INFLECTION OF *CADA* AND NUMBER FEATURE VALUATION IN BP
FLEXÃO DE 'CADA' E VALORAÇÃO DE TRAÇOS DE NÚMERO NO PB

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Abstract: This research investigates nominal concord in structures of non-standard Brazilian Portuguese (BP) where *cada* is inflected with the plural morpheme *-s* while the phrases following it may not bear any plural marking. In order to account for this, I will consider that cardinals and silent nouns work as a boundary dividing the DP into two domains such that phrases to their left are marked with the plural morpheme while phrases to their right are unmarked, a pattern found across languages. Additionally, I will argue that DPs with *cadas* have a silent noun SET and that this silent noun conveys a set reading as well as valued plural features. In this case, *cadas* is interpreted as either 'such' or 'every' rather than 'each' and is followed by a noun or a cardinal ≥ 2 (plus a noun). Accordingly, because *cadas* precedes SET, it is marked with *-s*. This plural silent noun is followed by a preposition, which allows its embedded NP to be singular.
Keywords: Inflection of *Cada*; Silent Nouns; Number Features; DP-Structure.

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Resumo: *Esta pesquisa investiga estruturas nominais do português do Brasil (PB) não padrão em que 'cada' é flexionado com o morfema '-s' de plural, enquanto sintagmas que o seguem podem não receber qualquer marca de plural. Para analisar esses fatos, considerarei que cardinais e silent nouns funcionam como uma fronteira dividindo o DP em dois domínios de modo que sintagmas à sua esquerda são marcados com o morfema de plural enquanto sintagmas à sua direita são não marcados, um padrão encontrado em outras línguas. Além disso, argumentarei que DPs com 'cadas' projetam um silent noun SET e que esse silent noun veicula leitura de conjunto bem como traços de plural valorados. Nesse caso, 'cadas' pode ser interpretado como 'such' ou 'every' em vez de 'each' e pode ser seguido por nome ou por cardinal ≥ 2 (mais nome). Portanto, porque 'cadas' precede SET, recebe marca de plural '-s'. Esse silent noun plural é seguido de uma preposição, o que permite a seu NP complemento ser singular.*
Palavras-chave: *Flexão de 'Cada'; Silent Nouns; Traços de Número; Estrutura do DP.*

INTRODUCTION

Agreement is a universal that has intrigued studies in generative syntax, such as Chomsky (2001), Augusto et al. (2006), Costa and Figueiredo Silva (2006), Pesetsky and Torrego (2007), Miyagawa (2010, 2017), Danon (2011), Pesetsky (2013), among others that are concerned with explaining the principles that govern feature checking and the parameters languages activate for agreement.

In line with these studies, this research investigates nominal concord in structures like (1) of non-standard Brazilian Portuguese (BP) where *cada* is inflected with the plural morpheme *-s* while the noun that follows it may not bear any plural marking. As opposed to (1), *cada* is not inflected in standard BP (2).

(1)   a. *Cadas* vestido horrível![2]
each.PL dress horrible
'Such horrible dresses!'
b. necessidades de *cadas* cliente[3]
needs   of each.PL customer
'every customer's needs'

(2)   a. Cada vestido horrível!
each dress.SG horrible.SG
'Such horrible dresses!'
b. necessidades de cada cliente
needs   of each customer.SG
'each customer's needs'

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[2]   Available at: <marianehelenaa.blogspot.com.br/2014/02/os-10-piores-looks.html>. Access on: October 17th, 2017.

[3]   Available at: <https://americansolutions.com.br/capa/whmcs-bridge-4/>. Access on: July 12th, 2018.

Several other examples of inflection of *cada* were found on the internet and collected in spontaneous utterances, as indicated in (3):

(3)   a. "Em três tábuas eu não piso, *cadas* três mais arriscada"[4]
          In three board   I not step   each-PL three more dangerous
          'In three wooden boards, I do not step in. Every three is more dangerous (than one another)'.
          b. "integrantes do MP têm de fazer reciclagem a *cadas* três anos"[5]
          members of-the MP have to do recycling to each-PL three years
          'Members of MP have to undertake training courses every three years'.
          c. "internamento hospitalar, de no mínimo 30 dias, para *cadas* pessoa"[6]
          hospitalization   of in-the minimum 30 days for each-PL person
          'hospitalization, of at least 30 days, for everyone'
          d. "Está *cadas* vez mais difícil"[7]
          Is   each-PL time more difficult
          'It is increasingly difficult.'
          e. "depende da sensibilidade da tela de *cadas* celular"[8]
          depends of-the sentivity   of-the screen of each-PL cell phone
          'It depends on the screen sensitivity of every cell phone'.
          f. "pensei em tudo, em *cadas* detalhe"[9].
          Thought-1stSG in everything, in each-PL detail
          I thought about everything, every detail.
          g. "*cadas* coisa linda que não cabe no bolso"[10]
          each-PL thing wonderful that not fit in-the pocket
          'Such wonderful things that one cannot afford!'
          h. "É *cadas* jogador bonito!" (Comment by a customer in a beauty salon about the World Cup, Diamantina, MG, June 23rd, 2018)[11]
          Is each-PL player handsome
          'Such handsome players!'

