On gender and number agreement in the determiner phrase: the Afro-Bolivian Spanish case

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Resum. Sobre la concordança de gènere i nombre en el sintagma del determinant: El cas de l’espanyol afrobolivià. Aquest article presenta una explicació per als processos de concordança de gènere i nombre en l’espanyol afrobolivià, una varietat de contacte parlada a Los Yungas, al departament de La Paz, Bolívia. L’anàlisi parteix de models minimalistes dels valors dels trets en el sintagma determinant (Pesetsky i Torrego 2007). Les diferències entre l’espanyol afrobolivià i l’estàndard s’expliquen en el marc del Programa Minimalista / Principis i Paràmetres. Els elements de variació paramètrica són explicats de forma sistemàtica, determinats informàticament per les diferències en l’especificació dels ítems lèxics i funcionals i per les restriccions d’operacions sintàctiques (en aquest cas, la concordança).

Paraules clau: gènere, número, concordança, valors dels trets, espanyol afro-bolivià.

Abstract. On gender and number agreement in the Determiner Phrase: The Afro-Bolivian Spanish Case. This paper provides a formal account for processes of gender and number agreement in Afro-Bolivian Spanish, a contact variety of Spanish spoken in Los Yungas, Department of La Paz, Bolivia. The analysis assumes current minimalist models of feature valuation in DP (Pesetsky and Torrego 2007). Cross dialectal differences between Afro-Bolivian Spanish and standard Spanish are explained in light of the Minimalist Program/Principles and Parameter framework. The elements of parametric variation are accounted for in a systematic fashion, as computationally determined by

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differences in the specification of lexical and functional items and by restrictions on syntactic operations: in this case, on Agree.

**Keywords**: gender, number, agree, feature valuation, Afro-Bolivian Spanish.

1. Introduction

This article is a descriptive and analytical work on the distribution of gender and number features across the Afro-Bolivian Spanish (ABS) Determiner Phrase (DP). ABS is a vernacular dialect proceeding from what was once a bozal language spoken in Los Yungas, Department of La Paz, Bolivia. Descriptive articles about ABS have extensively been published during the last years by John Lipski, who analyzed qualitatively the differences encountered between this dialect and other Spanish varieties. This paper offers a novel examination of such phenomena in that it attempts to formalize them.

In line with recent works on the structure of DP (Carstens 2000) and on how valuation processes are obtained (Pesetsky and Torrego 2007), I will attempt to explain why certain agreement configurations are allowed in ABS while they would result in ungrammatical constructions in standard Spanish (stSp).

Results indicate that while the computational operation Agree (Chomsky 2000) is constant and presumably universal, overt cross-dialectal variation seems to be due to differences in the lexicon, namely in the feature specification of the elements entering the numeration. Based on the parametric differences encountered between stSp and ABS, I will propose an implementation of the Agreement framework able to account for the data.

Section 2 illustrates the methodology followed for this research; Section 3 presents the data; Section 4 introduces the framework by departing from the differences between Agree and Agreement; Section 5 applies the theory to the data and implements the model to account for the results; finally, Section 6 concludes.

2. Methodology

Generative syntactic theories have traditionally been built on standard language data, on the basis of well-formedness judgments of a limited set of informants. This approach has proven very powerful in producing an impressive number of fine-grained generalizations, exactly because it could exclude from its analyses all variability complications due to performance (Barbiers 2009, p. 1608). On the other hand, such a methodology has often been criticized by sociolinguists, who instead based their observations on bigger
corpora of naturalistic production data, and developed several techniques to study the 'real vernacular', the real language spoken by people when paying no metalinguistic attention to their speech (Labov 1972).

Recent studies in syntactic microvariation try to combine the formal and the sociolinguistic methods in order to develop more fine-grained, empirically-testable generalizations (Cornips and Poletto 2005). In conducting linguistic research of this kind, it is therefore crucial to gather both grammaticality judgments as well as naturalistic data. For this reason, the informants who participated in the study were first interviewed and only later asked to answer to grammaticality judgments from an oral questionnaire.

