Chapter 9

Syntactic change as *chain reaction*:

The emergence of hyper-raising in Brazilian Portuguese

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This paper discusses the emergence of hyper-raising constructions in Brazilian Portuguese (BP). Assuming Dresher's (1999) cue-based approach to language acquisition, it argues that the loss of Romance-type pro-drop in BP prompted a chain reaction that led to a reanalysis of finite Ts as optional Case-assigners/checkers (Ferreira 2000) and, therefore, to the incorporation of hyper-raising structures into the grammar.

Key words: *hyper-raising, null subjects, pro-drop, Brazilian Portuguese, syntactic change*

9.1 Introduction[*]

In contrast to European Portuguese (*EP*), Brazilian Portuguese (*BP*) is not a "Romance-type" null subject language.[1] Like German or Chinese (see Ross (1982), Huang (1984, 1989), and Cardinaletti (1990)), BP displays referential null subjects in matrix clauses as

instances of topic-deletion, i.e. the empty category is a variable bound by a zero topic (see Ferreira (2000, 2004), Modesto (2000) and Rodrigues (2002, 2004)). In turn, its referential null subjects in finite embedded clauses show properties of obligatory control, such as the requirement of a local c-commanding antecedent and sensitivity to island effects.[2] This state of affairs led Ferreira (2000, 2004) and Rodrigues (2002, 2004), whose insights we will be following here, to analyze referential null subjects in embedded finite clauses in BP as traces of A-movement, rather than *pro*.[3] Under this approach, a sentence such as (1a) in BP is analyzed along the lines of (1b), where the embedded subject moves to the matrix [Spec,vP] before reaching the matrix [Spec,TP]. In other words, sentences such as (1a) are analyzed as control-like structures under the movement analysis of control (see Hornstein (1999, 2001)).

(1)   a. As crianças   disseram   que gostam   da   babá.

         the children   said-3PL   that like-3PL   of-the baby-sitter

         'The children said that they like the baby-sitter.'

      b. [TP [as crianças]i T [vP ti [VP disseram [CP que [TP ti gostam da babá]]]]]

The analysis of embedded subjects as traces of A-movement also encompasses hyper-raising structures (in the sense of Ura (1994)) such as (2a), which is derived along the lines of (2b) (see e.g. Ferreira (2000, 2004), Duarte (2003, 2004), Martins and Nunes (2005, forthcoming), and Nunes (2007)).[4]

(2)   a. As crianças   parecem   que   gostam da   babá.

the children   seem-3PL   that   like-3PL of-the baby-sitter

'The children seem to like the baby-sitter.'

b. [$_{TP}$ [as crianças]$_i$ T [$_{VP}$ parecem [$_{CP}$ que [$_{TP}$ t$_i$ gostam da babá]]]]

Sentences such as (1a) are of course allowed in EP, given its pro-drop nature. By contrast, sentences such as (2a) are ungrammatical in contemporary EP and are not attested at any stage of its history. This indicates that hyper-raising structures are the outcome of a syntactic change that took place in BP. In this paper, we will discuss how such constructions came to be a grammatical option in BP and suggest that the emergence of hyper-raising was a by-product of the loss of the Romance-type pro-drop property in the course of language acquisition by BP learners.

We will be following Fodor (1998) and Dresher (1999), who propose that children are conservative incremental learners, who delay decisions until they have come across unambiguous triggers/cues for parametric setting. From this perspective, a trigger/cue is a piece of tree structure made available by UG and incorporated into the learner's grammar when the learner is exposed to input sentences that cannot be parsed otherwise. Structural representations become gradually more complex while acquisition proceeds following a (partially) ordered path, in which cues become increasingly abstract and grammar internal.[5] This learning strategy is deterministic "in that the learner may not backtrack or undo parameter settings that have already been set. Some such restriction is necessary if the learner is to be prevented from getting into infinite loops." (Dresher 1999:29).

