

Rebel without a Case: Quantifier floating in Brazilian Portuguese and Spanish¹

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Abstract: This paper investigates the relation between quantifier floating and abstract Case licensing. I argue that the ability of a quantifier to float in Romance languages relies on its ability to enter the derivation without an uninterpretable Case feature to be checked in the narrow syntax. This option is not usually available for argumental DPs and smaller categories in the nominal domain, which accounts for why only QP-type quantifiers can float. After presenting the role of focalization and the different internal structures of the floating quantifiers *todos* ‘all’ and *cada (um)* ‘each (one)’ of Brazilian Portuguese, I build the main argument of the paper through the comparison of Brazilian Portuguese and Spanish with respect to the licensing of postverbal subjects.

Key-words: quantifier floating; abstract Case; focalization; Brazilian Portuguese; Spanish.

1. Introduction

Amongst the functional prenominal elements of Romance languages, only some quantifiers have the ability to float. This well-known situation is illustrated here with data from Brazilian Portuguese (BP). Out of the different nominal elements in (1) that can appear as subjects, only the quantifier in (a) can float in (2), whereas the determiner in (b), the possessive in (c), and the cardinal and the numeral quantifier in (d) cannot. This paper addresses the question why this contrast exists.

- | | | |
|-----|--|------------------------------|
| (1) | a. Todos os alunos leram essa revista.
all the students read this magazine | ✓ <i>quantifier subject</i> |
| | b. Aqueles alunos leram essa revista
those students read this magazine | ✓ <i>determiner subject</i> |
| | c. Meus alunos leram essa revista.
my students read this magazine | ✓ <i>possessive subject</i> |
| | d. Vinte/muitos alunos leram essa revista.
twenty/many students read this magazine | ✓ <i>numeral subject</i> |
| (2) | a. Os alunos _i leram todos t _i essa revista.
the students read all this magazine | ✓ <i>floating quantifier</i> |
| | b. *Alunos _i leram aqueles t _i essa revista
students read those this magazine | ✗ <i>floating determiner</i> |
| | c. *Alunos _i leram meus t _i essa revista.
students read mine this magazine | ✗ <i>floating possessive</i> |

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- d. *Alunos_i leram **vinte/muitos** t_i essa revista. ✗ *floating numeral*
 students read twenty/many this magazine

By comparing (2)a and (2)b-d, one could hypothesize that the contrast lies on the category of the element in subject position. It is true that even quantifiers that can float elsewhere cannot do so when selecting an NP, as shown in (3). However, this cannot be the source of the contrast in (2), given that cardinals and numeral quantifiers too can select a (partitive) DP, just like the floating quantifier *cada (um)* ‘each (one)’, but still cannot float, as seen in (4).

- (3) a. Todo aluno leu duas revistas. ✓ *Q-NP*
 all student read two magazines
 b. *Aluno_i leu **todo** t_i duas revistas. ✗ *NP ... Q*
 student read all two magazines
 ‘Every student read two magazines’
 c. **Cada** aluno leu duas revistas. ✓ *Q-NP*
 each student read two magazines
 d. *Aluno_i leu **cada** t_i duas revistas. ✗ *NP ... Q*
 student read each two magazines
 ‘Each student read two magazines’
- (4) a. **Cada um dos** alunos leu duas revistas. ✓ *quantifier + partitive DP*
 each one of-the students read two magazines
 b. Os alunos_i leram **cada um** t_i duas revistas. ✓ *floating quantifier*
 the students read each one two magazines
 c. **Vinte/muitos dos** alunos leram essa revista. ✓ *numeral + partitive DP*
 twenty/many of-the students read this magazine
 d. *Os alunos_i leram **vinte/muitos** t_i essa revista. ✗ *floating numeral*
 the students read twenty/many this magazine

That the problem does not rely on the category of the subject is corroborated by (5). Although a possessive phrase is possible in subject position (cf.(1)c), it cannot leave a floating determiner behind. The question is then why some of the above elements can float while others cannot.

- (5) a. **Aqueles meus** alunos leram essa revista. ✓ *determiner subject*
 those my students read this magazine
 b. *Meus alunos_i leram **aqueles** t_i essa revista. ✗ *floating determiner*
 my students read those this magazine
 ‘Those students of mine read this magazine’

As for quantifiers, the question why they float in Romance languages was addressed in the recent literature by Valmala Elguea (2008). Observing Spanish data, he proposed that the split between a quantifier Q and its associate AS happens when there is an *informational mismatch* between them, i.e. when they have different specifications among the following informational

values: topic, focus, and neutral. The logical possibilities that lead to floating are given in (6), while (7) illustrates the scenario in (6)a.²

- (6) a. $Q_{FOC} + AS_{TOP}$
 b. $Q_{FOC} + AS_{NEUT}$
 c. $Q_{NEUT} + AS_{FOC}$
 d. $Q_{NEUT} + AS_{TOP}$ (adapted from Valmala Elguea 2008:845, ex.(30))

- (7) Los estudiantes de física_[TOP] han conseguido todos_[FOC] t_{foc} t_{top} beca. (Spanish)
 the students of physics have got all grant
 ['All the students of physics have gotten a grant']
 (Valmala Elguea 2008:845, ex. (31c))

Although I acknowledge that informational factors may play a role in quantifier floating, I argue that the informational mismatch cannot be the reason why floating happens. It is neither a necessary condition (as there is neutral floating, at least in BP, i.e. $Q_{NEUT} + AS_{NEUT}$ also exists), nor a sufficient one (as it does not prevent other prenominal elements of (1)-(2) from floating and does not account for why different floating quantifiers in a language may float in different ways).