The interviews took place in summer 2008 and winter 2009. They were conducted by letting the speakers talk about any topic of their liking and asking them follow-up questions, in line with the principle of Tangential Shift (Labov 1984, p. 37). The goal was therefore to attempt to reduce the Observer's Paradox (Labov 1972) as much as possible. Only later, usually one or two days after the interview, the same informant was asked for grammaticality judgments. This was done in order not to affect the results of the interview by telling the speaker the nature of the phenomena under analysis in advance. The combination of the data collected by means of sociolinguistic interviews and grammaticality judgments provided a good quantitative as well as qualitative database, which allows for a detailed study of ABS.

The phenomena under analysis during my two trips to Los Yungas were mainly concerned with the distribution of phi-features across the DP elements, NP-ellipsis and constructions involving bare nouns in subject and object positions. More than fifty speakers participated in this research. As a consequence, several grammatical patterns were observed. In fact, not all informants had exactly the same intuitions. Actually, an interesting variability could be observed; in particular, when the youngest and the oldest generations were compared. In this paper, I will present only data concerning the gender and number agreement patterns characteristic of the most traditional dialect, as it would not be possible to limit a complete discussion of the data to the space available for this article.

3. Data

With respect to what pertains to traditional ABS DP gender-agreement, grammaticality judgments and oral questionnaires indicated the presence of a configuration starkly different from the one encountered in stSp. In fact, the eldest speakers’ intuitions indicated that gender agreement appears only on definite articles, while the rest of the DP elements show default-masculine concord (1):
(1)
a. ABS: Todo la comida deliciosa
   stSp: ‘Toda la comida deliciosa’
   Lit: ‘All the delicious food’

b. ABS: Este/ese comida deliciosa
   stSp: ‘Esta/esa comida deliciosa’
   Lit: ‘This/that delicious food’

As far as grammaticality judgments for number features are concerned, in traditional ABS, differently from standard Spanish (stSp), plurality is marked only on determiners.

(2)
a. Mis buen amigo boliviano
   stSp: ‘Mis buenos amigos bolivianos’
   Lit: ‘My good Bolivian friends’

b. Ejes buen amigo boliviano
   stSp: ‘Eses buenos amigos bolivianos’
   Lit: ‘These good Bolivian friends’

As shown by examples (1-2), number and gender features are present in traditional ABS; nevertheless, number and gender marking is limited to certain DP elements. Therefore, in stark contrast with stSp where all DP elements carry overt number and gender marking, in ABS these features are marked non-redundantly.

4. Agree and agreement

In this work, I will refer to Agree as a syntactic operation (as opposed to agreement, the surface phenomenon). In the literature several hypotheses have been proposed to try to unveil the nature of Agree and the function of agreement in natural languages. These are fundamental questions, for which, I do not believe, a definite answer has yet been provided. I will not try to find a solution to this issue here, as this would generate a discussion which would be impossible to summarize in a single paper of this kind.
However, based on the parametric distinctions encountered between stSp and ABS, I will try to propose an implementation of the framework able to account for the data.

Chomsky (2000, 2001) argues that Agree consists of a relation between two elements within a syntactic domain: a probe and a goal. Chomsky suggests that agreement is the consequence of a situation in which an unvalued instance of a feature F c-commands another instance of F. This process can metaphorically be described as a search, with the probe as seeker and the goal as object. The probe consists of an unvalued set of phi-features on a functional head, which is uninterpretable as such and must receive a value from some other syntactic constituent (Béjar 2008, p. 133-134).

For this reason Agree is seen as a case of feature assignment, which can be summarized in the following steps:

(3) Agree (Assignment version; following Chomsky 2000, 2001)

(i) An unvalued feature F (a probe) on a head H scans its c-command domain for another instance of F (a goal) with which to agree.

(ii) If the goal has a value, its value is assigned as the value of the probe.

The operation Agree serves the purpose of deleting uninterpretable features, which are unreadable at the interfaces and -if not eliminated- would cause the derivation to crash. Deletion takes place in a cyclical fashion at the end of each phase.