Dresher's model can derive the fact that children are *degree-0 learners* (Lightfoot 1991) up to a certain point. As simpler structures are parsed/acquired at earlier

developmental stages, they will constitute cues for parameter settings which the child will not be allowed to reset at later developmental stages.[6] Suppose, for instance, that in the case under discussion, the Romance-type pro-drop parameter is set at a stage when learners are exclusively dealing with unembedded structures. Once the negative value was assumed for the pro-drop parameter by some children at some point of BP history, these innovative learners exposed to input sentences with embedded referential null subjects could only parse them as traces of A-movement (given UG constraints), hence incorporating hyper-raising in their grammars.[7] Under this interpretation of the change, which we will further clarify in section 9.4, hyper-raising emerges in BP as the effect of a prior syntactic change, i.e. the loss of Romance-type pro-drop. This type of *chain reaction* (see Lightfoot 1991, 1999) is to be expected under a deterministic model of language acquisition and argues for the availability of syntactically induced syntactic changes (cf. Longobardi (2001) and Keenan (1994, this volume)).

The remainder of the paper is organized as follows. Section 9.2 describes the properties of hyper-raising structures in BP and shows how this innovation introduced a split between BP and EP. Section 9.3 draws a formal analysis of hyper-raising constructions in BP in terms of the ϕ-features associated with its finite Ts. Section 9.4 explores the idea that the change arose in the context of language acquisition as a consequence of the interplay between the learning device, UG constraints, and an earlier innovation along the learning path. Section 9.5 concludes the paper, by calling attention to the importance of *chain reactions* as a source for syntactic change.

9.2 Hyper-raising in Brazilian Portuguese

Ferreira (2000, 2004) presents two types of evidence to show that the matrix DP in constructions such as (2a) above in BP occupies a regular subject position, rather than a topic position. First, the matrix preverbal DP triggers agreement with the matrix predicate, as illustrated in (3).

(3) a. A   criança **parece**   que gosta da   babá.

the   child   **seem-3SG** that like-3SG of-the baby-sitter

'The child seems to like the baby-sitter.'

b. As   crianças **parecem** que gostam da   babá.

the   children **seem-3PL** that like-3PL of-the baby-sitter

'The children seem to like the baby-sitter.'

And second, the DP in question can be a quantified expression or a weak pronoun, both of which cannot be topicalized. (4) below, for instance, shows that the quantifier *alguém* 'someone' cannot be a topic (cf. (4a)), but it can be the matrix subject of a hyper-raising sentence (cf. (4b)). In turn, (5) shows that as opposed to strong pronoun *você*, the weak pronoun *cê* can occur in the subject position of a hyper-raising construction, but not in a topic position. Similar considerations apply to the weak pronoun *ele*, which is homophonous with its strong counterpart (see Martins and Nunes (2005)). Thus, given that the topic position only allows strong pronouns, the pronoun *ele* in (6a) can only be interpreted as [+human]; by contrast, the pronoun *ele* in the subject position of a hyper-raising construction is compatible with either [+human] or [-human] interpretation, as illustrated in (6b).

(4) a. *Alguém, a babá   me disse que chorou.

someone   the baby-sitter me told   that cried

'The baby-sitter told me that someone cried.'

b. Alguém   parece   que   chorou.

someone   seem-3SG   that   cried-3SG

'Someone seems to have cried.'

(5) a. Você/*cê,   a babá   me   disse que está doente.

you$_{strong}$/you$_{weak}$ the baby-sitter me   said that is   sick

'The baby-sitter told me that you are sick.'

b. Você/cê   parece   que   está   doente.

you$_{strong}$/you$_{weak}$ seem   that   is   sick

'You seem to be sick.'

(6) a. Ele,   a   Maria   disse que caiu.

pro-3SG the   Maria   said   that fell

'Maria said that he fell down'   [e.g. *ele* = 'John']

*'Maria said that it fell down'   [e.g. *ele* = 'the book']

b. Ele   parece   que   caiu.

pro-3SG seems   that   fell

'He seems to have fallen down'   [e.g. *ele* = 'John']

'It seems to have fallen down'   [e.g. *ele* = 'the book']

Additional evidence for Ferreira's analysis is provided by Martins and Nunes (2005), who observe that the constructions in question may also involve idiom chunks, as illustrated in (7), which cannot be topicalized either.