My proposal is that the possibility of quantifier floating in Romance languages comes from the fact that *QP-type quantifiers do not have to check Case in the narrow syntax* (although they can do so). In general terms, QPs may have different (less strict) syntactic licensing conditions than smaller categories (i.e. DP and below).³ This idea traces back to Sportiche's (1988) seminal work. In a brief passage, the author asks (p.436): "Why is a constituent of the form [*tous e*] ['all' e; RL] permitted in a Caseless position? The answer is straightforward: if *e* is an NP-trace (or PRO), no Case is needed [...]." Although I contend the idea that the answer to this question is "straightforward", I will, indeed, highlight the importance of Sportiche's original insight for a theory of floating quantifiers (at least in Romance languages).

The sentence in (8) shows that the functional prenominal elements of (1)-(2) can all co-occur with a single NP. Given the fact that they must obey the order Q-D-Poss-Num-NP, I assume the structure in (9), where a preceding element projects above the following phrase, instead of treating them as NP-adjuncts.⁴ The structure in (9) indicates where the cut is of obligatory Case-checking. It is important to note that I am not arguing that *every* layer of a given NP must check Case. Checking of Case by the highest layer present is sufficient to license the whole nominal expression, as standardly assumed (for instance, in (5)a only the determiner *aqueles* 'those' checks nominative, which arguably spreads down to PossP and NP via Concord).

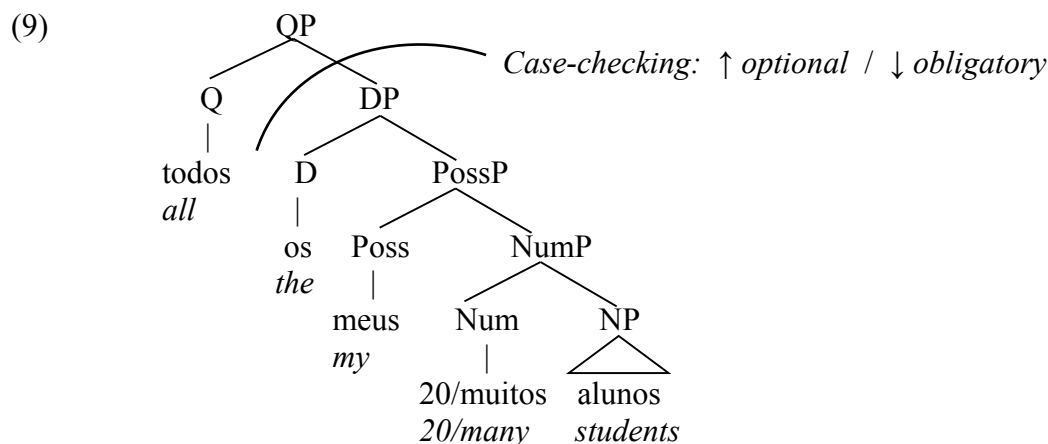
- (8) Todos os meus vinte/muitos alunos já ganharam uma bolsa.
 all the my twenty/many students already received a grant
 'All the twenty/many students of mine have already received a grant'

² Valmala Elguea assumes with Rizzi (1997) that quantifiers cannot be topics. The option in (6)b is independently excluded in Spanish.

³ I am of course excluding the contexts of default case, as discussed by Schütze (2001).

⁴ Possessives can optionally be postnominal and in this case may be treated as NP adjuncts, which is irrelevant here.

(i) Aqueles alunos meus
 those students my
 'Those students of mine'



The evidence for this proposal comes from Brazilian Portuguese and comes to light when this language is compared to other Romance languages (in this paper, I concentrate on the differences between BP and Spanish). The paper is organized as follows. In section 2, I present the role of focalization in accounting for differences between the floatability of *todos* ‘all’ and *cada um* ‘each one’ in BP. The importance of focalization is highlighted by the existence of a colloquial floating quantifier that is inherently marked for focus. In section 3, by contrasting BP and Spanish I show how QPs can generally be licensed in (Caseless) positions where DPs (and smaller categories) cannot, namely, the (postverbal) low left periphery (Belletti 2004) and the thematic verbal domain. Section 4 concludes the paper.

2. The role of focalization

In this section, I briefly show how focalization may play a role in quantifier floating by affecting the possibility of extraction out of the quantifier phrase. The section is complemented by an idiosyncrasy of BP with respect to other Romance languages: a colloquial version of the quantifier *todos* ‘all’ that is inherently focalized.

2.1. Extracting out of *QP*

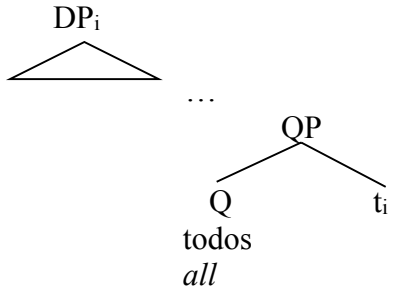
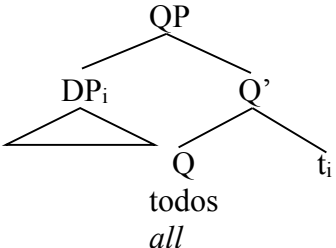
In order to account for the different floatability of *todos* ‘all’ and *cada um* ‘each one’ in BP, I proposed in Lacerda (2012b) that the focalization of a nominal element in the language is done by a null head projecting above such element. The data analyzed there shows that the quantifier *todos* can only float if focalized, whereas *cada um* can float even if neutral, as illustrated in (10), where the position to the right of the direct object is a neutral one.

