MAXIMALITY AND DISTRIBUTIVITY IN BRAZILIAN PORTUGUESE[1]

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ABSTRACT

In this paper we discuss the semantic properties of *cada* 'each' and *todos os* 'all', which have been analyzed in the literature as universal distributive quantifiers. Our goal in this paper is to provide experimental evidence in order to show that the root of *todos os*, *tod-,* is not a quantifier that enforces distributivity, but a modifier that enforces maximality (Brisson 1998, 2003) when combined with plural DPs. *Cada,* on the other hand, is marked essentially for distributivity.

KEYWORDS: maximality; distributivity; DPs; quantifiers; psycholinguistics.

1. INTRODUCTION

In the semantics literature, distributivity has been extensively discussed (cf. Gil 1995, Link 1983, Schwarzchild 1996, Taub 1989, Zimmerman 2002, and many others) and the same is true of maximality (cf. Brisson 1998, 2003, Dowty 1987, Landman 1989a, 1996, Lasersohn 1990, 1995, Sharvy 1980, Yoon 1996, and many others). In the psycholinguistics literature, most of the publications on quantifiers are investigations of quantifier scope (cf. Anderson 2004, Bott and Schlotterbeck 2010, Paterson, Filik, and Liversedge 2006, Villalta 2003, Warren 2003, and others). Recently, based on experimental evidence, Tunstall (1998) discussed properties of distributivity by considering the quantifiers *each* and *every*. Unlike distributivity, maximality has not been explored in the psycholinguistics literature.

The literature on Brazilian Portuguese quantifiers is extensive (Negrão 2002, Gomes 2004, Pires de Oliveira 2003, Müller, Negrão and Gomes 2007, Gomes 2009 among others), especially on *tod-*. The root *tod-* in Brazilian Portuguese has three forms associated with it: (1) *tod-* can combine with an NP (*todo menino/toda menina*); (2) *tod-* can combine with a singular DP (*todo o menino/toda a menina*) and (3) *tod-* can combine with a plural DP (*todos os meninos/todas as meninas*). All three forms derived from the root *tod-* can agree in gender and number with the noun that is in the restrictor position:

Todo/ Toda

1a. Tod-o homem tem direito de ir e vir

     Tod-MASC.SG man has right of go and come

     'Every man has the right to come and go'

1b. Tod-a mulher tem direito de ir e vir

     Tod-FEM.SG woman has right of go and come

     'Every woman has the right to come and go'

Todo o/ Toda a

2. Tod-o o carro/ Tod-a a bicicleta está

     Tod-MASC.SG DET.SG.MASC car/ Tod-FEM.SG DET.SING.FEM bicycle is

     coberto(a) de lama

     covered of mud'

     'All the parts of the car/bicycle are covered with mud'

     (Ana Paula Quadros Gomes, p.c.)

Todos os/Todas as

3. Tod-os os / Tod-as as estudantes que

     Tod-MAS.PL DET.PL.MASC / Tod-FEM.PL DET.PL.FEM students that

     querem estudar em Harvard devem ter excelentes notas

     want study at Harvard must have excellent grades

     'All students who want to study at Harvard must have excellent grades'

In this paper we will focus on *todos os*, as opposed to *todo* and *todo o*[1]. That is, when *tod-* is combined with plural DPs. We are contrasting *todos os* and *cada* because these are considered in the referred literature (cf. Müller, Negrão and Gomes 2007) universal distributive quantifiers in Brazilian Portuguese (henceforth BP). *Todos os* (see examples 3, 4c) differently from *todo o* (examples 2, 4b) and *todo* (examples 1, 4a), is the only form that licenses collective and distributive interpretations no matter whether the noun is collective or non-collective. The examples below illustrate this fact:

4   *Todo, Todo o , Todos os* and their possible interpretations with group[2] and non-group nouns

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1. Note that the goal of this paper is not to provide a unified analysis for the forms todo, todo o and todos os. Instead, the goal is to discuss the distinction between cada and todos os (i.e., when tod- is combined with plural DPs) from an experimental perspective. For semantic proposal that explores an unified analysis for all forms of tod- see Negrão 2002, Gomes 2004, Pires de Oliveira 2003, Müller, Negrão and Gomes 2007, Gomes 2009 and references therein.