(7)   a. O   pau vai   comer   feio.

          the   stick goes eat   ugly

          'There's going to be a big fight'

      b. *O   pau, o   João disse que vai   comer   feio.

           the stick the João said that   goes eat   ugly

          'João said that there's going to be a big fight.'

      c. O   pau parece que vai comer   feio.

          the   stick seems   that goes eat   ugly

          'It seems that there's going to be a big fight'

It is very illuminating to contrast BP with EP with respect to the structures involving raising of the embedded subject of a finite clause to the matrix clause. Since hyper-raising is not an option in EP, subject-verb agreement in the matrix clause is prohibited in EP, as shown in (8) below. Hence, the DP *a(s) criança(s)* is an agreeing *subject* in the BP sentences in (3a) and (3b), but a non-agreeing *topic* in the EP sentences in (8a) and (8c). Note that (8a) resembles a case of hyper-raising, because third person singular is the default agreement form for impersonal constructions with a null expletive subject, as seen in (8c).

(8) European Portuguese:

    a. A   criança **parece**   que gosta da   baby-sitter.

       the   child   **seem-3SG** that like-3SG of-the baby-sitter

       'It seems that the child likes the baby-sitter.'

    b. *As   crianças **parecem** que gostam da   baby-sitter.

       the   children **seem-3PL** that like-3PL of-the baby-sitter

       'The children seem to like the baby-sitter.'

    c. As   crianças **parece**   que gostam da   baby-sitter.

       the   children **seem-3SG** that like-3PL of-the baby-sitter

       'It seems that the children like the baby-sitter.'

The contrast between BP and EP is also revealed when standard raising structures are compared with hyper-raising structures. Example (9) shows that when standard raising out of an infinitival is involved, a quantified expression may be the matrix subject in both BP and EP. By contrast, the analogous construction with a finite embedded clause is possible in BP, but not in EP, because in this case topicalization is not an option and EP does not allow A-movement of the embedded subject into the matrix clause.

(9) a. Brazilian Portuguese: OK;   European Portuguese: OK

      Pouca atenção   parece ter   sido dada às   crianças doentes.

      few   attention seems have-INFIN been given to-the   children sick

      'It seems that little attention has been paid to the sick children.'

b. Brazilian Portuguese: OK;   European Portuguese: *

Pouca   atenção   parece   que   foi   dada às   crianças doentes.

few   attention seems   that was given to-the children sick

'It seems that little attention was paid to the sick children.'

Finally, (10) below shows that in EP, only standard raising allows idiom chunks in matrix subject positions (cf. (10b)). There is no grammatical counterpart with a finite complement clause, as opposed to what happens in BP (compare (7c) with (10c)). Once hyper-raising is not allowed in EP, the ungrammaticality of (10c) is to be ascribed to the general restriction blocking idiom chunks as topics.

(10) European Portuguese:

a. A   montanha pariu   um   rato.

    the   mountain gave-birth-to   a   mouse

    'The results were well below the expectations.'

b. A   montanha parece ter   parido   um   rato.

    the   mountain seems   have-INF   given-birth a   mouse

    'The results seem to have been well below the expectations.'

c. *A   montanha parece que pariu   um   rato.

    the   mountain seems   that gave-birth   a   mouse

    'It seems that the results were well below the expectations.'

To summarize, several empirical contrasts between BP and EP can be subsumed under the descriptive generalization that BP – but not EP – allows A-movement out of a finite clause, yielding a hyper-raising construction. In order to understand how the innovative hyper-raising construction emerged in BP, we first need to have a formal account of such construction that is able to derive the grammatical split between BP and EP. This is the topic of the next section.