- (10) a. Os alunos_i leram duas revistas **cada um** t_i.
 the students read two magazines each one
 ‘Each one of the students read two magazines’
 b. *Os alunos_i leram duas revistas **todos** t_i.
 the students read two magazines all
 ‘All the students read two magazines’

That the floating of *todos* is contingent on focalization and the floating of *cada um* is not is shown by the contrast in (11). As pointed out by Rizzi (1997), the focus nature of a wh-element prevents another element from being focalized in the sentence.

- (11) a. *Quantas revistas_w os alunos_i leram **todos** t_i t_w?
 how-many magazines the students read all
 ‘How many magazines did all the students read?’
 b. Quantas revistas_w os alunos_i leram **cada um** t_i t_w?
 how-many magazines the students read each one
 ‘How many magazines did each one of the students read?’

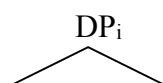
Assuming the contextual approach to phasehood proposed by Bošković (to appear), where “the highest projection in the extended projection of a major (i.e. lexical) category functions as a phase”, the QP in (12) is a phase⁵. The extraction of the DP complement of *todos* cannot happen as in (a), for it violates the Phase Impenetrability Condition (Chomsky 2001) (the DP is only visible in the edge of the phase, Spec,QP). However, in order to get to the edge, the DP would have to move without crossing any maximal projection, violating anti-locality (see Bošković 1994, Abels 2003, and Grohmann 2003), as in (b).⁶ Extraction out of the QP of *todos* can only happen if one more layer of structure is present, which is accomplished by the addition of a focalizer FP, as in (13).

- (12) a. *  * Neutral todos: PIC
- b. *  * Neutral todos: Anti-locality

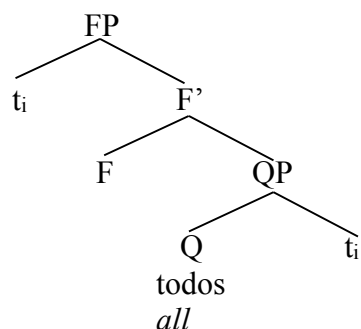
⁵ I take the DP to be a complement of the quantifier, as in Shlonsky (1991) for Hebrew and Vicente (2006) for BP. See also Lacerda (2012a) for additional arguments.

⁶ I assume Bošković’s (1994) approach to anti-locality, where a moving element must cross at least one phrase.

(13)



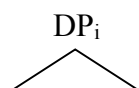
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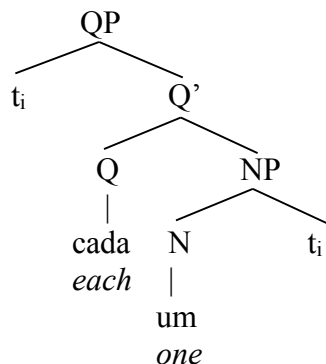
✓ *Focalized todos*

The quantifier *cada um* ‘each one’, on the other hand, has enough structure on its own to allow the extraction of its DP, as the proform *um* ‘one’ adds one more layer to the structure.⁷ If the quantifier is neutral, the extraction proceeds through Spec,QP, as in (14)a; if it is focalized, the DP moves out through Spec,FP, as in (14)b.

(14) a.

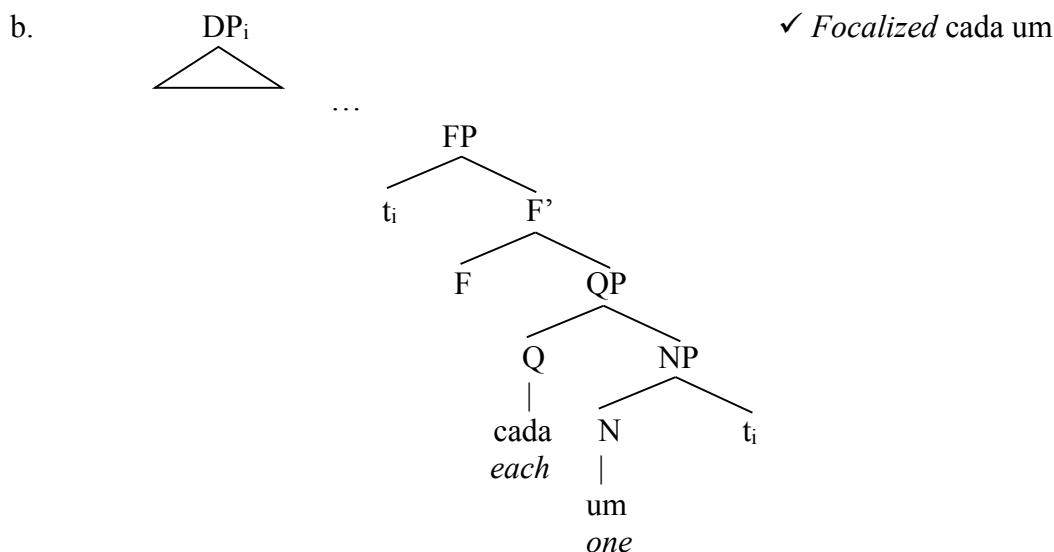


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✓ *Neutral cada um*

⁷ For simplicity, I assume the preposition *de* ‘of’ to be dummy. The idea that the partitive *of*-phrase is selected by the proform *um* ‘one’ is taken from Safir & Stowell (1988).