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4   Available at: <https://books.google.com.br/books?isbn=8520936776>. Access on: October 23rd, 2017.
5   Available at: <http://www.ammp.org.br/noticias/ler/idnoticia/3339>. Access on: November 29th, 2018.
6   Available   at: <http://www.camara.gov.br/proposicoesWeb/prop_mostrarintegra;jsessionid=67123FA38F48 A2D7F9C0D1FDC26F4BEB.proposicoesWeb1?codteor=982973&filename=Avulso+-PL+80/1999>. Access on: January 12th, 2018.
7   Available   at: <http://www.cbcloud.com.br/p.php?Atendimento-e-Suporte-ao-Cliente=8>. Access on: January 29th, 2018.
8   Available at: <https://www.jntelecom.com.br/como-desativar-o-talk-back-do-seu-android/>. Access on: January 29th, 2018.
9   Available at: <http://happyending.com.br/tag/decoracao-2/>. Access on: February 2nd, 2018.
10   Available   at: <https://m.casamentos.com.br/forum/bom-gosto-a-gente-tem-o-que-falta-e-dinheiro--t252440>. Access on: January 12th, 2018.
11   Thanks to Cássia for the data in (3h-i) and to Marcus for the data in (3k-l).

i. "*Cadas* falta dura nesse jogo que o juiz não marcou" (Family conversation about the World Cup, Diamantina, MG, June 24th, 2018).

Each-PL foul hard in-this match that the referee not awarded
'Such hard fouls in this match that the referee did not award!'

j. "Quando eu estudava, professor fazia *cadas* coisa..." (Diamantina, July 27th, 2017).

When I studied,   teacher   did   each.PL thing
'At the time when I was a student, teachers used to do such things'.

k. "Essa aí é que sofre com ele. É *cadas* tapa que leva" (Comment by a father at a bakery about fights among his children, Belo Horizonte, MG, September 6th, 2018).

This there is that suffers with him. Is each-PL slap that takes
'This one suffers with him. She takes such slaps!'

l. "Já peguei cadas engarrafamento ali (na BR-381)!" (Comment by an app driver, Belo Horizonte, MG, October 11th, 2018).

Already catched each-PL traffic jam there (at BR-381)
'I have already drove under such heavy traffic there!'

Therefore, this research aims to identify the underlying rule that allows the type of agreement exemplified in (1, 3) and the functional category that comes lexically interpretable and valued into the DP-syntax in BP.

In order to carry out this investigation, I will firstly discuss current proposals on the issue. Among them, some argue that number features in BP are interpretable in D(eterminer) (MAGALHÃES, 2004; COSTA; FIGUEIREDO SILVA, 2006; CYRINO; ESPINAL, 2015). Others argue that they are interpretable in Num(ber) (AUGUSTO et al., 2006; PEREIRA, 2017) or in silent nouns (KAYNE, 2005; PEREIRA, 2017), in structures that present syntactic or semantic restrictions to the presence of cardinal numerals. In view of this, I will investigate which one accounts for the pattern presented in (1, 3).

In doing so, this paper continues a broader research (PEREIRA, 2016a, 2016b and 2017) that has already concluded analyses of other structures of BP with apparent "inconsistencies" in nominal agreement. Among the results, it was found that there is no inconsistency, but a coherent and universal pattern that governs agreement, as we will see in the section 2 of this paper. Moreover, from an empirical standpoint, this investigation aims to contribute to a formal description of structures with inflection of *cada* that have not been mentioned in the literature so far.

Therefore, this paper is organized in the following sections: section 1 presents the theoretical background; section 2, an account on NumP and silent nouns as syntactic boundaries in BP plural marking; and section 3, a proposal for the analysis of structures with inflection of *cada*.

1 THEORETICAL REVIEW

This section is divided into four subsections. The first three depict the theoretical basis, discuss current proposals on the issue, and give examples of languages where the cardinal numeral is a boundary for the distribution of number features in the DP as well as languages where a silent noun also has this function. The fourth subsection reviews descriptions of *cada* that have been developed mainly under semantic approaches.

