Gender and Referentiality: Bare Singulars in Brazilian Portuguese*
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1. The Puzzle

Brazilian Portuguese (henceforth BrP), unlike other Romance languages, allows bare singular nominal phrases like *cachorro* (‘dog’) in *Cachorro late* (‘Dog barks’), to occupy argument positions fairly unrestrictedly.

Typically, BrP also shows gender and number agreement in predicative adjectives:

(1) a. Maçãs são gostos-o-s /*gostos-o-s Bare plural
Apple.f.pl are tasty.f.pl / *tasty.m.pl

b. A maçã é gostos-a / *gostos-o Definite singular DP
The.f.sg apple.f is tasty.f / tasty.m

However, whenever a bare singular occupies the subject position of a predicative adjective, a systematic distinction between nouns with arbitrary or natural, sex-based gender occurs. NPs with natural gender behave like other nominal phrases in requiring agreement (2), but NPs with arbitrary gender how the opposite pattern, as shown in (3), where agreement is illicit:

(2) Atriz é vaidosa /*vaidoso Bare singular – natural gender
Actress is vain.f / *vain.m

(3) Maçã é gostoso / *gostosa Bare singular – arbitrary gender
Apple.f is tasty.m / *tasty.f

This same distinction between bare singulars with different types of gender features holds for anaphoric relations:

(4) *Eu acho maçã gostoso porque elas são doce I find apple.f tasty because they.f are sweet

(5) Eu acho atriz irritante porque elas¹ falam alto demais I find actress.f annoying because they.f speak loud too much

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¹ At first sight, the use of the plural pronoun here might seem surprising if one expects the bare singular to be syntactically singular. As has been shown by Munn and Schmitt (2002), Mueller(2002), Pires de Oliveira and Rothstein (2011) and others, bare singulars in BrP in fact do not have a Number projection and are semantically number neutral. I will treat the apparent singular agreement on the copula in examples like (2) and (3) as a case of default agreement. See section 4 for a more detailed proposal about the type of anaphoric relation bare singulars can be involved in.
What is the relationship between the presence of functional structure associated with the noun and the possibility of agreement and binding? (1a) vs. (2)

How to distinguish the feature makeup of NPs for which gender has semantic import from the NPs for which gender is arbitrary and inflexible?

How can this difference account for the agreement and binding patterns of bare singulars with natural and arbitrary gender? (2) vs. (3)

Roadmap:

- Section 2: Background on arguments for null D in bare singulars
- Section 3: Previous approaches to agreement mismatches - Index features
- Section 4: The analysis
- Section 5: Optional agreement
- Section 6: Summary

2. Background

2.1 Kind reference

In this paper I will be mostly concerned with bare singular subjects of generic sentences. It should be noted however that though restricted by the distribution of contrastive focus, bare singulars may appear as subjects of episodic sentences (see Pires de Oliveira year). The interpretation of bare singulars in object position

With respect to generic sentences, there has been some controversy in the literature as to whether bare singulars in BrP are kind-denoting. The crucial data whose acceptability was discussed are sentences with bare singular subjects of kind predicates, such as (7), and episodic sentences on a generic reading (8).

(7) Dinossauro está extinto.
    Dinosaur is extinct

(8) a. A Maria ouviu dizer que a batata foi cultivada pela primeira vez na América
    The Maria heard say that the potato was cultivated for-the first time in-the America
    b. A Maria ouviu dizer que batata foi cultivada pela primeira vez na América
    The Maria heard say that potato was cultivated for-the first time in-the America
Pires de Oliveira et al. (2010) conducted a psycholinguistic study to verify the acceptability rates of the sentences in question. The results of their rating tests showed that there was no significant contrast between the acceptability of definite singulars and bare singulars as subjects of kind predicates.

While there was a general preference for definite singulars (78% acceptability versus 58% for bare singulars), bare nouns patterned more closely to the sentences with definite singulars than to the ungrammatical controls, which received a high percentage of the lowest score.

- This follows naturally from the view that nouns do not start out as predicate, but as names of kinds, which are instantiated derivationally as Number or Classifier phrases are merged. (Borer 2006, Aquaviva 2009).

- Kinds establish the link between linguistic and conceptual categorization that allow people to talk about sortal concepts as abstract entities that define indefinitely many instances or about the concrete individuals that instantiate them.

- In the course of the derivation, as functional structure is merged to the root, individuals can become accessible to the grammar. It follows neatly that bare singulars should in fact only be number neutral and kind referring, whereas positing a null-D DP level can only stipulate these restrictions.