As seen above, the necessity of focus for floating is contingent on the internal configuration of each quantifier. Because of its simple QP structure, *todos* ‘all’ requires focalization to float. But when we look at another quantifier with a more complex internal structure, we see that floating may happen even when no informational mismatch happens between QP and DP.

2.2. Tudo ‘everything’ as a floating quantifier

The quantifier *todos* ‘all’ in BP has a colloquial counterpart, *tudo* lit. ‘everything’, that is not found (as a floating quantifier) in other Romance languages. *Tudo* floats in the same way as *todos*, i.e. it cannot float in a neutral position, as (15) shows. It also allows the order *DP-Q*, an internal switch that encodes topicalization or resumptivity of the DP (cf. Vicente 2006), as can be seen in (16).⁸

- (15) a. Os alunos_i já compraram **tudo** t_i o livro. ✓ *focus floating*
the students already bought everything the book
- b. *Os alunos_i já compraram o livro **tudo** t_i. ✗ *neutral floating*
the students already bought the book everything
‘All the students have already bought the book’
- (16) a. [Os alunos **tudo/todos**] compraram o livro. ✓ *subject DP-Q*
the students everything/all bought the book
‘All the students bought the book’
- b. O professor aprovou [os alunos **tudo/todos**]. ✓ *object DP-Q*
the teacher approved the students everything/all
‘The teacher passed all the students’

⁸ Vicente (2006) analyzes this switch as a complement-to-Spec movement. Given my assumption of anti-locality, I cannot keep Vicente’s analysis and I thus suggest that the examples in (16) should be analyzed as instances of topicalization in the nominal domain, as in Bastos-Gee (2011), where topic and focus projections à la Rizzi (1997) can appear within the DP and host topicalized and focalized subparts of such DP.

In contrast to *todos*, however, *tudo* cannot appear in subject position, as is shown in (17)^{9,10} and cannot appear without a complement DP (meaning ‘all’), as in (18). In object position, *tudo* is also different from *todos* in the sense that it must obligatorily bear the main stress of the nominal phrase (cf. the ungrammaticality of (19)a, with stress represented with capital letters), which can be achieved through an internal switch (cf.(19)b) or through postverbal focalization, as in (19)c and (20)a. If another element is focalized, *tudo* cannot occur (cf.(20)b).

- (17) a. **Todos os alunos** fizeram a prova. ✓ *todos in subject position*
 all the students did the exam
 b. ***Tudo os alunos** fizeram a prova. ✗ *tudo in subject position*
 everything the students did the exam
 ‘All the students took the exam’
- (18) a. O professor aprovou **todos**. ✓ *intransitive todos*
 the teacher approved all
 b. *O professor aprovou **tudo**. ✗ *intransitive tudo*
 the teacher approved everything (okay if *tudo* means ‘everything’)
 ‘The teacher passed everybody’
- (19) a. *Eu comprei [tudo os Livros]. ✗ *stress on the associate*
 I bought everything the books
 b. Eu comprei [os livros TUDO]. ✓ *switch with stress on TUDO*
 I bought the books everything
 c. Eu comprei [TUDO os livros]. ✓ *postverbal TUDO*
 I bought everything the books
 ‘I bought all the books’
- (20) a. Eu dei [TUDO os livros] (ontem) pra Maria. ✓ *postverbal TUDO*
 I gave everything the books (yesterday) to-the Maria
 b. *Eu dei PRA MARIA (ontem) TUDO os livros. ✗ *concurrent foci*
 I gave to-the Maria (yesterday) everything the books
 ‘I gave all the books to Mary’

Its stress requirement and its incompatibility with another focalized element suggest that *tudo* is inherently marked for focus, hence its incapability of floating in a neutral position.

Although it is clear that informational factors do play a role in quantifier floating, as first proposed by Valmala Elguea (2008), they do not prevent other informational mismatches (which may happen freely) from overgenerating floating constructions (cf.(2)b-d). In the next section, data from BP will be contrasted with Spanish to provide support for the existence of the “Case-checking cut” proposed in (9). The differences between these two languages with respect to the licensing of postverbal subjects are of special importance to the discussion that follows.

⁹ This fact has already been pointed out by e.g. Vicente (2006) and Cançado (2006) and I agree with their judgment. However, I found some speakers who accept the sentence. I leave this variation aside for the moment.

¹⁰ Following a suggestion by Jairo Nunes (p.c.), I hypothesized in Lacerda (2012a) that this restriction could be due to *tudo*’s lack of phi-features and hence incapability of agreeing with T⁰.

3. QPs without Case

In this section, I show that QP-type quantifiers in BP can be licensed without abstract Case in positions where other nominal categories cannot be licensed unless they are Case-marked. First I discuss the low left periphery (Belletti 2004), where both *todos* ‘all’ and *cada um* ‘each one’ can be focalized, and then I discuss the (verbal) thematic domain, where *cada um* can float with neutral informational value.