1.1 Theoretical basis

Φ-feature is a term used to cover broadly the three main categories that involve agreement, that is: person, gender, and number, which are analyzed under the concepts of valuation and interpretability.

With respect to valuation, according to Pesetsky and Torrego (2007, p. 263), "Certain features on lexical items appear to come from the lexicon unvalued, and receive their value from a valued instance of the same feature, present on another lexical item". For instance, number in English is a property of the noun, and comes valued with the noun from the lexicon. However, number is lexically unvalued in D and A, but "gets valued as a result of agreement with N" (PESETSKY; TORREGO, 2007, p. 263).

With respect to interpretability, the distinction between interpretable and uninterpretable is related to "whether or not a feature of a particular lexical item makes a semantic contribution to the interpretation of that item" (PESETSKY; TORREGO, 2007, p. 264). For instance, the number feature of A does not make any contribution to its meaning. Likewise, while number and person contribute to the interpretation on the DP, they do not contribute to the interpretation on V.

Chomsky (2001) assumes that "A feature is uninterpretable iff F is unvalued". Under this assumption, known as assignment view, a feature can be either interpretable and valued or uninterpretable and unvalued. In contrast, Pesetsky and Torrego (2007) assume that there is an independence between valuation and interpretability. Accordingly, the lexicon is expected to have four types of features:

uF *val* uninterpretable, valued	iF *val* interpretable, valued
uF [ ] uninterpretable, unvalued	iF [ ] interpretable, unvalued

<div align="center">(PESETSKY; TORREGO 2007: 269)</div>

In this sense, agreement is understood as feature sharing, being described as follows:

> Agree (Feature sharing version)
> (i) An unvalued feature F (a *probe*) on a head H at syntactic location α (F_α) scans its c-command domain for another instance of F (a *goal*) at location β (F_β) with which to agree.

(ii)   Replace F$_\alpha$ with F$_\beta$, so that the same feature is present in both locations (PESETSKY; TORREGO 2007: 268).

Therefore, one of the consequences of adopting a feature sharing approach is that, after valuation takes place, the feature is not deleted, but still becomes available for another probe. As illustrated below, " if γ enters the derivation with a valued feature, this feature can be shared first with β and then, indirectly, with α, after α probes for β's feature which at this point is shared with γ" (DANON, 2011, p. 308)."
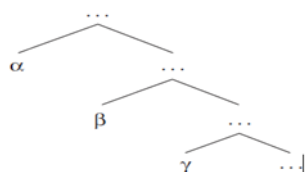
(DANON, 2011, p. 308)

1.2   Number features in the DP-internal structure

Having made this brief summary on the concepts of valuation and interpretability, it is important to inquire how one can tell whether the noun is lexically valued for number and how number agreement is triggered inside the DP.

As for the first question, an explanation, following Pesetsky and Torrego (2007), is related to *pluralia tantum* nouns, as 'scissors' in English. These nouns are always plural, which indicates that nouns come lexically valued for number in the derivation; whereas there is no *pluralia tantum* D or A, which means that they cannot be lexically valued for number.

Nevertheless, not every language has *pluraria tantum* nouns. For instance, according to Pesetsky and Torrego (2007, p. 3), "in Spanish, genuine *pluralia tantum* […] seem not to exist", and this entails a different understanding on the source of number features in this language. This source, as assumed in previous studies, is NumP, a category between D and N.

Henceforth, we still need to know in which category of the DP-internal structure number features are valued in BP. Magalhães (2004), Costa and Figueiredo Silva (2006), Cyrino and Espinal (2015), among other authors, argue that D is the functional category that comes valued with number features. Their main argument for this is based on the fact that, in non-standard BP, the plural morpheme -*s* tends to appear in the determiner only.

In contrast, Augusto et al. (2006) assume that this argument is not enough to indicate the locus of realization of number features, because, even in the absence of determiners or plural morphemes, BP bare nouns can be interpreted as plural. For this reason, based on Deprez (2005), Augusto et al. (2006, p. 261)

conclude that number heads an independent projection NumP and is semantically interpreted in this position rather than in D or N.

In favor of this assumption, as we will see soon, NumP works, in several languages, as a syntactic boundary for the distribution of the plural morpheme in the DP-internal structure, such that phrases to the left of cardinals are marked with the plural morpheme while phrases to the right of it are unmarked (DANON, 2011; NORRIS, 2014).