Uninterpretable features, however, cannot be deleted during the syntactic derivation just by virtue of the fact that they cannot be interpreted at LF. The only means that the framework has to eliminate such features is to assume a biconditional relation correlating unvalued features with uninterpretable ones (4):

(4) Valuation/Interpretability Biconditional (Chomsky 2001, p. 5)

A feature F is uninterpretable if F is unvalued.

By recurring to (4), the model can now delete uninterpretable features because unvalued, and therefore acting as probes. Such a stipulation inevitably leads us to the conclusion that once an uninterpretable feature has been valued, it will also get automatically deleted.

Chomsky’s Agree operation is therefore a syntactic mechanism of ‘feature assignment’, triggered during the derivation by an unvalued-valued (probe-goal) relation, which, by virtue of a feature-biconditional requirement, results in the cyclical deletion of uninterpretable features before Spell-Out.

Chomsky’s (2000, 2001) proposal has been revisited and refined by Pesetsky and Torrego (2007), among others (see for example Frampton and Gutmann 2000). In fact,
recent work on Agree advocates a version of this operation which departs from the previous view of ‘feature assignment’ mechanism (Chomsky 2000). Rather, the process is seen as an instance of ‘feature sharing’ an idea in line with the view of agreement as feature unification common in HPSG (Pollard and Sag 1994). Within the probe-goal theory of the syntactic computation, the operation Agree has been reformulated as in (5).

(5) Agree (Pesetsky and Torrego 2007)

(i) An unvalued feature $F$ (a probe) on a head $H$ at syntactic location $\alpha(F\alpha)$ scans its c-command domain for another instance of $F$ (a goal) at location $\beta(F\beta)$ with which to agree.

(ii) Replace $F\alpha$ with $F\beta$, so that the same feature is present in both locations.

If a goal is valued for $F$, replacing the token-value of the probe with the value of the goal results in an instance of valued $F$ substituting for the specification of the unvalued probe. A valued $F$ may now serve as the goal for some ulterior operation of Agree triggered by an unvalued, higher instance of $F$ serving as a new probe. The result is that a single feature $F$ will be shared by several positions, and the process could iterate further.

Pesetsky and Torrego’s proposal is different from Chomsky’s approach not only in its feature-sharing view of Agree, but also in the absence of the Valuation/Interpretability Biconditional in (4). By removing this last constraint, the authors postulate the presence of features containing combinations of properties not available in the model previously suggested by Chomsky: (i) uninterpretable but valued; and (ii) interpretable but unvalued.

Lexical entries can now enter the derivation with four different kinds of features:

(6) Types of features (boldface = disallowed in Chomsky 2000, 2001)

$uF\ val$ uninterpretable, valued
$IF\ val$ interpretable, valued
$uF\ [\ ]$ uninterpretable, unvalued
$IF\ [\ ]$ interpretable, unvalued

This new framework, which stipulates the independence of valuation and interpretability, seems to be validated by several syntactic phenomena: the relationship between Tns and the finite verb, the formation of an interrogative CP, the formation of a declarative CP that supports successive-cyclic wh- movement; etc. For reasons of space, I will not go into details concerning how all these phenomena are accounted for by the model2; on the other hand, I will limit the illustration of this

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2. The interested reader is invited to consult Pesetsky and Torrego (2007) and the relevant bibliography.
approach to the explanation of how the relationship between Tns and the finite verbs is obtained.

In fact, an example of an interpretable unvalued feature acting as a probe is the T feature of the category Tns. In line with Pollock (1989), who posited a distinct Tns node as the locus of semantic tense interpretation, an uninterpretable feature that participates in an Agree relation with the T feature on Tns has been postulated for languages in which finite verbs bear morphological tense markers. Since Tns c-commands the finite verb, its T feature will act as a probe. For this reason, the T feature on Tns is seen as an interpretable unvalued feature searching for a goal, represented by the T feature on the finite verb, which is uninterpretable but valued:

(7) The relationship between Tns and the finite verb

\[
\begin{align*}
Agree \\
... \text{Tns} & \ldots \ [v \ \text{walked}] \ldots \rightarrow \ldots \text{Tns} & \ldots \ [v\text{walked}] \\
iT[ \ ] & \ iu^T + \text{past} \quad \quad \quad & \ iT[2] & \ iu^T + \text{past}[2]
\end{align*}
\]