2.2 Morphosyntax of bare nouns in BrP

2.2.1 Schmitt and Munn (2002):

- bare singulars are DPs with no Number projection and a null D head.

Argument is based on the number of readings available in coordination structures.

(9) a. Ela encontrou [o amigo e parente], no aeroporto. Ele chegou de Londres.
   She met the.sg friend and relative in-the airport. He arrived from London.
   ➢ Two singular NPs conjoined under a single D - single referent

   b. Ela encontrou os amigos e parentes no aeroporto
   She met the.pl friends and relatives in-the airport
   ➢ Two plural NPs under a single D - ambiguous between NP or NumP conjunction

If bare singulars are simply NPs, then they could only be conjoined at the NP level. Schmitt and Munn find that (10) is however, ambiguous, and take this as evidence for a separate structural level, DP.

(10) Ela encontrou amigo e parente no aeroporto
    She met friend and relative in-the airport
If the NP in (11) is able to refer to a single individual who is both a friend and relative, then it should be able to serve as antecedent for the singular pronoun in *Ele chegou de Londres* ‘He arrived from London’, but this is impossible.

(11) 
Ela encontrou [amigo e parente], no aeroporto. Ele, chegou de Londres.  
She met [friend and relative], in-the airport. He, arrived from London

Crucially, Schmitt and Munn's treatment of bare singulars as DPs also makes the prediction that (8a) should be ambiguous between two NPs coordinated under a single D or two full DPs, one with an overt D (*o amigo*) and one with an empty D (parente).

As they point out themselves, (9a) only supports one reading and the unavailability of the second reading is not noted.

(9) a. &P  
DP &  
o amigo &  
NP parente

b. DP  
D &P  
o NP &  
amigo &  
NP parente

Simple coordination data can in fact also provide evidence against an empty D analysis. Bare singulars cannot be coordinated with pronouns or proper names, which are well-established DPs:

(12) a. *Ela e cachorro foram passear.  
She and dog went for a walk  
b. *Maria e cachorro foram passear.  
Maria and dog went for a walk

2.2.2 Cyrino and Espinal (2011):

Argument is based on the distribution of weak third person pronouns, which are said to only take DP antecedents.

In their proposal, only the internal argument of HAVE is a real bare noun with no further structure above NP, which is also the only position in which bare singulars can occur in other Romance languages.

If this is correct, then the unacceptability of (13a) follows, but the acceptability of (13b) is completely unexpected, particularly because Cyrino and Espinal establish previously that weak pronouns can take both animate and inanimate antecedents, unlike null objects.
(13) a. *Pedro tem carro mas não usa ele
    Pedro has car but not uses it
   b. Pedro tem cachorro mas não cuida dele/deles
    Pedro has dog but not care of-it/them

3. Hybrid Nouns: NP-internal vs external agreement

- The asymmetry between natural and arbitrary gender is not observed in relation to attributive modifiers:

(14) a. Banana importada é caro
    Banana imported.f is expensive.m
   b. *Banana importado é caro
    Banana imported.m is expensive.m

- All bare singulars, independent of the nature of their gender features, control agreement on internal modifiers.

- This is so even when in the same construction they fail control agreement on external predicates.

- This suggests different sources of phi-feature values

3.1 Wechsler and Zlatic (2000)

- NPs carry two sets of phi features - Concord and Index features.
- DP internal elements are valued by the set of Concord features, external elements are valued by the set of Index features.
- These sets are also distinguished in terms of the features they carry: while Index has person, number and gender but lacks case, Concord has gender, number and case, but lacks person.
- Index agreement depends on the presence of a referential index on the target, excluding non-referential elements such as determiners and attributive adjectives.
- Each index containing these phi features is interpreted once anchored to an individual which is an instance of the kind denoted by the noun.

Since bare singulars with meaningless gender can be controllers for attributive adjective concord but not for predicate adjectives, following Wechsler and Zlatic we could propose that while their Concord features are specified [+feminine], their Index features are unspecified.

For the other class of nouns, however, gender is specified in both Concord and Index features at NP, allowing predicative adjectives to agree even in the absence of functional structure.
Problem: Wechsler and Zlatic would have difficulty, however, accounting for the distinction between the examples in (1) and in (2).

- If Index features are located at NP and are defined as either specified or not at that level, then the presence of NumP in the near minimal pair *Maças são gostosas/*gostosos and *Maã é gostosa/*gostosa should be irrelevant.
- Somehow though, the Index features of maçã become active whenever the phrase is larger than NP.
- It also seems to miss a more interesting generalization regarding the availability of Index features and referentiality. After all the Index features of the bare singular cannot be anchored to any particular instance of the relation maçã because bare singulars in BrP denote kinds.