Additionally, it has also been observed that null categories present this same function working as a syntactic boundary in the distribution of plural features inside the DP (KAYNE, 2005; PESETSKY, 2013).

1.3 NumP and silent nouns: the DP-internal distribution of number features cross-linguistically

As observed by Danon (2011, p. 301), in many languages, the distribution of plural features is determined by the position of cardinals in the DP-structure. For instance, in Finnish (4), "a (plural) number feature is only available above the position of the numeral" (DANON, 2011, p. 302). In addition, Norris (2014) presents data from Estonian (5) where "material to the left of the numeral is plural, and material to the right is singular" (NORRIS, 2014, p. 143).

(4)   "Ne   kaksi pien-tä   auto-a   seiso-ivat   tiellä.
        those.PL two.SG small-PART.SG car-PART.SG stand-PAST.3PL road.ADESS
        'Those two small cars stood at the road' (Brattico 2010)" (DANON, 2011, p. 301).
(5)   "nee-d   viis   ilusa-t   maja
        this-PL.NOM   5.NOM beautiful-PAR house.PAR
        'these five beautiful houses' (Erelt et al. 1993b:143)" (NORRIS, 2014, p. 144).

Additionally, Kayne (2005, p. 241-242) observes that functional adjectives, like 'few' (6b), "modify a noun distinct from the visible plural 'books' […] The noun in question is a silent counterpart of the overt 'number' seen in:" (6c).

(6)   a. "*a books"
        b. "a few books"
        c. "a small **number of** books"

Thus, in contrast to (6a), which is ungrammatical because 'a' is not compatible with plural nouns, (6b) is grammatical because 'few' modifies a silent singular NUMBER, followed by a preposition 'of', as seen in (6c). This hypothesis is extended, among others, to 'much', "taken to modify AMOUNT", as well as to 'clock/time', taken to modify HOUR.

In sum, similarly to cardinals, silent nouns work as a boundary in the distribution of number features in the DP. Moreover, number features on silent nouns may vary across languages. For instance, in Italian (7a) and French (7b), a plural definite article co-occurs with singular phrases, which indicates that, in these languages, the silent HOUR is plural.

(7)   a. "Sono le ore una.
        ('are the(pl.) hours one')" (KAYNE, 2005, p. 259).
        'It is one o'clock'.
        b. "Vers les une heure.
        ('toward the(pl.) one hour' =
        'around one o'clock')" (KAYNE, 2005, p. 260).

Additional support for assuming silent nouns as syntactic boundaries in nominal concord is provided by the position of a null feminine morpheme in Russian (8a) as well as a null number morpheme in Lebanese Arabic (8b) that divide their DPs into two domains for nominal agreement (PESETSKY, 2013).

(8)   a. "U nas byl-a   očen' xoroš-**aja**   zubn-oj   vrač-ъ…
        by us   COP-PST.F.SG very   good-**F**.NOM.SG dental-**M**.NOM.SG doctor-NOM.SG
        'We had a very good (female) dentist.'" (PESETSKY, 2013, p. 38).
        b. "[tleetiin walad   kesleen-Ø mnazzam-iin] Htajj-u
        thirty   child.SG   lazy-SG   organized-PL complained-PL
        'Thirty organized lazy children complained (e.g., about their grades).'" (PESETSKY, 2013, p. 47).

1.4   Semantic and pragmatic properties of *cada*

As reviewed below, *cada* has been described as a quantifier with distributive operations over atomic (i), set (ii) and scalar (iii) predication.

i)   Quantifier with atomic predication

According to Legroski (2015), *cada* "operates an atomization over the nouns it quantifies"[12] (LEGROSKI, 2015, p. 97, my translation). As 'each', *cada* "goes through each element of a set, in a distributive reading, one by one"[13] (LEGROSKI, 2015, p. 90, my translation). It may also "take sets with more than

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[12] "opera a atomização dos nomes que quantifica" (LEGROSKI, 2015, p. 97).

[13] "um quantificador que percorre um conjunto elemento por elemento, por meio de uma leitura distributiva ponto a ponto" (LEGROSKI, 2015, p. 90).

one individual and turn these sets into their atoms"[14] (LEGROSKI, 2015, p. 97, my translation). In this respect, *cada* plus a noun "work as a definite plural description, in the sense that it may refer to any plural atomic set […] but it also requires that the predicate is distributed through the atoms"[15] (GOMES, 2004, p. 270 apud LEGROSKI, 2015, p. 98, my translation), as in (9a).