Nevertheless, the authors do not reject completely Chomsky’s model. They maintain that Agree serves the purpose of deletion to avoid a crash in the derivation. At the same time, they share Brody’s view on Radical Interpretability, which states the following:

(8) Thesis of Radical Interpretability (Brody 1997)

Each feature must receive a semantic interpretation in some syntactic location. Therefore, if all features must have an interpretation at a certain point, it follows that what is deleted is not the feature itself, but rather its uninterpretable instances. Radical Interpretability and the feature sharing framework provide an account for the fact that an uninterpretable valued feature (like [\(i^T \ \text{val}\)] on the finite verb) must enter an Agree relation with an interpretable counterpart ([\(iT[\ ]\)] on Tns). In fact, if this Agree relation could not be obtained, then the T feature could not receive an interpretation in any syntactic location, thus violating the thesis of Radical Interpretability.

5. Applying the theory to the data

Before entering into the details of this analysis, it is important to mention that I am assuming the DP structure provided in (9); where the loci of interpretation for person, number and gender are D₀, Num₀ and N₀, respectively (see also Carstens 2000).
However, it must be kept in mind that due to the elimination of Valuation/Interpretability Biconditional (Pesetsky and Torrego 2007), I am not claiming that such interpretational loci will always come from the lexicon valued in ABS and stSp. In fact, the assumption is that in ABS, N enters the derivation with a value for gender $[\gamma]$ and one for person $[\alpha]$, while Num carries a value for number $[\beta]$ and D lacks person value $[\alpha]$. On the other hand, in stSp N introduces into the derivation all phi-values $[\alpha]$, $[\beta]$ and $[\gamma]$, so that Num and D do not introduce valued features into the derivation.

In order to account for the presence of plural morphology on English nouns, Chomsky (2000, 2001) postulates the presence of a valued interpretable number feature on this element. By assuming such valued number specification, all DP entries specified for an unvalued uninterpretable number feature would be able to probe for it, in line with the c-command restriction imposed by Agree. On the other hand, if a higher element were bearing the interpretable feature, N would not be able to c-command such value and its overt morphological marking could not be explained.

However, Chomsky’s postulation has been criticized because it misses to identify Num as the locus of number interpretability (Carstens 2000, Picallo 2008), contrary to what generally is assumed in literature. Nevertheless, if we hold to the Valuation/Interpretability Biconditional and accept that number is interpretable in Num, Agree cannot account, at least in stSp, for some crucial morphological facts: First, there is no way to account for plural marking on N; second, postnominal adjectives, which are generally
believed to be based generated in projections lower than NumP (Cinque 1994), should not carry number morphology either.

A way to circumvent such problems would consist of resorting to a different operation, Concord (Carstens 2000, Demonte 2008), which does not depend on c-command. An additional proposal (Franceschina 2005), has suggested an ad hoc co-indexation between N and the postnominal A, so that when N moves to Num, the noun and the adjective will simultaneously agree and get identical number value\(^3\). Arguably, such moves are undesirable, since they eliminate any generalization of agreement.

As far as the valuation of number and gender features in the Spanish DP is concerned, the elimination of the Valuation/Interpretability Biconditional seems to account perfectly for the data. In fact, if we postulate that N contains an interpretable valued gender feature and an uninterpretable valued number feature, while Num contains an interpretable unvalued number specification, all DP elements become able to probe a gender and number value from N while obeying to the principle of c-command.