2. I will use the term 'group noun' in this paper in a non-technical way. That is, 'group noun' is referring to nouns that intuitively denote groups of individuals. Therefore, I do not intend to imply the technical perspective of this term as presented by Landman (1989a, 1989b).

4a. Todo

Group noun (*família* 'family')	Non-group noun (*criança* 'child')
Tod-a família construiu uma Tod-FEM.SG family build.PAST a/one jangada raft 'Every family built a raft' Possible interpretations: One raft was built per family (*distributive only*) (Müller, Negrão and Gomes 2007; 77 – example 17)	Tod-a criança construiu uma Tod-FEM.SG child build a/one jangada raft 'Every child built a raft' Possible interpretations: a. One raft was built per child (*distributive only*)

4b. Todo o/ Toda a

Group noun (*família* 'family')	Non-group noun (*criança* 'child')

Toda   a   família construiu
Tod-DET.SG.FEM DET.FEM.SG   family   built
uma   jangada
a/one raft
'All the family built a raft/ The whole family built a raft'
 	
Possible interpretations:
a. One raft was built by the members of family *x*
                   (*collective*)
b. One raft was built per member of the family
                   (*distributive*)
(Müller, Negrão and Gomes 2007; 77 – example 18)
	??? Tod-a a criança
	Tod-FEM.SG DET.FEM.SG child
	construiu uma jangada
	build a/one raft

4c. Todos os/ Todas as

Group noun (*família* 'family')	Non-group noun (*criança* 'child')

Tod-as   as   família-s
Tod-DET.PL.FEM DET.FEM.PL family-PL
construíram uma   jangada
built.PL   a/one   raft
'All the families built a raft'
 	
Possible interpretations:
a. . family*_x*, family*_y*… family*_n* built a raft together (*collective*)
b. One raft was built per family
(*distributive*)
(Müller, Negrão and Gomes 2007; 77 – example 19)
	Tod-as as criança-s
	Tod-FEM.PL DET.FEM.PL child-PL
	construíram uma jangada
	build a/one raft
	'All the children built a raft'
	
	Possible interpretations:
	a. child*_x*, child*_y*… child*_n* built a raft together
	                 (*collective*)
	b. one raft was built per child
	                 (*distributive*)

In 4c, *todos os/todas as* (*todas as famílias/ todas as crianças*) is ambiguous between collective and distributive readings no matter whether it combines with a group (*família* 'family') or non-group noun (*criança* 'child'). One of the hypotheses that one could consider to discuss the availability of these two interpretations in sentences with *tod-* is scope ambiguity of the quantifier as discussed by Müller, Negrão and Gomes (2007):

4a.   Tod-a   família   construiu   uma   jangada
      Tod-fem.sing   family   build.past   a/one raft
      'Every family built a raft'

      $\forall$x (família' x $\rightarrow$ $\exists$y (jangada' y $\wedge$ construiu' x, y))   (distributive)
      # $\exists$y $\forall$x (família' x $\rightarrow$ (jangada' y $\wedge$ construiu' x, y))   (# collective)

4b   Toda   a   família   construiu   uma   jangada
      Tod-DET.SG.FEM DET.FEM.SG family   built   a/one raft
      'All the family built a raft/ The whole family built a raft'

      $\forall$x (família' x $\rightarrow$ $\exists$y (jangada' y $\wedge$ construiu' x, y))   (distributive, less prominent)
      $\exists$y $\forall$x (família' x $\rightarrow$ (jangada' y $\wedge$ construiu' x, y))   (collective)

4c.   Tod-as   as   famílias   construíram   uma   jangada
      Tod-det.pl.fem det.fem.pl family-pl   built.pl   a/one raft
      'All the families built a raft'

      $\forall$x (família' x $\rightarrow$ $\exists$y (jangada' y $\wedge$ construiu' x, y))   (distributive)
      $\exists$y $\forall$x (família' x $\rightarrow$ (jangada' y $\wedge$ construiu' x, y))   (collective)
      (Based on Müller, Negrão and Gomes (2007; 77))

In the logical notations above, a distributive interpretation is derived when the universal quantifier has scope over the existential quantifier. Conversely, a collective interpretation is derived when the existential quantifier has scope over the universal quantifier. We will refer to this hypothesis as the **'quantifier scope hypothesis'**.