(9)   a. "Cada menino comprou um carro" (LEGROSKI, 2015, p. 98).
       Each boy bought a car
       Each boy bought a car.

ii)   Quantifier as a set partitioner
       Another distributive property of *cada* concerns its function as a partitioner of a set, when *cada* is followed by a cardinal, as in (9b). "This means that the units that *cada* selects are no longer units, but subsets consisting of more than one unit, depending on the cardinality selected by the cardinal numeral"[16] (LEGROSKI, 2015, p. 101, my translation).

(9)   b. "Um avião pousa e decola em Congonhas a cada dois minutos" (LEGROSKI, 2015, p. 101).
       An airplane lands and takes off in Congonhas to each two minutes
       An airplane lands and takes off in Congonhas every two minutes.

iii)   Quantifier/Qualifier with scalar/intensifier predication
       Cada may also occur in exclamative structures with intonational focus, as in (9c). In this case, it works like a "scalar item [...] that seems to force a rise in a scale made by the elements of a set"[17] (LEGROSKI, 2015, p. 105, my translation). As a result, it contributes to make an appreciative or derogatory "judgment". In this reading, *cada* has a pragmatic import.

(9)   c. "É cada coisa que a gente vê" (LEGROSKI, 2015, p. 105).
       Is each thing that we see
       Such things that we see!

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[14] "pode tomar conjuntos com mais de um indivíduo e tornar estes conjuntos como seus 'átomos'" (LEGROSKI, 2015, p. 97).

[15] "**Cada nome** funciona como uma descrição definida plural, no sentido de poder fazer referência a qualquer conjunto atômico plural; mas [...] exige que o predicado se distribua pelos átomos" (GOMES, 2004, p. 270 apud LEGROSKI, 2015, p. 98).

[16] "Isto significa dizer que as unidades que *cada* seleciona não são mais unidades, mas subconjuntos formados por mais de uma unidade, a depender da cardinalidade determinada pelo numeral" (LEGROSKI, 2015, p. 101).

[17] "um item escalar [...] que parece forçar uma leitura para cima em uma escala feita a partir dos elementos do conjunto" (LEGROSKI, 2015, p. 105).

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However, Legroski (2015) explains that, even in this case, *cada* triggers a distributive operation in the sense that "*cada* emphasizes or enhances something in the meaning of the name that it is quantifying: enhances qualities or highlights negative traits"[18] (LEGROSKI, 2015, p. 107, my translation). In other words, *cada* "qualifies […] each element of a set"[19] (LEGROSKI, 2015, p. 107, my translation), that is, "it is a set where the characteristics of the individual are highlighted - or, perhaps, particularized, atomized - by the use of *cada*"[20] (LEGROSKI, 2015, p. 107, my translation).

To sum up, *cada* is:

> a quantifying and qualifying marker […] there is no functional equivalence […] between the indefinite Portuguese *cada* and French *chaque* or English 'each' […] In these languages, *cada* is only a distributivity marker. In Portuguese, beyond the distributivity basis, *cada* is also an intensitivity marker[21] (MOREIRA, 2001, p. 385, my translation).

Therefore, though this research is not intended to make a semantic analysis of *cada*, this review is made in order to highlight the different semantic properties that this operator may assume with regard to its predication over unities (atoms), sets and qualities of a set.

2   NUMP AND SILENT NOUNS IN BP

Below, I will show that the hypotheses on NumP and silent nouns account for the DP-internal distribution of the plural morpheme in BP.

2.1   NumP

Based on Danon (2011) and Norris (2014), Pereira (2017) demonstrates that NumP works, in BP, as a syntactic boundary such that constituents to the left of cardinals are marked with the plural morpheme, while constituents to their right are unmarked. This rule is observed in (10), examples of nominal agreement in non-standard PB.

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[18] "o *cada* salienta ou enaltece algo no significado do nome que está quantificando: enaltece qualidades ou destaca traços negativos" (LEGROSKI, 2015, p. 107).

[19] "qualifica [...] cada elemento do conjunto" (LEGROSKI, 2015, p. 107).

[20] "se trata de um conjunto onde as características do indivíduo são evidenciadas – ou, talvez, particularizadas, atomizadas – pelo uso do *cada*" (LEGROSKI, 2015, p. 107).

[21] "'Cada' é, em português, um marcador quantificante e qualificante [...] não há uma equivalência funcional [...] entre o indefinido português 'cada' e *chaque* em francês, *each* em inglês. Digamos que nestas línguas 'cada' marca apenas uma operação de distributividade. Em português, além do valor distributivo base, 'cada' é também marcador de intensividade" (MOREIRA, 2001, p. 385).