3.1. Low left periphery

In the following discussion, I assume Belletti’s (2004) proposal that the post-TP area may have topic and focus projections just like the left periphery of the sentence (cf. Rizzi 1997). The cartography of the middle field of the sentence I adopt here is roughly the one in (21).

(21) [CP [TP [TopP [FocP [vP [VP]]]]]]

As is known (cf. e.g. Ordóñez 1997 and Zubizarreta 1998), Spanish allows both preverbal and postverbal transitive subjects, as shown in (22). BP, on the other hand, does not have postverbal transitive subjects (cf. a.o. do Nascimento 1984, Duarte 1993, and Kato 2000). The paradigm in (23) illustrates that the canonical order is SVO, whereas VSO is disallowed and VOS is only possible with a high (right-dislocated) subject.

- | | | | | |
|------|----|--------------------------------|----------------------------|-----------|
| (22) | a. | Juan compró una computadora. | ✓ SVO | (Spanish) |
| | | John bought a computer | | |
| | b. | Compró Juan una computadora. | ✓ VSO | |
| | | bought John a computer | | |
| | c. | Compró una computadora Juan. | ✓ VOS | |
| | | bought a computer John | | |
| | | ‘John bought a computer’ | | |
| (23) | a. | O João comprou um computador. | ✓ SVO | (BP) |
| | | the John bought a computer | | |
| | b. | *Comprou o João um computador. | ✗ VSO | |
| | | bought the John a computer | | |
| | c. | Comprou um computador, o João. | ✓ VOS (right-dislocated S) | |
| | | bought a computer the John | | |
| | | ‘John bought a computer’ | | |

This paradigm indicates that nominative is not licensed rightwards in BP. Nevertheless, subject-related QP-type quantifiers can float in the low left periphery¹¹, despite the lack of Case, as we saw in the examples repeated below in (24). Thus it cannot be the case that the QPs are licensed with nominative prior to the movement of the DP to the preverbal position; nominative is instead assigned to the DP itself.

¹¹ The inflected verb is taken to move higher than the low left periphery.

- (24) a. Os alunos_i leram **todos** t_i essa revista. = (2)a
the students read all this magazine
b. Os alunos_i leram **cada um** t_i duas revistas. = (4)b
the students read each one two magazines

By looking at constructions like (25)B, one could hypothesize that QPs can exceptionally receive rightward nominative (in which case (24) could be derived in the manner rejected in the preceding paragraph). However, when we (again) look at a different floating quantifier, the situation can be clarified. In (26)B, we see that the verb does not agree with *cada um*, contrarily to Spanish, where the verb can do so (cf.(27)B). Although Case and agreement may be two separate phenomena, they usually go together in Romance languages, so the lack of agreement in (26)B may be taken as an indication that nominative is not assigned to the quantifier.¹²

- (25) A: E os filhos do João? (BP)
and the sons of-the John
‘What about John’s sons?’
B: Estão **todos** estudando na USP.
are all studying in-the USP
‘They are all studying at USP’
- (26) A: E os filhos do João? (BP)
and the sons of-the John
‘What about John’s sons?’
B: Leram_{3,PL} **cada um**_{3,SG} três livros.
read each one three books
‘They read each three books’
- (27) A: ¿Y los hijos de Juan? (Spanish)
and the sons of John
‘What about John’s sons?’
B: Leyó_{3,SG} cada uno_{3,SG} tres libros.
read each one three books
‘They read each three books’

A stronger argument for the claim that the QP does not enter into a Case relation with the T⁰ head in (25)B and (26)B arises when we identify what the verb is agreeing with, namely, the DP under discussion *os filhos do João* ‘John’s sons’. I propose that these constructions are thus derived by quantifier floating followed by subject topic-drop, as represented in (28). This analysis is supported by the fact that a moved wh-element blocks the application of topic-drop (cf. Ross 1982). In (29), topic-drop would be the only way to derive the null subject, as BP does not have *pro* as referential subjects (cf. a.o. Duarte 1995 and Ferreira 2000). Since the structure in (30) is not available, (29) results in an EPP violation (assuming Spec,TP must be filled in BP). The impossibility of (29) thus shows that *todos* and *cada um* in (25)B and (26)B are floating quantifiers rather than postverbal subjects. That in Spanish the quantifier is a subject is corroborated by the fact that (31) is compatible the wh-movement.

¹² A singular form of the verb is actually possible in less-agreeing varieties of BP, which is orthogonal here.

- (28) ~~os filhos do~~ João_{TOP} ~~os filhos do~~ João_{SUBJ} Leram **cada um** _{tsUBJ} três livros
the sons of-the João the sons of-the João read each one three books
- (29) (E os filhos do João,) *quantos livros leram cada um?
(and the sons of-the John,) how-many books read each one
‘(What about John’s sons,) how many books did they read each?’
- (30) *~~os filhos do~~ João_{TOP} quantos livros_{WH} ~~os filhos do~~ João_{SUBJ} leram cada um
the sons of-the John how-many books the sons of-the John read each one
└───────────────────#───────────────────┐
↑
- (31) Cuántos libros leyó_{3.SG} cada uno_{3.SG}? (Spanish)
how-many books read each one
‘How many books did they read each?’