9.3 ɸ-incomplete finite Ts and hyper-raising in BP

It is a well known fact that BP verbal inflection underwent significant erosion across time, with the result that certain person/number distinctions ceased to be overtly expressed (see Galves (1984, 1993, 2001), Duarte (1993, 1995, 2000), Nunes (2007), and the references therein). Assuming Chomsky´s (2000, 2001) Agree-based framework, Ferreira (2000, 2004) proposes that this weakening of verbal morphology led finite Ts in BP to be of two sorts, either ɸ-complete or ɸ-incomplete, thus becoming optional Case-assigners. When the Case-assigning version of a finite T is selected (i.e. a ɸ-complete T), it assigns nominative to the subject, freezing it for further A-movement. If the non-Case-assigning version of a finite T is selected instead (i.e. a ɸ-incomplete T), the subject of its clause must have its Case checked by a higher probe.

Although we will not directly correlate the weakening of verbal morphology with the emergence of ɸ-incomplete Ts in BP (see section 9.4 below), we will assume Ferreira's (2000, 2004) general proposal regarding the ambiguity of finite Ts in BP with respect to ɸ-completeness, reinterpreting it under the implementation in terms of the feature [person] proposed by Nunes (2007). Nunes observes that the verbal agreement paradigm

of BP is such that the only inflection that overtly encodes both number and person is the first person singular inflection. All the other cases involve either number specification with default value for person (third) or default values for both person and number (third singular), as illustrated in (11).

(11) Verbal agreement paradigm in (Colloquial) Brazilian Portuguese

cantar 'to sing': indicative present

eu 'I'	canto	P:1; N:SG
você 'you (SG)'	canta	P:default; N:default (= 3SG)
ele 'he'	canta	P:default; N:default (= 3SG)
ela 'she'	canta	P:default; N:default (= 3SG)
a gente 'we'	canta	P:default; N:default (= 3SG)
vocês 'you (PL)'	cantam	P:default; N:PL (= 3PL)
eles 'they (MASC)'	cantam	P:default; N:PL (= 3PL)
elas 'they (FEM)'	cantam	P:default; N:PL (= 3PL)

Nunes proposes that φ-complete and φ-incomplete finite Ts in Ferreira's terms correspond to Ts specified with number and person features or a number feature only. That is, the verbal forms in (11) may also be associated with a T specified only for number, with the person information being provided in the morphological component by redundancy rules, as illustrated in (12) below. If T has only a number feature and it is valued as singular in the syntactic component, it will later be associated with first person in the morphological component; if the number feature receives any other value in the

syntactic component (default or plural), it will later be associated with a default value for person (third) in the morphological component.

(12)   *cantar* 'to sing': indicative present

Valuation of T in the syntactic component	Addition of [person] in the morphological component	Surface form of the verb
N:SG	N:SG; P:1	canto
N:default	N:default; P:default	canta
N:PL	N:PL; P:default	cantam

Under this view, the impersonal sentence in (13a) is derived along the lines of (13b) while the hyper-raising sentence in (14a) is derived along the lines of (14b).

(13) a. Parece que o   João comprou um carro novo.

      seems that the João bought   a   car   new

      'It seems that João bought a new car.'

    b. [$_{TP}$ *pro*$_{expl}$ T$_{[N:default;\ P:default]}$ parece que [$_{TP}$ [o João]$_{[Case:NOM]}$ T$_{[N:default;\ P:default]}$ ...]]

(14) a. O João parece que comprou um carro novo.

      the João seems that bought   a   car   new

      'João seems to have bought a new car.'

    b. [$_{TP}$ [o João]$_{[Case:NOM]}$ T$_{[N:default;\ P:default]}$ parece que [$_{TP}$ *t* T$_{[N:default]}$ ...]]

In (13), both Ts have number and person features, that is, they are Case assigners. Thus, *o João* has its Case valued in the embedded clause and becomes inactive for further A-movement. By contrast, in (14) the embedded T has only a number feature and, as such, it

is unable to value the Case feature of *o João*. Therefore, the embedded subject is still active for purposes of agreement and A-movement and may be Case-licensed by the matrix T, which has both number and person features, yielding a hyper-raising construction.[8] Observe that both Ts in (14) display third person singular morphology although they differ with respect to their abstract ϕ-features. The ambiguity involves the source of the person feature: whether it is part of the numeration and feeds the syntactic component, as is the case with the matrix T, or whether it is added in the morphological component by redundancy rules, as is the case with the embedded T.[9]

To summarize, BP exercises an option that is generally restricted to non-finite clauses in other languages, namely, it allows raising out of a finite embedded clause when its T is not a Case assigner (i.e. when it only has a number feature as it enters the numeration). If such movement targets a θ-position, we have a control-like structure as in (1), here repeated as (15); if it targets a nonthematic position, we get a hyper-raising construction as in (2), here repeated as (16).