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(10)   a. *os* (dois) outro carro branco
the-PL (two) other.ϕ [22] car.ϕ white.ϕ
the other (two) white cars
b. *os outros* (dois) carro branco
the-PL other.PL (two) car.ϕ white.ϕ
the other (two) white cars

This rule is also observed in (11), a structure that is found mainly in the dialect spoken in the state of Minas Gerais[23] (NUNES, 2007).

(11)   a. *Ques* (dois) bichinho chato!
Which-PL (two) insect.DIM.ϕ annoying.ϕ
'How annoying these little flies are!'
b. [*Ques* (duas) ferramenta] você usou?
[Which-PL (two) tool.ϕ] you used
'Which tools did you use?'

2.2   Silent nouns

Furthermore, based on Kayne (2005), Pereira (2017) observes that structures with semantic or syntactic (12b) restrictions regarding the presence of cardinals have another category, a silent noun, with valued plural features.

(12)   a. Levou umas [XP HOUR of] meia hora pra dor passar.
Took some-PL   half hour to-the pain pass
'It took around half an hour to get some relief from the pain.'
b. (??) Levou umas [NumPduas] meia hora pra dor passar.
Took   a.PL two   half.ϕ hour.ϕ to.the pain pass
(??)*'It took around two halves an hour to get some relief from the pain.'*

This silent noun works as a syntactic boundary in the DP-internal distribution of the plural morpheme in BP. As such, the silent HOUR, in (12a), is followed by a preposition, as 'of' in (6c), which allows its embedded DP (*meia hora*) to be singular, while phrases to its left (*umas*) are plural.

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[22]   The symbol 'ϕ' is used, in this paper, for unmarked plurals.

[23]   A reviewer inquires how this proposal would account for dialectal structures such as "o carro seus" (the-SG car-SG your-PL/*'your car'*). For a more detailed discussion on this topic, I refer to Pereira (2016b) who explained that, in this dialect, number features on postnominal 2nd person possessives are reanalized as being associated with the person rather than the noun. In other words, 'seus' is for 2nd person plural, and 'seu' is for 2nd person singular. Therefore, no nominal number agreement between postnominal 2nd person possessives and the noun applies to this case.

3 INFLECTION OF *CADA* AND SILENT NOUNS

Similarly to (12a), (1a), repeated below, provides evidence for the hypothesis that there is a category, between D and N, and that this category bears valued plural features in BP. A question to be investigated is whether this category is NumP or a silent noun.

(1)   a. *cadas* vestido horrível
each.PL dress horrible
'such horrible dresses'

As observed in (3c') below, the presence of a cardinal in DPs with *cada* changes the propositional content initially conveyed, when compared to (3c).

(3)   c. "internamento hospitalar, de no mínimo 30 dias, para *cadas* pessoa"[24].
hospitalization,   of in-the minimum 30 days for each-PL person
'hospitalization, of at least 30 days, for everyone'
c'. "internamento hospitalar, de no mínimo 30 dias, para *cadas três* pessoa"
hospitalization   of in-the minimum for each-PL three person.ϕ
'hospitalization, of at least 30 days, for every three people'

Considering this restriction in relation to the presence of cardinals and Kayne's (2005) hypothesis on silent nouns, I argue that the structure in (3c) projects a silent noun of the type SET (3c"), similar to "each (SET of) people", rather than NumP.

(3)   c". *cadas* [SET of] pessoa
each.PL   person
'everyone'

Accordingly, in (3c), because *cada* precedes SET, it gets valued with plural features via agreement and it is marked with *-s*. This plural silent noun is also followed by a preposition, which allows its embedded NP *pessoa* to be singular.
Additionally, *cada* may co-occur with cardinals, as in (3a) and (13).

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(3) a. "Em três tábuas eu não piso, *cadas* [_XP_ SET_PL of_] *três* mais arriscada"[25].
  In three boards   I not step   each-PL   three more dangerous.φ
  *'In three wooden boards, I do not step in. **Every** three is more dangerous (than one another)'.*

(13) "da forma que [...] *cada* [_XP_ UNITY_SG of_] *uma* pessoa pede" (AC-016, GONÇALVES, 2007).
  of-the way that […] each   one person asks
 *'(You have to fold it) the way **each** person asks'.*

I argue that, despite the occurrence of a cardinal (≥2) in (3a), there is a silent noun SET licensed by *cada* ('every'), with plural features, while the cardinal is an argument of the preposition following this silent noun. In contrast, in (13), *cada* ('each') is followed by the cardinal 'one' (=1) and has a unitary reading ('each one'). Therefore, the silent noun bears singular features, and *cada* has no plural marking.