Pesetsky and Torrego (2007) do not provide a detailed explanation of how such reconfiguration would be implemented in the Spanish DP. They limit themselves to suggest that locating \([\textit{i}num]\) on Num, and the number value on N would provide an explanation for Latin pluralia tantum nouns (Pesetsky and Torrego 2007, p. 264). Therefore, to provide a better account of how the syntactic framework here adopted works in stSp, let us consider the derivation of a simple stSp DP (10).

\[(10)\]

\[
\text{stSp: Esas pequeñas casas rojas} \\
\text{This-F-PL small-F-PL house-F-PL red-F-PL} \\
\text{Lit: ‘These small red houses’}
\]

At the point of merge, the noun casa- ‘house’ carries an interpretable valued gender feature, an uninterpretable valued number feature and an uninterpretable valued person feature. N bares also an unvalued Case feature; however, as Case is not relevant to our discussion, this last feature will not be included in the present representation. Note that the symbol “+” next to the value indicates that the item is entering the derivation with a certain feature valued e.g. [igen:+f].

\[^3\] Francheschina (2005, p. 87) remain uncommitted about the exact implementation of this operation.
The noun will raise and adjoins to the n, probably prompted by the strength of its categorial feature. In this way, N leaves an invisible copy behind. Subsequently, n projects a specifier in which the first AP is merged. The adjective roja- ‘red’, which bears uninterpretable unvalued gender and number features, represents the AP’s head. The uninterpretable unvalued features on A act as probes looking for a goal in their local c-command. The noun values the adjective’s gender and number features, which can now act as a goal (Frampton and Gutmann 2000) and which will be deleted before Spell-Out.

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4. To account for the fact that not all adjectives are post-nominal in Spanish and Romance, it has been suggested that some may be generated in the specifier of Num or other functional projections between D and Num (Cinque 1994). The present work is based on these assumptions.
After this step, the nP will merge with the Num head, which carries an interpretable and unvalued plural number feature, able to probe for the value contained in N. N raises to Num, Num projects a specifier where the second AP can be merged. Its head \((\text{pequeñ-})\) undergoes the Agree operation previously applied to \(\text{roj-}\), so that also its uninterpretable unvalued gender and number features will be valued and deleted before Spell-Out.

Eventually, also the D head is merged and its unvalued phi-features probe for a value. Its uninterpretable gender and number instances are finally erased, while the interpretable person one survives.
The system so far provided seems to work perfectly for stSp, where gender and number are marked redundantly across all the DP elements. Nevertheless, this model, given the c-command restriction on Agree and the valued number feature on N, cannot account for the ABS data. In fact, all stSp demonstratives, quantifiers, nouns and articles come from the lexicon with a specification for number and gender features. Such specification, as shown in (10-14), is what will result in overt number and gender morpholog-
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cal marking after all the Agree operations have applied. On the other hand, traditional ABS does not possess the richness in feature specification characteristic of stSp and other Romance languages. In traditional ABS, nouns are specified for gender; this feature is not morphologically marked on the majority of the DP elements (it only appears on definite articles). Also, the morphological distribution of number marking is much more restricted, it is limited to determiners, and it never applies to adjectives, nouns and quantifiers.

The ABS counterpart of (10) is (15).

(15)

ABS: Ejes pequeño casa rojo
This-M-PL small-M-SG house-F-SG red-M-SG
Lit: ‘These small red houses’

As we want to keep syntactic processes constant and universal (Brody 2003)\(^5\), neither ad hoc modifications to the operation Agree nor the introduction of special mechanisms to account for the data are available options. Nevertheless, the theory offers a different solution to this problem. Within the Minimalist Program /Principles and Parameter framework an account of cross-linguistic variation can be found in the different distribution of feature specifications between the lexical entries of the varieties under analysis. Therefore, to account for constructions like (15) in ABS, we may postulate that in this language, contrary to stSp, nouns only carry interpretable valued gender features and uninterpretable valued person ones, so that they are not specified for number. On the other hand, Num is the element carrying interpretable valued number features; D bears uninterpretable unvalued number features and interpretable unvalued person ones; while Adjectives do not have any specifications for phi-features. In other words, traditional ABS DP’s elements lack many of the unvalued uninterpretable features encountered on their stSp counterparts. Such a deficiency results in the default singular and default masculine morphological realizations, so that the stSp example (14) can be derivationally represented as (16) for ABS\(^6\).

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5. Brody refers to that as ‘perfect syntax’.