(15) a. As crianças disseram que gostam da babá.
　　　 the children said-3PL that like-3PL of-the baby-sitter
　　　 'The children said that they like the baby-sitter.'
　　b. [$_{TP}$ [as crianças]$_i$ T [$_{vP}$ t$_i$ [$_{VP}$ disseram [$_{CP}$ que [$_{TP}$ t$_i$ gostam da babá]]]]]

(16) a. As crianças parecem que gostam da babá.
　　　 the children seem-3PL that like-3PL of-the baby-sitter
　　　 'The children seem to like the baby-sitter.'

b. [$_{TP}$ [as crianças]$_i$ T [$_{VP}$ parecem [$_{CP}$ que [$_{TP}$ t$_i$ gostam da babá]]]]

In the next section we will consider how ɸ-incomplete finite Ts came to be part of the grammars of BP speakers.

9.4 From the loss of Romance-type pro-drop to the emergence of hyper-raising

As discussed in the previous section, the availability of a ɸ-incomplete finite T in BP (i.e. a finite T lacking a person feature) is the crucial ingredient that allows derivations along the lines of (17) and (18) below. In both derivations, the embedded T is ɸ-incomplete and therefore, its subject is allowed to undergo A-movement to the matrix clause.

(17) [$_{TP}$ [os músicos]$_i$ T$_{\phi complete}$ [$_{vP}$ t$_i$ [$_{VP}$ disseram [$_{CP}$ que [$_{TP}$ t$_i$ T$_{\phi incomplete}$ não vêm]]]]]

     the musicians   said-3PL   that   not come-3PL

     'The musicians said that they are not coming.'

(18) [$_{TP}$ [os músicos]$_i$ T$_{\phi complete}$ [$_{VP}$ parecem [$_{CP}$ que [$_{TP}$ t$_i$ T$_{\phi incomplete}$ não vêm]]]]

     the musicians   seem-3PL   that   not come-3PL

     'It seems that the musicians are not coming.'

The innovative BP structures in (17)-(18) are regularly absent from grammars where finite T is exclusively of the Case-assigning type, as witnessed by EP. Thus, we need to find a logical setting for the emergence of ɸ-incomplete finite T in BP. The question is how a grammar without that option came to embrace it; in other words, how an EP-type

grammar evolved into a BP-type grammar. As suggested by Ferreira (2000, 2004), the

evanescence of Romance-type pro-drop in BP depicted in Fig. 9.1 below (from Duarte

2000)[10] and the advent of ϕ-incomplete finite T are certainly somehow related.[11]

However, the fact that hyper-raising is not common in non-pro-drop languages and is

actually attested in pro-drop languages (see references in fn. 7) clearly indicates that there

is not a direct causal relation between the loss of pro-drop and the emergence of hyper-

raising. We will show that by taking into consideration language acquisition, it is possible

to clarify the nature of the link between the loss of pro-drop and the appearance of ϕ-

incomplete finite T, the latter making hyper-raising a grammatical option.[12]