In this paper, we will investigate a different set of hypotheses, based on Brisson (1998, 2003)'s discussion of maximality in English. We will argue that *tod-,* when combined with plural DPs*,* is not a quantifier, but instead a modifier that inherits collective or distributive readings from the plural DP, in the case of *todos os*. In other words, collective and distributive readings associated with *todos os* are not derived from *tod-* scope. Instead, *todos os* can be associated with collective and distributive interpretations independently of whether the noun is a group noun such as *family* or non-group noun such as *child*, in contrast to *cada* that combines with singular NPs only. This will be described in this paper as the '**DP hypothesis'**.

If *tod-*, when combined with plural DPs*,* does not trigger collective or distributive interpretations, a natural question is what is the role of *todos os* in a sentence. Following Brisson (1998, 2003) I will argue that *tod-* triggers maximality in BP. It will be assumed that DPs on their own may or may not be maximal. In this perspective, the function of *todos os* is to fix 'ill-fitting' covers in cases where the DP is not maximal (cf. Brisson 2003). This discussion will be presented in this paper as the '**Maximality hypothesis'**.

Finally, for the characterization of *todos os* and *cada*, we will test whether these items require clear differentiation of subevents in a sentence like '*cada* (each) girl is smiling' or '*todas as* (all the) girls are smiling'. Clear differentiation of subevents (or total distributivity) is achieved if each individual object in the restrictor set of the quantified phrase is 'associated with its own subevent, in which the predicate applies to that object, and which can be differentiated in some way from the other subevents' (Tunstall 1998; 100). We will refer to Tunstall's hypothesis extended to BP as the '**BP differentiation hypothesis**'.

This paper is organized as follows. section 2 presents the background for the three hypotheses that are experimentally tested later on in this paper (the DP hypothesis, the Maximality hypothesis and the BP differentiation hypothesis). In section 3 we present three studies with BP speakers, testing the DP hypothesis (study 1), the maximality hypothesis (study 2) and the differentiation hypothesis (study 3). Section 4 presents our final remarks.

2. MOTIVATING THE HYPOTHESES: THE DP HYPOTHESIS, THE MAXIMALITY HYPOTHESIS AND THE BP DIFFERENTIATION HYPOTHESIS

2.1. Hypothesis 1: DP hypothesis

The DP hypothesis claims that plural DPs are responsible for ambiguities between collective and distributive interpretations and that *tod-*, like *all* analyzed by Brisson (1998), is not a quantifier. Therefore, contrary to the quantifier scope hypothesis, *tod-* scope is not responsible for the collective/distributive possible interpretations of a sentence that contains *todos os*.

Two main aspects of this analysis will be discussed below: i) plural DPs are ambiguous between collective and distributive interpretation; ii) plural DPs are non-maximal. Prior to the discussion on these facts, we will present what we are assuming in this paper by the collective/distributive distinction, the notion of covers and the notion of non-maximality, which are central aspects of this proposal.

The collective/distributive distinction is understood here as in Brisson (1998; 33), originally discussed by Link (1983). A plural noun phrase denotes a set and a verb phrase denotes a one-place predicate. Distributivity is an operator on a predicate (in this case the predicate denoted by a verb phrase) represented as an optional D operator in the grammar. The lack of the D operator will yield a collective reading. The formal definition of the D operator is as follows:

5. D-operator definition (Brisson 1998; 33; originally from Link (1983))
$$^{D} =_{df} \lambda P \lambda x \forall y\, [y \in x \rightarrow P\,(y)]$$

6. Applied to a predicate P, the definition of D will yield the expression in (8):
$$^{D}_{P} = \lambda x \forall y\, [y \in x \rightarrow P\,(y)]$$

In this perspective, the D operator introduces universal quantification over the plurality introduced by the subject (Brisson 1998; 33). Following Brisson (2003) and Schwarzschild (1996), we will argue that in BP the D operator is necessarily accompanied by a context-dependent variable. This variable is called Cov and 'the value assigned to the variable always takes the form of a cover of the universe of discourse' (Brisson 2003; 135). The definition for Cov is presented below:

7.   X covers Y iff:
        a. X is a set of nonempty subsets of Y
        b. $\forall y \in Y \exists x \in X [y \in x]$
        (Brisson 2003, 135 example 24)