In view of this, two different types of *cada* may be described, according to the syntactic structures they belong to, as follows:

i)   *Cada* as a quantifier followed by 'one' (where 'one' can be a cardinal or a pronoun):

i.i)   *Cada* ('each') followed by 'one' (cardinal) plus a noun
(13)   "da forma que [...] cada uma pessoa pede" (AC-016, GONÇALVES, 2007).
  of-the way that […] each one person.SG asks
  'the way each person asks (you to do)'

Figure 1: Quantifier *cada* ('each') followed by 'one' (cardinal) plus a noun
For (13):

(Source: by the author)

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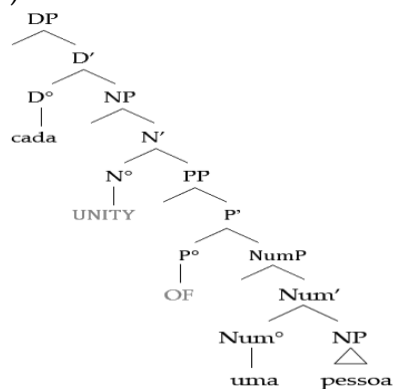
i.ii)   *Cada* ('each') followed by 'one' (pronoun)

The pronoun 'um' may occur with or without an antecedent, as in (14) and (15), respectively.

(14)   "tem onze jogadores$_i$ num campo... e cada um$_i$ tem o seu devido lugar" (AC-001, GONÇALVES, 2007).
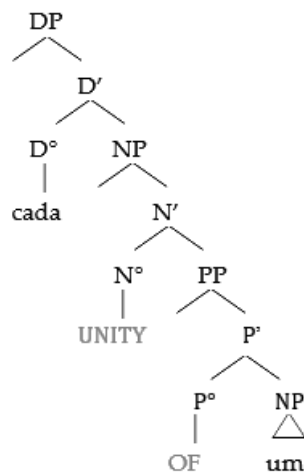
     has eleven players in-a field ...   and each one has the his right place
     'There are eleven players in a field ... and each one has his own position'.

(15)   Cada um cuida de si como pode.
     Each one cares of self as can
     'Each one takes care of himself as he can'.

Figure 2: Quantifier *cada* followed by 'one' (pronoun)

For (14) [26]:

(Source: by the author)

ii)   *Cada* as a quantifier ('every') or a qualifier ('such'), followed by a noun or a cardinal ≥ 2:
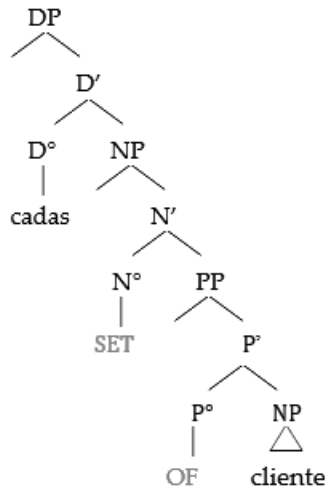
ii.i)   *Cada* as a quantifier ('every') followed by a noun

(1)   b. "as necessidades de *cadas* cliente"
     the needs   of each-PL customer
     'every customer's needs'

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[26] ('um' instead of 'jogador')

Figure 3: Quantifier *cada* followed by a noun

For (1b):

(Source: by the author)

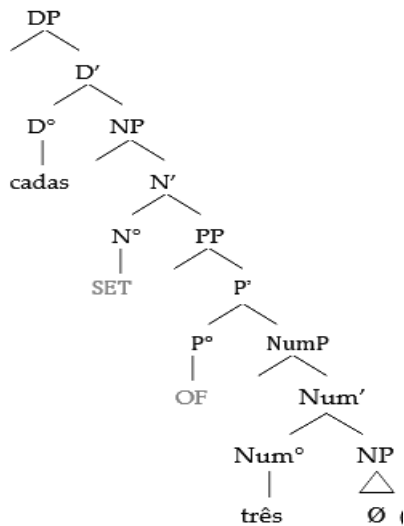ii.ii)   *Cada* as a quantifier ('every') followed by a cardinal ≥2 (plus a noun)

(3)   a. "Em três tábuas eu não piso, cadas três mais arriscada" ²⁷.
         In three boards   I not step   each-PL three more dangerous.ɸ
         *'In three wooden boards, I do not step in. **Every** three is more dangerous (than one*
another)'.