Fig. 9.1 OVERT PRONOMINAL SUBJECTS IN
BRAZILIAN PORTUGUESE (FROM DUARTE 2000)
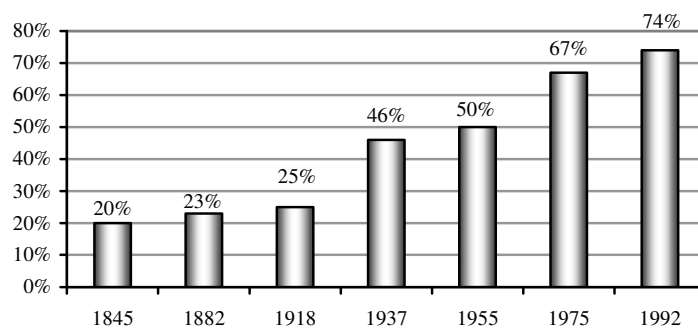
The loss of Romance-type pro-drop in BP has been thought of by most authors as the

by-product of a previous morphological change, namely the impoverishment of verbal

inflection (see Kato and Negrão (2000) and the references therein). Contrary to this main

trend of thought, Negrão and Viotti (2000) interpret the BP particular behavior with

respect to null referential subjects as rather the effect of a typological change in the direction of the so-called discourse-oriented languages. Both perspectives allow us to trace a former scenario with BP still being a Romance-type pro-drop language while the increase in the frequency of overt pronominal subjects was reaching a critical point. We would like to propose that in the course of language acquisition, the negative setting of the pro-drop parameter in BP started a *chain reaction* that made room for the appearance of the new kind of finite T.

Under the morphology-induced-change approach, null subjects would be decreasing in frequency because the impoverished verbal inflection *per se* could do little to avoid discourse ambiguity with respect to subject identification. On the other hand, under the alternative approach of Negrão and Viotti (2000), overt subjects would be progressively gaining ground over null subjects because BP was turning into a topic-prominent language. The important point to retain here is that, in one way or the other, a clear asymmetry between main clauses and certain embedded clauses is predicted to have emerged. Concretely, in complex sentences with co-referential subjects (cf. (17)), the tendency to fill in the subject position would apply to the matrix subject but not to the embedded subject. There are two possible sources for this asymmetry: first, the matrix subject qualifies as the sentential topic, but an embedded subject doesn't; second, the embedded subject can have its content unambiguously identified by a very close discourse antecedent, that is, the matrix subject.[13] So, there must have been a stage in the history of BP when matrix subjects tended not to be null while embedded co-referential subjects were regularly null. This stage in turn set in motion the sequence of changes that made BP a non-pro-drop language allowing hyper-raising.

The rationale for the changes is to be found in the context of language acquisition. At a "degree-0 stage" of the acquisition path, some BP learners must have taken certain unembedded structures as indicating that the Romance-type pro-drop parameter was to be set to the negative value.[14] Afterwards, the same learners would come across complex sentences regularly displaying embedded null subjects. If at this later developmental stage, backtracking from the earlier non-pro-drop decision was not an option (in the spirit of Dresher (1999)), either the evidence of such complex sentences should be disregarded[15] or they should be processed (thus acquired) as instances of hyper-raising. The hyper-raising choice would imply incorporating in the growing grammar an additional ϕ-incomplete finite T, in accordance with UG principles.[16]

The ambiguity of verbal agreement inflection in BP may have played a 'facilitating' role in the change. Recall that in BP, every piece of verbal agreement morphology on finite verbs (or lack thereof) is such that it may be interpreted as ambiguous between number and person or number only, as shown in (19) below. Therefore, verbal morphology would not give positive counter-evidence against reanalyzing structures with an embedded ϕ-complete finite T (i.e. a T with number and person) as structures with an embedded ϕ-incomplete finite T (i.e. a T with only number).

(19)   *cantar* 'to sing': indicative present

Valuation of T in the syntactic component	Surface form of the verb
$T_{[N:SG]}$ or $T_{[N:SG; P:1]}$	cant<u>o</u>
$T_{[N:default]}$ or $T_{[N:default; P:default]}$	canta

$T_{[N:PL]}$ or $T_{[N:PL;\ P:default]}$ canta<u>m</u>

9.5 Syntactic change as *chain reaction*

In this paper we have discussed the appearance of some new syntactic structures in BP, where the matrix T assigns nominative Case to the embedded subject. We fixed our attention particularly on hyper-raising. It was shown that BP, in contrast to EP, allows hyper-raising because in BP grammars finite T can be ϕ-incomplete, hence a non-Case-assigning head (like infinitival T).