3.2 Pereltsvaig (2006)

- Two sets of phi features teased apart: one inherently valued lexically
  - one, equivalent to Index features, valued when D is merged.
- Predicative adjectives only have access to features of full DPs.

The behavior of nominal phrases smaller than DP in Russian: can be argumental, but share a cluster of properties, namely:

(i) they cannot trigger agreement on predicates
(ii) they cannot control PRO
(iii) they cannot act as antecedents in anaphoric binding

All of these restrictions can be in a sense related to the unavailability of Index features.

Because in her theory agreement behavior is so strictly related to the presence of a DP projection, Pereltsvaig also fails to account for the distinction between the examples in (1) and (2) since bare plurals and bare singulars pattern differently in BrP despite being both smaller than DP.

Where Pereltsvaig is mistaken is in claiming that the functional head that allows phi-features to be accessible must be D. Bare singulars with arbitrary gender in BrP share the properties (i)-(iv), while bare plurals share none:

(i) **agreement on predicates**:

(15) a. *Aula é chata
   Class.f is boring.m
   Bare singular – arbitrary gender

b. Gata é mais esperta que gato
   Cat.f is more clever.f than cat.m
   Bare singular – natural gender

c. Aulas são chatas
   Classes,f.pl are boring,f.pl
   Bare plural
(ii) PRO control:

(16) a. * Ele tirou carro da garagem limpo Bare singular – arbitrary gender
   He took car of-the garage clean
b. Ele tirou o carro da garagem limpo Definite singular DP
   He took the car of-the garage clean
c. Eles tiraram carros da garagem limpos Bare plural
   They took cars of-the garage clean.pl
d. Professora tenta ensinar os alunos Bare singular – natural gender
   Professor,f tries to teach the students
e. Eu vi médico no quarto pelado Bare singular – natural gender
   I saw doctor.m in-the room naked.m

(iii) anaphor binding:

(17) Bare singular – arbitrary gender

a. *Bicicleta é um ótimo meio de transporte porque ela não polui
   Bicycle is a great mean of transportation because she not polutes

Bare singular – natural gender

b. Avó enche os netos de açúcar mas elas não tem que botar eles pra dormir
   Grandma fills the grandchildren with sugar but they,f not have to put them to sleep

Bare plural

c. Bicicletas são um ótimo meio de transporte porque elas não poluem.
   Bicycles are a great mean of transportation because they,f not pollute

Problem: to maintain Pereltsvaig’s analysis one would have to assume that bare singulars with inherent gender are full DPs while those with arbitrary gender are smaller than DP, for which there is no independent evidence.

-bare singulars and bare plurals behave differently despite being both smaller than DP

4. Proposal

- Intuitions worth keeping: (i) nominal phrases carry two sets of phi features
  (ii) referentiality is encoded by means of valued phi features

4.1 Index features

- Referential potential is understood as the ability to refer to realizations of a kind. Kinds are realized when their instances are individuated.
• Number and Gender each grammaticalize a different principle of individuation.
• Dahl (2000a): referential gender is a phrasal property

➢ **Index features are valued when the noun potentially refers to realizations of the kind it denotes, via Number or Gender**

4.2 Natural gender

• Feature on little n (Kramer 2009)

• Instantiation function:
  In the Romance system, gender marks two distinctions:
  - across-kind: natural vs. arbitrary gender
  - within-kind: female vs. male

• Natural gender is treated as a function from kinds to sets of instances of that kind
  \[ [+\text{fem}] = \lambda y \lambda x \left[ \text{fem}(x) \land R(x)(y) \right] \]

• At NP, a feminine noun denotes the set of realizations of a kind that are female, but it cannot pick out any specific instances. This can be seen again in (5), where the pronoun must be plural, a case of type anaphora.
• The case of masculine gender requires further care, since it is ambiguous between the equivalent of [-fem] in selecting only the instances that are male, or in denoting the entire kind. Likewise in interaction with number, a plurality of female and male instances must be grammatically male.
• As a working hypothesis, let us treat masculine as simply [-fem]. Since [+fem] means informally “exclusively feminine”, [-fem] means only “not exclusively feminine”, whereas the exclusively masculine reading can be arrived at by an implicature.

4.3 Explaining the asymmetry

Because the output of the gender function contains an individual instance variable, this variable can be a discourse referent, therefore the NPs gender Index feature will be valued.

• An NP with natural gender has a valued gender Index feature, while number is still unspecified.
• A bare singular with arbitrary gender has an unvalued gender Index feature at NP, since its gender is a feature of the root and could not return a set of instances because the female/male properties do not apply.