Figure 4: Quantifier *cada* with set reading followed by a cardinal ≥2 (plus a noun)

For (3a)²⁸:

(Source: by the author)

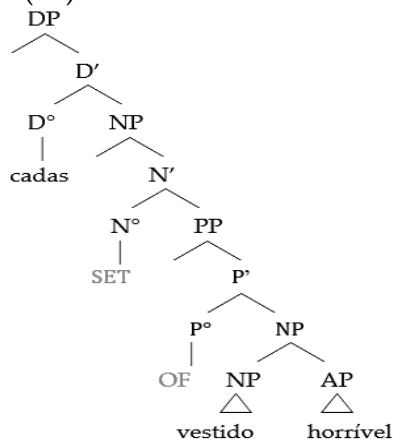ii. iii) **'Cada'** as a qualifier ('such') followed by a noun

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²⁷   Available at: <https://books.google.com.br/books?isbn=8520936776>. Access on: October 23ʳᵈ,
     2017.

²⁸   (Ø instead of 'tábuas')

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(1)   a. cadas vestido horrível
       each.PL dress horrible
       'such horrible dresses'

Figure 5: Qualifier *cada* followed by a noun

For (1a)[29]:

(Source: by the author)

The types of *cada* described in the items (ii.i, ii.ii) ('every') and (ii.iii) ('such') above project a silent noun SET roughly meaning "each SET of". In this case, the silent noun has plural features. As *cada* is situated to the left of (i.e., as *cada* is projected above) this silent noun, it is marked with the plural morpheme[30]. More examples of the types described in (ii.i), (ii.ii), and (ii.iii) are given, respectively, in (3c-3f), (3a-b) and (3g-3l). In contrast, the types of *cada* described in (i) ('each') project a silent noun UNITY roughly meaning "each UNITY of". In this case, the silent noun has singular features, and *cada* cannot be inflected with plural.

The above-mentioned classification of 'cada' is different from the one proposed by Legroski (2015), because it is based mainly upon the syntactic

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[29] I chose to represent the adjective as an adjunct, without using, for the moment, the analysis of adjectives as functional specifiers.

[30] It is important to notice the occurrence of *cadas*, in dialectal Spanish, as in (i) below:

(i) "Cada problema es cada problema, y la sumatoria de cadas da una especie de total" (DAVIES, 2017).
    Each problem is each problem and the sum of each-PL give a specie of total
    'Each problem is each problem and the sum of each of them results in a kind of total.'
    After a search on Corpus del Español (Web/Dialects), it was possible to find close to a hundred (100) examples of 'cadas', which indicates that other languages may have a pattern similar to the one found in non-standard BP. However, there is a difference in the Spanish data: they allow inflection of *cada* when *cada* is followed by 'un(a)', as in (ii) below.

(ii) "muchas felicitaciones a cadas uno de los locutores" (DAVIES, 2017).

context where *cada* appears. With this criterion, the occurrences of *cada* are divided into two groups only. In the first group (i), *cada* is followed by 'um' (cardinal or pronoun) with no inflection; in the second group (ii), 'cada' is followed by a noun or a cardinal ≥ 2 (plus noun) with inflection. Concerning feature valuation, there is no difference between the quantifier *cada* ('every' in ii.i and ii.ii) and the qualifier *cada* ('such' in ii.iii). Additionally, in the syntactic derivation of both (i) and (ii), there is a silent noun: UNITY, in (i), and SET, in (ii).

Concerning feature valuation, as observed in the figure 5, *cadas* probes, under its c-command domain, the silent noun SET with plural features and gets valued with these features. As the NP *vestido horrível* is embedded as an argument of a preposition, it does not agree with the higher plural domain. For this reason, the number that the embedded noun is inflected for is irrelevant for inflection of *cada*, as they belong to different phases inside the DP.

CONCLUSIONS

In conclusion, number features are valued and interpretable in Num or in silent nouns, instead of D or N, in the DP-structure of BP. *Cada* projects a silent noun with plural features when it is a quantifier with set reading and when it is a qualifier with an intensifier reading. In both cases, *cada* is followed by a noun or a cardinal ≥ 2 and is allowed to be inflected with plural. *Cada* also projects a silent noun with singular features when it is a quantifier with unity reading. In this case, *cada* is followed by 'um(a)' and is not inflected. Therefore, a silent noun followed by a preposition bears number features and works as a boundary dividing the DP into two domains. In this respect, phrases preceding a plural silent noun are marked with the plural morpheme, after probing it for agreement, while phrases following it may be singular. As an argument of a preposition, phrases following the silent noun belong to a lower phase in the DP-structure and do not depend upon the number that the higher phrases are inflected for.

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