We then explored the idea that the change arose in the context of language acquisition as a consequence of the interplay between the learning device, UG constraints, and an earlier innovative move along the learning path. Our proposal takes a prior change, namely, the loss of Romance-type pro-drop to have prompted a chain reaction leading to a reanalysis of finite Ts as optional Case-assigners/checkers and, therefore, to the incorporation of hyper-raising structures into the grammar.

Such chain reactions are expected as a consequence of the way in which grammars are built by learners and identify clear cases of syntactic changes syntactically induced. So under our analysis, hyper-raising was not prompted into BP syntax by some kind or other of "external" pressure, although that might have been the case with respect to the loss of Romance-type pro-drop. Because chain reactions are a function of the learning path, in the sense of Dresher (1999), empirical inquiry on the acquisition of syntax may open new avenues for isolating and understanding instances of "predictable" syntactic changes. The reverse trend of investigation is also very auspicious, as the study of actual cases of

syntactic changes identified as a chain reaction can give us valuable insights on the ordering of the learning path.

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[1] For an overview of the properties of null subjects in BP and the different interpretations they have received, see the collection of papers in Kato and Negrão (2000). On the split between BP and EP with respect to the acquisition of null subjects, see Simões (1997) and Magalhães (2006).

[2] In BP the embedded subject in (i), for instance, cannot be discourse-licensed and must be coreferential with the closest c-commanding DP, namely, *o pai do Pedro* 'John's father', contrasting with what happens in EP, where all the potential interpretations for the embedded null subject signaled by the indices are grammatical options.

(i) [[o   João]$_i$ disse que [o   pai   d[o   Pedro]$_j$]$_k$ acha   que Ø$_{k/*i/*j/*l}$ vai ser promovido]

      the João   said   that the father of-the P.   thinks that   goes be promoted

    'João$_i$ said that [Pedro$_j$'s father]$_k$ thinks that he$_{k/*i/*j/*l}$ is going to be promoted'

[3] The lack of licensing for "referential" *pro* in BP also holds of null resumptives, explaining why null subjects in BP are not licensed in strong islands that cannot be subject to an obligatory control analysis, as shown in (i).

(i) Este é o autor que eu li o livro que *(ele) escreveu.

   this is the author that I read the book that he wrote

   'This is the author that I read the book that he wrote.'

[4] Although the relevant examples in the text all involve the raising verb *parecer* 'seem', it should be noted that hyper-raising in BP is not restricted to this verb, as illustrated in (i) with *acabar* 'turn out' and *perigar* 'be in danger of' (see Nunes (2007)).

   (i) a. Os estudantes acabaram que (eles) viajaram mais cedo

      the students finished that they traveled more early

      'The students ended up traveling earlier.'

    b. Aqueles funcionários perigam que (eles) vão ser demitidos

      those employees are-in-danger that they go be fired

      'Those employees are likely to be fired.'

[5] Both the acquisition path and the particular triggers/cues associated with each parameter value are assumed to be provided by UG, thus part of innate knowledge.

[6] Within the language acquisition model developed by Dresher (1999), the resetting of parameters is only possible when it is imposed by parameter dependencies along the (partially) ordered acquisition path: "Determinism does not hold in the following case: when a parameter is set to a new value, all parameters that depend upon it (follow it in the order) revert to default" (Dresher 1999:29).

[7] Note that it is not the case that the loss of Romance-type pro-drop and the emergence of hyper-raising are two manifestations of the same parametric change. Crucially, there is no implicational dependency between the availability of null subjects and the availability of

hyper-raising, as all types of combinations can be found: (i) non pro-drop + no hyper-raising (e.g. English, French); pro-drop + no hyper-raising (e.g. EP, Italian); pro-drop + hyper-raising (e.g. Romanian and Occitan; see Camproux (1958), Grosu and Horvath (1984), Sauzet (1989, 2006), Dobrovie-Sorin (1994), and Ura (1994)); non pro-drop + hyper-raising (BP; see Ferreira (2000, 2004) and Martins and Nunes (2005, forthcoming)). The specific innovation triggered by the resetting of the pro-drop parameter which allowed the incorporation of hyper-raising in BP will be discussed in section 9.4 below.