In (7), a cover X of a set Y is a set of subsets of Y, such that all members of Y are members of some set in X, and any two sets in X might have a non-empty intersection. To exemplify the notion of a cover, consider the predicate 'jumped the lake'. In (8), the D operator is present on this predicate. In Brisson's analysis – combining the definition of the D operator presented above and the definition of cover -, the interpretation of this predicate combined with a D operator is as in (9):

8.   The girls Dijumped in the lake.

9. $\forall x [x \in [Cov_i] \& x \subseteq [the.girls'] \rightarrow x \in [jumped.in.the.lake']]$
        (Brisson 2003, 135 examples 25, 26)

DPs can be non-maximal because the Cov may be 'ill-fitting' with respect to the plural DP. In other words, there are situations where, in a specific domain of discourse, maximality may not be enforced. To exemplify, consider (10) and (11):

10.   The girls jumped in the lake.

11. $\forall x [x \in [Cov_i] \& x \subseteq [the.girls'] \rightarrow x \in [jumped.in.the.lake']]$

        U = {a, b, c, s, t, {a,b},{a,c}, {a,s}, {a,t}, {a,s,t,} . . . }

        [the.girls'] = {a,b,c} J = {{a}, {b}, {c}, {s,t}}

        K = {{a}, {c}, {b,s,t}}
        (Brisson 2003, 136 example 28, 29)

In the example above, K is a Cov that has as a member a set in which two non-girls are included ({b, s, t}, where 's' stands for Stan, 't' for Tim and 'b' for Betty). If K is the value assigned to Cov$_i$ this is an ill-fitting cell with respect to the DP 'the girls' because it includes two non-girls. Nonetheless, the sentence could still be true if the semantics of plural DPs does not enforce 'good fit' of covers. Brisson (2003) formally described 'good fit' of covers as follows:

12.   Good fit: For some cover in the universe of discourse Cov and some DP denotation X, Cov is
        a good fit with respect to X iff $\forall y [y \in X \rightarrow \exists Z [Z \in Cov \& y \in Z \& Z \subseteq X]]$
        (Brisson 2003; 141, example 39)

        The description in (12) is satisfied by sets such that 'there isn't any element or member of the set that's stuck in a cell with some non-members' (Brisson 2003; 141). The elements above are the basis for Brisson's argumentation that plain plural DPs do not enforce maximality, although they are compatible with it. Everything depends on the value assigned to the variable Cov.

2.1.1. DP *hypothesis, part I: todos os is not a quantifier*

A first central aspect of the DP hypothesis is the claim that *tod-*, like *all* (Brisson 1998), is not a quantifier. This claim is supported by a set of tests used by Brisson (1998) to argue that *all* is not a universal quantifier. Instead, she argues that it is a modifier 'that places a boundary on the range of otherwise contextually available interpretations allowed with definite plurals' (Brisson 1998). Below, we discuss her criteria to distinguish *all* from quantifiers, such as *each*. The arguments will be shown to hold as well for Brazilian Portuguese, as we argue that *cada* but not *todos os* is a quantifier in BP. The criteria we are going to present are: 1) argument selection; 2) genericity; 3) discourse phenomena; 4) questions; and 5) mixed-extension predicates.

2.1.1.1. Characterization of quantifiers

Argument selection One fact that differentiates *all* from *each* in English as well as *todos os* from *cada* in Brazilian Portuguese is that a quantifier like *each/cada* (as well as *every*, which is the quantifier analyzed by Brisson 1998; 7) combines with an NP while *all/ todos os* combines with a plural individual-denoting DP (like *as garotas*, 'the girls'):

	English	Brazilian Portuguese
S i n g u l a r noun as complement	13 **Every/Each** girl went to the gym (Brisson 1998; 6 – example 16)	13' **Toda/cada** garota foi Every/each girl went para a academia to the gym
P l u r a l noun as a complement	14 **Most** girls went to the gym (Brisson 1998; 6 – example 16)	14' **A maioria das** garotas Most of.the girls foram para a academia went to the gym
S i n g u l a r or plural complement	15 **The** girl(s) went to the gym (Brisson 1998; 6 – example 16)	15' **A(s)** garota(s) foi (foram) The girl(s) went para a academia to the gym
Plural DPs (e p i s o d i c sentences)	16 * **All** girls went to the gym 17 **All the** girls went to the gym (Brisson 1998; 6 – example 17)	16' ***Todas** garotas foram para a All girls went t o t h e academia gym 17' **Todas** as garotas foram All the girls went para a academia to the gym