The gender Index feature of an arbitrary gender noun cannot be independently valued based on the sex of the referent; the only available valued gender feature it can be based on is the Concord feature.
• Once NumP is merged:

(i) the kind is instantiated, and can now have a referential index, and

(ii) the unvalued gender Index feature in NumP is in a position to establish an Agree relation with the valued gender Concord feature at NP.

The account prevents gender mismatches between the values of Concord and Index features for nouns with arbitrary gender.

In the previous approaches, the values of the two sets can be independently defined. Such mismatches are, in effect, not attested in BrP.

5. Optional agreement:

In cases where agreement is optional, the interpretation is modulated on the basis of individuation:

<table>
<thead>
<tr>
<th>(18) Muita banana é</th>
<th>Agreement</th>
<th>No agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much banana is</td>
<td>barata ‘cheap’</td>
<td>barato ‘cheap’</td>
</tr>
<tr>
<td></td>
<td>“Many types of bananas are cheap”</td>
<td>“A large quantity of bananas is cheap”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(19) Professora é</th>
<th>Agreement</th>
<th>No agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor is</td>
<td>gostosa ‘tasty’</td>
<td>gostoso ‘tasty’</td>
</tr>
<tr>
<td></td>
<td>“Female professors are hot”</td>
<td>“The flesh of female professors is tasty”</td>
</tr>
</tbody>
</table>

In (18), the subject that has a collective interpretation is unable to trigger agreement on the predicate - it has an unvalued gender Index feature.

• Where the predicate has access to the atoms in the plurality the nominal denotes, gender agreement holds - it has a valued gender Index feature.

In (18a) muita banana is a NumP, instantiated in the kind domain, resulting in the taxonomic reading. Because it contains a Number projection, the gender Index feature of the phrase is valued and can control agreement with the predicate.
In (18b) the structure of the subject must then be smaller than NumP since the noun is not quantized. *muito* can thus act as a modifier at multiple levels, as opposed to occupying a strict quantifier position.

In (19) the agreeing adjective can only be interpreted as the slang ‘*hot*, predicating the individuated noun

- The non-agreeing option could only be uttered by cannibals stating their opinions about the taste of the flesh of female professors (mass).

6. Bare nouns and gender agreement crosslinguistically: Scandinavian pancakes

- Similar case of gender agreement mismatch with predicative adjectives:

(20) Vodka er sunt

Vodka-m. is healthy-neut

→ Mismatch only happens with bare nouns
→ Asymmetry between internal and external agreement
→ Typically inanimate nouns; if animate then not interpreted as such

- Josefsson (2009) postulates a null pronoun, with neutral gender, that heads the entire subject nominal phrase and agrees with the predicate. Her argument relies on the existence of a construction with an overt counterpart of this pronoun. However, if the account given to the BrP data can be extended to Scandinavian, this becomes unnecessary.

- There are of course not only similarities between these languages. There is also a clear distinction when it comes to their gender systems. Scandinavian has three morphological genders – feminine, masculine and neuter. Further research is needed to account for the presence of neuter, instead of the default masculine, in these constructions.

- One possibility, similar to what has been proposed by Enger (2004), is that because neuter gender is associated with nouns lower on a scale of individuation, these bare nouns in pancake sentences have fem/masc Concord gender features, but neuter Index gender. Because neuter is not available in BrP, the languages resorts to default agreement as a last resort, since the adjective cannot be pronounced without a thematic vowel.

- More work is needed to say anything less speculative about this point, but the striking similarities between BrP and Scandinavian, and the implausibility of postulating a null masculine pronoun for the BrP case since it has no overt counterpart, would lead the optimist to look for a uniform analysis.
7. Summary

- Bare singulars in BrP are minimal NPs, and pattern with similar “small” arguments in languages like Russian and insofar as they have more limited interpretative possibilities, connected to the completeness of their Index features.

- Index features are related to the NP's ability to refer to individuals who realize a kind. Therefore they are made available as the kind is realized, in the syntax, via the presence of instantiation functions. These can be either Number, or gender features on little n.

- Arbitrary gender is a feature of the root, determined in the lexicon, since for nouns lower in the individuation scale where gender does not mark a within-kind distinction, the features value cannot be predicted in any way. Natural gender, on the other hand, is a feature on the categorizer n that applies to the nominalized root.

- Natural gender is a function from kinds to the set of instances of that kind that has the property female or does not have the property female. As such, it allows the NP to refer to instances, having a valued Index gender feature that controls agreement and binding.

References:


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