[8] Ferreira (2000:55) suggests that if C selects a ϕ-incomplete T, it should not define a strong phase, rendering the CP it heads transparent for long-distance agreement. Hence, a matrix T can enter into a probe-goal relationship with the subject of an embedded T specified only for number. For further discussion, see Martins and Nunes (forthcoming).

[9] Although both ϕ-complete and ϕ-incomplete finite Ts are legitimate options for any given numeration, UG principles determine whether or not the choice and the structural locus of a ϕ-incomplete finite T give rise to a convergent derivation (see Ferreira 2000, 2004 for discussion). If the matrix clause is associated with a ϕ-incomplete finite T, there is no source of Case assignment for the matrix subject and the derivation simply crashes. In other words, a ϕ-incomplete finite T will only yield a convergent derivation if it sits within an embedded clause, being no different from other types of ϕ-incomplete Ts, such as the infinitival T of standard raising constructions or the infinitival T of obligatory control constructions under a movement analysis.

[10] The 26% of null subjects in the last period depicted in Fig. 9.1 most likely include instances of topic drop (see section 9.1) and A-traces in the subject position of finite clauses, as these possibilities were not distinguished from true instances of *pro* in Duarte (2000).

[11] Unfortunately, there is no available information – as far as we know – on how early ϕ-incomplete finite T constructions were incorporated into the grammar of BP (note that unambiguous evidence for such constructions can only be given by complex sentences with raising verbs and first person singular or plural subjects). The fact that they are still subject to sociolinguistic stigmatization suggests that it is a recent change. If our understanding of the change is correct, the loss of pro-drop and the emergence of ϕ-incomplete finite T are contemporaneous grammatical changes. Duarte (2004) attests occurrences of hyper-raising in spoken language records since the early 80's in the 20th century.

[12] We depart from Ferreira (2000, 2004) in not taking the simplification of the verbal agreement paradigm as the common historical source for both the unavailability of pro-drop and the availability of ϕ-incomplete finite Ts in BP.

[13] As is well known, the unmarked case for complex sentences with co-referential subjects in the pro-drop Romance languages is to have a null subject in the embedded clause.

[14] The incremental learning model designed by Dresher (1999) allows a relativized version of degree-0 learnability (cf. Lightfoot (1991, 1999)) to be derived from the general tenet that "the series of grammars a learner traverses in the course of acquisition

does not resemble a succession of states, but represents a movement from lesser to greater complexity along a number of dimensions" (Dresher 1999:44).

[15] As argued by Lightfoot (1991, 1999) and Dresher (1999), learners are not compelled to match the input.

[16] This picture of the emergence of the new syntactic properties in the grammar of BP echoes previous analyses of classical cases of syntactic change in the history of English (see Lightfoot 1991, 1999):

> parameter settings (…) sometimes set off chain reactions. (…) Such chain reactions can be understood through the acquisition process: a child with the new verb-complement setting is forced by the constraints of Universal Grammar to analyze expressions like *I ordered the grass cut+infin* differently from the way they were analyzed in earlier generations, with *the grass* coming to be analyzed as the subject of the embedded clause. (Lightfoot 1991:167)

> not only is a new grammatical property typically manifested by a cluster of new phenomena; it also sometimes sets off a chain reaction. An example from the history of English is the establishment of verb-complement order. I showed (Lightfoot 1991) that this led indirectly to the introduction of an operation analyzing *speak to*, *spoken to*, etc. as complex verbs. Such chain reactions can be understood through the acquisition process: a child with the new verb-complement setting is induced by the constraints of UG to analyze some expressions differently

from the way they were analyzed in earlier generations. As a result, the new

grammar comes to differ from the old in more than one way. (Lightfoot 1999:105)

    where the distribution of cues results from an earlier grammatical shift (...) one

has a "chain" of grammatical changes. One example would be the recategorization

of the modal auxiliaries (…), which contributed to the loss of V to I (Lightfoot

1999:166)