Genericity While *all* is compatible with kind predicates, quantifiers such as *each* are not:

	English	Brazilian Portuguese
Generic	18 All dogs are mammals (Brisson 1998; 7 – example 18)	18' Todos os cachorros são mamíferos All the dogs are mammals
Generic	19 * Each dog is mammal	19' * Cada cachorro é mamífero Each dog is mammal

Discourse anaphora DPs freely license discourse anaphora (Brisson 1998 8-9). In the examples below note that *todas as* and *all* are interpreted as definite descriptions insofar as they license the plural pronouns (21) while the quantifiers *each* and *cada* do not (22):

English	Brazilian Portuguese

20   The girls came in. They sat down.
(Brisson 1998; 9 – example 20)
	20' A garota chegou. Ela sentou.
	      The girl arrived. She sat down.
	
	20'' As garotas chegaram. Elas sentaram.
	      The girls arrived. They sat down.

21   All the girls came in. They sat down.
(Brisson 1998; 9 – example 21)
	21' Todas as garotas vieram.
	     All the girls came.
	     Elas sentaram.
	     They sat down.

22 Each girl came in. ?? They/?? She sat down. (based on Brisson 1998; 9 – example 21)	22' Cada garota veio. ?? Elas/??? Each girl came. ?? They/??? Ela sentou. She sat.

Questions Chierchia (1991, 1993) (*apud* Brisson 1998; 10) argues that the possibility of a list answer depends crucially on a semantic property of universal quantification. Note that *cada* and *each*, but not *todas as* and *all* are compatible with a list answer:

English	Brazilian Portuguese

23   Which woman did **each** boy kiss?
 	
Pair-list answer:
John kissed Mary, Bill kissed Sue…
(based on Brisson 1998; 9 - example 23)
	23' Qual mulher **cada**
	          Which woman each
	          menino beijou?
	          boy kissed?
	
	Pair-list answer:
	João beijou Mary, Bill beijou Sue…

24   Which woman did **all** the boys kiss?
 	
Pair-list answer:
# John kissed Mary, Bill kissed Sue… 	
(based on Brisson 1998; 10 - example 24)
	24' Qual mulher **todos os** garotos
	          Which woman all the boys
	          beijaram?
	          kissed?
	
	Pair-list answer:
	João beijou Maria, Bill beijou Sue…
	# John kissed Mary, Bill kissed Sue…

Mixed-extension predicates   *All* and *todos os* do not disambiguate mixed-extension predicates (mixed-extension predicates are understood here as predicates that can contain atoms as well as i-sums Link [1983] 2002; 132). If *all* and *todos os* were quantifiers it would be unexpected that they would disambiguate mixed-extension predicates, but that is expected if they are modifiers:

	English	Portuguese

Distributive or collective	25 The boys carried a piano upstairs
	(Brisson 1998; 14 – example 35)
		25' Os meninos carregaram um
		          The boys carried a
		          piano para o andar de cima
		piano to the floor of above

Distributive or collective	26 All the boys carried a piano upstairs
	(Brisson 1998; 14 – example 36)
		26' Todos os meninos carregaram um
		           All the boys carried a
		          piano para o andar de cima
		          piano to the floor of above

Distributive only	27 Each boy carried a piano upstairs	27' Cada menino carregou um
		          Each boy carried a
		          piano para o andar de cima
		          piano to the floor of above

As discussed previously, DPs can trigger collective and distributive interpretations (this last one due to the projection of a D-operator) and *todos os* inherits one of these readings according to the context.