In order to completely rule out the hypothesis that floating quantifiers in BP do check Case (and are thus some sort of postverbal subjects), we need to look at constructions where postverbal subjects are possible and see whether we can find any interesting contrasts between QPs and nominals of other categories. Given that internal arguments (of passives and unaccusatives for example) can be postverbal subjects freely in BP, I will focus on external arguments. One interesting domain to look at where external arguments can be postverbal subjects in BP is the locative inversion with unergative predicates. As shown by Avelar & Cyrino (2008), an unergative agent can be postverbal as long as a locative fills the subject position (triggering third person default agreement), as in (32). Since the PP is analyzed as getting nominative Case, Avelar (2009) assumes that the external argument is licensed with partitive Case (in the sense of Belletti 1988).

- (32) a. Naquele quarto dormiu várias pessoas.
[in-that bedroom slept_{3.SG} several people]
[‘Several people slept in that bedroom’]
b. Naquela fábrica trabalha muitos amigos meus.
[in-that factory works_{3.SG} many friends my]
[‘Many friends of mine work in that factory’]
(Avelar & Cyrino 2008:61, ex.(12)a-b)

If the agent is indeed licensed with partitive Case in the examples above, we could hypothesize that partitive is assigned by a special v^0 head (arguably in a V^0+v^0 complex).¹³ If this kind of v^0 enters the numeration, no accusative Case can be assigned (for accusative is assigned by a different v^0). If this is on the right track, (33) can be accounted for. Once the PP *nessa fábrica* ‘in this factory’ gets nominative, the agent and the direct object will compete for the single Case v^0 can assign (either partitive or accusative).

- (33) *Nessa fábrica comprou várias pessoas um computador.
in-this factory bought several people a computer
‘Several people bought a computer in this factory’

¹³ See Lasnik (1995).

The prediction that this analysis of (33) leaves us with is that when the accusative-assigning v^0 is selected, an agent that does not need Case will not cause the derivation to crash. This prediction is borne out. QP-type quantifiers can be the agents in this kind of construction, as shown by (34) and (35).¹⁴

- (34) a. Nessa fábrica_{NOM} comprou cada um_[] um computador_{ACC}.
 in-this factory bought each one a computer
 ‘Each one bought a computer in this factory’
 b. Aquí_{NOM} compra cada um_[] a sua comida_{ACC}.
 here buys each one the his food
 ‘Each one buys their (own) food here’

- (35) Nessa escola_{NOM} usa todos_[] a mesma roupa_{ACC}.
 in-this school wears all the same outfit
 ‘Everybody wears the same outfit in this school’

One might ask how these QPs are licensed at all without receiving any Case in the syntax. Nevertheless, this is not really a problem. Given that these QPs may enter the derivation without an uninterpretable Case feature to be checked, they do not cause any problems at the interfaces. If floating *todos* and *cada um* are not licensed by any other case mechanism¹⁵, they could still be licensed in the morpho-phonological component by surfacing with default case. As argued by Schütze (2001), default Case does not “save” an unchecked/unassigned Case; it can only apply to elements that come from the syntax without any case specification. That being so, elements moved to the low left periphery that do have a Case feature to be checked cannot be licensed with default case, as shown in (36) (see also (23)b). In (a), the case-marking preposition is obligatory on the genitive DP topicalized in the low left periphery, whereas in (b) default case may be assigned to the DP topicalized in the high left periphery (assuming that base-generation is possible in the latter but not in the former).

- (36) a. Eu li, [*(d)o Machado de Assis]_i, os principais romances t_i.
 I read (of-)the Machado de Assis the main novels
 b. [(D)o Machado de Assis]_(i), eu li os principais romances (t_i).
 (of-)the Machado de Assis I read the main novels
 ‘As for Machado de Assis, I read his main novels’

(adapted from Avelar 2006:94, ex. (54))

¹⁴ Other factors must be involved in the case of *todos*, as is shown by the marginality of (i) below. In this sentence, the colloquial form *todo mundo* ‘everybody’ (lit. ‘every world’) sounds better to my ears.

- (i) ??Nessa fábrica (já) comprou todos um computador.
 in-this factory (already) bought all a computer
 ‘Everybody has already bought a computer in this factory’
 (ii) Nessa fábrica (já) comprou todo mundo um computador.
 in-this factory (already) bought every world a computer
 ‘Everybody has already bought a computer in this factory’

¹⁵ Case transmission from the subject DP to the quantifier *todos* may be a possibility, as floating *todos* ends up in a local relation with a copy of its complement DP. However, this possibility may not be available for the quantifier *cada um*, for when *cada um* checks Case, its associate DP must be licensed with the partitive preposition *de* ‘of’, which shows that the Case of the QP and the Case of the DP are independent of one another, probably because of the intervention of the (partitive-assigning?) proform *um* ‘one’ (cf.(14)).

With that in mind, under the standard assumption that DP (and smaller categories) need to check Case in the syntax, floating of determiners, possessives, and numerals in the low left periphery is expected to be bad, as we saw in the examples repeated below.

- (37) a. [DP Aqueles [NP alunos]] leram essa revista = (1)b
 those students read this magazine
 b. [PossP Meus [NP alunos]] leram essa revista. = (1)c
 my students read this magazine
 c. [NumP Vinte/muitos [NP alunos]] leram essa revista. = (1)d
 twenty/many students read this magazine
- (38) a. *Alunos_i leram [FP t_i [DP aqueles t_i]] essa revista = (2)b ✗ *floating DP*
 students read those this magazine
 b. *Alunos_i leram [FP t_i [PossP meus t_i]] essa revista. = (2)c ✗ *floating PossP*
 students read mine this magazine
 c. *Alunos_i leram [FP t_i [NumP vinte/muitos t_i]] essa revista. = (2)d ✗ *floating NumP*
 students read twenty/many this magazine

Elements of category QP are, as I argue, an exception to the rule. As is shown in the next section, quantifier floating is not limited to focus positions. The neutral (and Caseless) vP area can also host the floating quantifier *cada (um)* ‘each (one)’.

