]...]
        John   has   given back to Mary   the keys

(iii) *João tinha devolvido que livro pro Pedro?*   (Kato 2004: 4)
       João had given back what book to Pedro

(iv)   *João tinha devolvido para o Pedro que livro?*   (Kato 2004: 4)
       João had given back   to   the Pedro what book?
       'What book had John given back to Pedro?'

4. The child Philippe, first studied in Crisma (1992), is an exception. This child started producing moved-wh for the first 5 months of data-taking and began producing wh-in-situ only at 2;6 years of age. All the other children studied showed the pattern described in the text.

5. Natália's data is described in Grolla (2000). At the time that research was being conducted, this child's corpus was typed, but not in a digital format. The data was collected by reading of all the transcripts. Due to the enormous task at hand, this child's input could not be collected.

6. The figures in all the tables represent the percentage followed by the raw numbers.

7. In this chart, questions involving the wh-element as the subject of the sentence were not included, as in these cases wh-movement to the left periphery cannot be undoubtedly determined.

8. The author does not provide the raw numbers for the children's input.

9. Zuckerman observes that there are three types of inversion: clitic inversion (shown in the text), stylistic inversion ((i) below) and complex inversion ((ii) below). In all these wh-questions, both the wh-element and the verb move to a pre-subject position:

(i) *Où   est (allé) ton père?*
   Where is (gone) your father
   'Where is your father gone?'

(ii) *À quelle heure le train est-il parti?*
   At what time   the train has he left
   'At what time did the train leave?'

In the stylistic inversion, the nominal subject follows the auxiliary and the past participle and in the complex inversion there is a phrasal subject followed by the finite verb and the subject clitic.