6. An anonymous reviewer has pointed out that assigning certain features and values to some ABS DP elements rather than others is entirely stipulative and that it would be desirable to understand why only definite articles, rather than any other element within DP, exhibit also gender morphology. In my view, the suggested distribution of features and values across ABS DP elements follows from current hypotheses on the distribution of features across stSp DP (Pesetsky and Torrego 2009, Carstens 2000), which have been slightly adjusted to account for the specific ABS data. The suggested number distribution, in particular, mirrors the one proposed for popular Brazilian Portuguese (Simioni 2007), a language which marks number in DP in a way strikingly similar to the strategy adopted by ABS. Also for this language, in fact, it has been suggested that the number value enter the derivation as a specification of Num. A potential explanation of why only definite articles carry
gender morphology, while other elements do not, has been omitted in the present paper for reasons of space. An extensive discussion of this issue and on how gender agreement evolved across generations due to recent contact with stSp has been provided in Sessarego and Gutiérrez-Rexach (in press a, b) and Gutiérrez-Rexach and Sessarego (2009). In such articles, my colleague and I explain that the development of uninterpretable unvalued gender features on definite articles and then, eventually, on other DP elements, is in line with SLA findings on the acquisition of gender agreement in DP. In fact, Hawkins (1998) showed that English students speaking French as a second language presented more agreement on definite articles than on indefinite ones, and also more agreement on determiners than on adjectives; similar findings have also been reported for English speakers of Spanish by Bruhn de Garavito and White (2000), and more recently by Franceschina (2005) who tested advanced speakers of Spanish coming from a variety of backgrounds (Italian, Portuguese, English, Arabic, German and French). All these studies on gender agreement also share the common view that masculine is the default value, as it appears significantly more on determiners and on adjectives in cases of agreement mismatches. These data indicate that language evolution follows certain hierarchical steps (cf. also Pienemann 1998). I invite the interested reader to consult Sessarego and Gutiérrez-Rexach (in press a,b) and Gutiérrez-Rexach and Sessarego (2009) and relevant bibliography for a more detailed illustration of agreement evolution in ABS DP.
Besides the difference in feature specification between the two varieties, it is important to state another clear parametric distinction: in ABS the number value enters the derivation as a specification of Num (i.e. $\{{\text{num}}:+{\text{pl}}/{+\text{sg}}\}$); in stSp it is carried by N. Note that this parametric distinction could arguably be postulated also for the contrast in number marking found between standard Brazilian Portuguese (stBP) (redundant plural marking) and popular Brazilian Portuguese (pBP) (non-redundant plural marking), where constructions like (17) are grammatical (cf. Simioni 2007).

(17)

<table>
<thead>
<tr>
<th>pBP:</th>
<th>As casa vermelha</th>
</tr>
</thead>
<tbody>
<tr>
<td>the-F-PL house-F-SG red-F-SG</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>stBP:</th>
<th>As casas vermelhas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lit: The red houses</td>
<td></td>
</tr>
</tbody>
</table>

Moreover, note that ABS's poverty of feature specifications does not prevent this language from presenting the same adjective+noun and noun+adjective order combinations encountered in Romance. In fact, as Carstens (2001, p. 154) and Alexiadou (2001, p. 223), among others, have demonstrated, raising of N to Num is not prompted by number feature checking, but rather by other mechanisms such as EPP or categorial features. This indicates that agreement, at least in these clear examples, can not feed movement.

In sum, the model proposed can account for important parametric differences between stSp and ABS —and potentially also between stBP and pBP. More cross-linguistic research is definitely needed to make a broader generalization. Nevertheless, the framework and the data seem highly promising.

6. Conclusion

This article provided an overview of the distribution of phi-features across the ABS and the stSp DPs. Traditional ABS DP elements present a much reduced number of phi-feature specifications than their stSp counterparts. Such a deficiency results in overt default singular and masculine morphological marking. The Minimalist Program offers the theoretical tools to characterize the elements of parametric variation in a systematic fashion, as computationally determined by differences in the specification of lexical and functional items and by restrictions on syntactic operations: in this case, on Agree. From a theoretical perspective, this study sheds some light on the linguistic constraints regulating gender and number agreement in an Afro-Hispanic vernacular on which little formal research has been conducted.
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