3.2. Thematic positions

In section 2.1 we saw that the quantifier *cada um* ‘each one’ can float in a neutral position, in contrast with the quantifier *todos* ‘all’, which cannot, as in (10), repeated below in (39).

- (39) a. Os alunos_i leram duas revistas **cada um** t_i . = (10)
 the students read two magazines each one
 ‘Each one of the students read two magazines’
 b. *Os alunos_i leram duas revistas **todos** t_i .
 the students read two magazines all
 ‘All the students read two magazines’

I argue that the position where *cada um* is in (39)a is spec,vP (with the direct object undergoing overt movement to check accusative Case in Spec,XP), as shown in the structure in (40). This goes against Bošković’s (2004) generalization that quantifiers cannot float in thematic positions (although it holds for *todos*, given its internal structure). That *cada um* is indeed in a neutral position is shown by the fact that in this sentence the direct object may be focalized (in which case XP is FocP in the low left periphery). Also, whenever *cada um* floats in a thematic position, the proform *um* ‘one’ becomes optional (cf.(41)a and also (47)a).¹⁶ When it floats in the low left periphery (cf.(41)b) or when it does not float (cf.(41)c), the proform is obligatory.

¹⁶ Given the extraction conditions discussed in section 2.1, I must assume that the proform *um* is present in the structure even when it is not pronounced.

- (40) [TP [DP os alunos]_d leram [XP [duas revistas]_k [VP [QP t_d [Q' cada [NP um t_d]]] t_k]]]
the students read two magazines each one
- (41) a. Os alunos_i leram duas revistas cada (um) t_i.
the students read two magazines each (one)
b. Os alunos_i leram cada *(um) t_i duas revistas.
the students read each *(one) two magazines
c. Cada *(um) (dos alunos) leu duas revistas
each *(one) (of-the students) read two magazines
‘Each one of the students read two magazines’

Subject-related *todos*, on the other hand, cannot appear to the right of the direct object because it cannot float neutral and it cannot be focalized in that position (FocP is higher than the position where the object checks accusative). In Spanish, however, the counterpart of (39)b is grammatical, as shown in (42). This is possible because in Spanish *todos* can be focalized in that position.

- (42) Los alumnos_i han leído dos revistas **todos**_{FOC} t_i. (Spanish)
the students have read two magazines all
‘All the students read two magazines’

Valmala Elguea (2008) argues that sentences like (42) are derived by movement of the quantifier to Spec,FocP in the high left periphery, followed by remnant movement of the clause to a higher position. This cannot account for why (39)b is bad in BP, though, especially given that (39)a is well-formed. We can account for the contrast between (39)a and (39)b by looking at the internal differences between the QP of *todos* and the QP of *cada um*, as already discussed in section 2.1. To derive the contrast between (39)b and (42), all we need is to look at the differences between the middle field of BP and Spanish. In BP, the position of the focus projection in the low left periphery is higher than the accusative position (cf.(43)) (as the null hypothesis). In Spanish, conversely, FocP is lower than the position where neutral objects surface (cf.(44)), as was argued by Ordóñez (2005) and is illustrated by (45), where the subject receives focus interpretation. That this is indeed a low position (and not a high right-dislocated one) is shown by the fact that the object can bind into the subject, as in (46).

- (43) Low left periphery of BP:
verb [FocP [XP object [VP]]]
- (44) Low left periphery of Spanish:
verb [XP object [FocP [VP]]] (adapted from Ordóñez ms:41, ex.(103))
- (45) Hoy comprará el almuerzo Juan_{FOC}.
[today will.buy the lunch Juan]
‘Today Juan will buy lunch’ (Ordóñez ms:42, ex.(105))

- (46) Ayer visitó [a cada chico]_i su_i mentor. (Ordóñez ms:44, ex.(111a))
 [yesterday visited DOM each boy his mentor]
 [‘Yesterday his mentor visited each boy’]

The contrast between *cada um* and *todos* with respect to floating in thematic positions in BP carries over to object-related floating. Observe (47), where the DP associate of the quantifier is topicalized in the low left periphery.¹⁷ Being in a neutral position, *cada um* in (a) allows extraction of its DP, while *todos* in (b) does not.¹⁸ Observe that an object quantifier too allows the optionality of the realization of the proform *um* ‘one’ if it stays in its thematic position.

- (47) a. Eu mostrei, pr[os meninos]_i, dois mapas pra [QP t_i [QP **cada (um)** t_i]].
 I showed to-the boys two maps to each (one)
 ‘I showed two maps to each one of the boys’
 b. *Eu mostrei, pr[os meninos]_i, dois mapas pra [QP t_i **todos** t_i].
 I showed to-the boys two maps to all
 ‘I showed two maps to all the boys’

As we saw, under the right conditions QP-type quantifiers can float in the vP area. Again, as expected, DPs and smaller categories cannot be licensed in constructions analogous to (39)a and (47)a, as seen in (48) and (49), respectively.¹⁹

- (48) a. *Alunos_i leram essa revista **aqueles** meus t_i . * vP-floating DP
 students read this magazine those my
 ‘Those students of mine read this magazine’
 b. *Alunos_i leram essa revista **meus** vinte t_i . * vP-floating PossP
 students read this magazine mine twenty
 ‘My twenty students read this magazine’
 c. *Alunos_i leram essa revista **vinte/muitos** t_i . * vP-floating NumP
 students read this magazine twenty/many
 ‘Twenty/many students read this magazine’

¹⁷ Observe the doubling of the dative preposition. As the low left periphery requires that elements be Case licensed, it might be the case that it is the DP *os meninos* ‘the boys’ that checks dative, and the preposition on the quantifier is the extra/copied one. To my ears, the dative preposition on the quantifier can be marginally deleted with moved DPs (cf.(47)a) or null/absent DPs (cf. (i) below). However puzzling, this is a matter I leave aside for the moment.

(i) O João deu dois livros ?(pra) cada (um).
 the John gave two books (to) each (one)
 ‘John gave two books each’

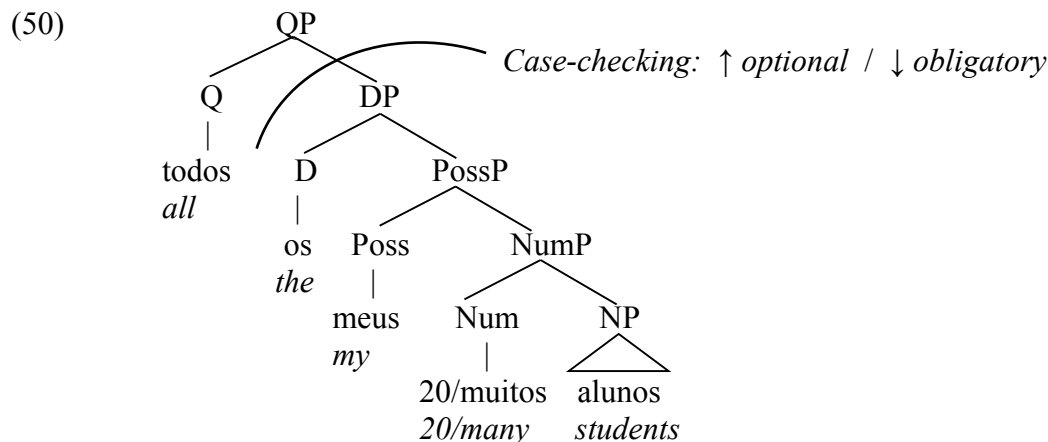
¹⁸ It is important to note that an attempted focalization of *todos* in (47)b in the low left periphery would not save the sentence, as we see in (i) below. This may be part of a more general restriction against simultaneous topic and focus in the low left periphery of BP, as shown by the data in (ii) and (iii), discussed in Lacerda (2012b).

(i) *Eu mostrei, pr[os meninos]_i, todos t_i dois mapas.
 I showed to-the boys all two maps
 ‘I showed two maps to all the boys’
 (ii) *Eu recomendei, [do Machado de Assis]_k, PRA MARIA dois livros t_k .
 I recommended, of-the Machado de Assis, TO-THE MARY two books
 ‘As for Machado de Assis, I recommend two of his books to Mary’
 (iii) *Os alunos_i leram, [do Machado de Assis]_k, todos t_i as principais obras t_k .
 the students read, of-the Machado de Assis, all the main works
 ‘As for Machado de Assis, all the students read his main works’

¹⁹ An extra layer is used whenever possible to guarantee that both the PIC and anti-locality are respected.

- (49) *Eu mostrei, pra [NP *meninos*]_i, dois mapas pr[DP *ti aqueles* [NumP *três ti*]].
 I showed to boys two maps to those three
 ‘I showed two maps to those three boys’

These data provide support for the existence of the asymmetry proposed in (9) (repeated below in (50)). If (50) is correct, one can no longer maintain the assumption made by e.g. Vangsnes (2001) that the quantificational layer is the one responsible for Case-checking by the nominal expression (and thereby is always present in argumental nominals).



Evidently, QPs can check Case in the syntax — and appear as canonical (non-floated) subjects and objects. Their ability to float comes from the fact that, in contrast to DPs and smaller categories, syntactic Case is not obligatory for QPs.

4. Final remarks

In this paper I showed that although focalization plays an important role in accounting for the phenomenon of quantifier floating, the informational mismatch between the quantifier and its associate DP is neither a necessary nor a sufficient condition for floating.

Instead, I argued that the ability of QP-type quantifiers to float in Romance languages relies on the fact that they may optionally enter the derivation without an uninterpretable Case feature to be checked. This property allows them to surface in Caseless positions without causing any problems at the interfaces. As we saw, this property is not limited to floating constructions, since QPs may also appear as the agents of transitive locative inversions in BP, a possibility that is excluded for other nominal categories. By observing a number of different prenominal functional categories in BP, and especially by comparing this language with Spanish with respect to the licensing of postverbal subjects, we saw that the “Case-checking cut” causes a division between QPs and DPs (or smaller). The reason why quantifiers float in Romance languages is thus shown to be syntactic rather than informational.

The data presented here bring additional evidence for the dissociation between syntactic (abstract Case) licensing and superficial licensing. However, it remains to account for why different nominal categories may have different licensing conditions in the syntax. In other words, what makes QPs special with respect to abstract Case is left as an open issue.

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