2.1.2. DP hypothesis, part II: plural DPs allow non-maximal interpretations

The example in (28) can be interpreted as collective (the boys ate a sandwich together, they share one) or distributive (each different boy ate a different sandwich):

28. The boys ate a sandwich
    (Brisson 1998; 49 – example 48)

Non-maximality can be associated with both collective and distributive interpretations. On Brisson's own terms (idem): 'if Adam, Bill, Chris, and Dan are the boys, then (28) can be true even if Chris didn't eat any part of the sandwich at all' (…) if in the same set of boys (Adam, Bill, Chris and Dan) Dan did not eat the sandwich, then the sentence is also true'. In sum, the example (28) exemplifies both that DPs are compatible with collective and distributive readings and that they can be non-maximal because not all members of a particular set must be part of the event for the sentence to be true. The same can be observed in the example (29a):

29a. The townspeople are asleep
    (Lasersohn 1999; 534 – example 33)

In this case, if someone is awake, the sentence can still be true because plural DPs allow exceptions. The possibility of 'exceptions' can be observed in other areas of the language, such as in (30a):

30a. Mary arrived at 3 o'clock
    (Lasersohn 1999; 534 – example 31)

In this case, according to Lasersohn, the sentence can be true if Mary arrived at 3:01. In other words, these examples are evidence for the author's argument in favor of 'slacks' in language that can be fixed by 'slack regulators' such as *exactly* and *all*:

29b. <u>All</u> the townspeople are asleep
30b. Mary arrived <u>exactly</u> at 3 o'clock
    (Lasersohn 1999; 534 originally 32 and 30, respectively)

In Lasersohn's perspective, *all* and *exactly* are 'slack regulators' which are expressions that regulates how much pragmatic slack is allowed in the interpretation of an utterance in a given context. In (29b) in contrast to (29a), exceptions are not allowed because of the nature of *all*. The same holds for the contrast between (30b) and (30a), where *exactly* disallows imprecisions. The kind of 'inaccuracy' that was allowed in (29a) and (30a) is a result of the fact that speakers and hearers are not required to be completely accurate in their interaction in daily life. We will argue that *tod-* is a slack regulator in Brazilian Portuguese that will disallow non-maximal interpretations. This is the basic principle of the **maximality hypothesis,** motivated below.

2.2. Hypothesis 2: the Maximality hypothesis

In order to motivate the Maximality hypothesis, we need to recall the definition of 'ill-fitting covers' discussed above. As proposed by Brisson (1998, 2003), 'there are circumstances in which both speaker and hearer share the assumption that one (or more) individuals who are part of the denotation of the definite plural is (are) excluded from the domain of the D operator' (Brisson 2003; 137). This kind of 'ill-fitting cover' is possible because speakers do not need to be precise about each and every individual in a plurality (Brisson's (1998; 83), Lasersohn (1999)). Nonetheless, speakers and hearers do not have to always have in mind ill-fitting covers; they should however 'always make room for the *possibility* of ill-fitting covers' (Brisson 2003; 138).

As defined in (14), a cover is a good fit for a given set if there isn't any element or member of the set that's stuck in a cell with some non-members. In this scenario, the function of *all* in a sentence will be to ensure that the value assigned to Cov is a good fit with respect to the subject DP (Brisson 2003; 141). This is formalized in (33):

31. translation rule for all: all has no ordinary translation, and a domain-adjusting meaning of $\lceil \lambda xgf(Cov)(x) \rceil$
    (Brisson 2003, 141 example 40)

According to Brisson (2003), the contribution of all is not 'a component of truth-conditional meaning, but something more like presupposition, or a focus-sensitive operator. I'll call all's contribution to meaning the "d omain-adjusting meaning" (…) the domain-adjusting meaning of all is written inside the characters ⌈ ⌉ to orthographically mark that a good fit is not evaluable as part of the truth conditions of the sentence, but interacts with the context to limit the possible choices of Cov' (Brisson 2003; 142-143). To exemplify that, consider (32) which translates 'all the girls left':

32. left′(the.girls′), ⌈gf(Covi)(the.girls′)⌉"
    (Brisson 2003; 42)

Since the cause of nonmaximality is (the possibility of) an ill-fitting cover, Brisson (2003; 13) proposes that the function of *all* is to disallow the choice of an ill-fitting cover. We apply the same hypothesis for BP arguing that *tod-* is responsible for disallowing ill-fitting covers as the same non-maximal effects observed in (29b), for English, can be observed in Brazilian Portuguese in (33b):

33a. Os   moradores   da   cidade estão   dormindo
     the   townspeople of.the city   are   sleeping

33b. <u>Todos os</u> moradores   da   cidade estão   dormindo
     All   the townspeople of.the city   are   sleeping

The hypothesis that *tod-* strongly enforces maximality is tested on study 2.

2.3. Hypothesis 3: BP differentiation hypothesis

In English, even though *all* and *each* are both compatible with distributive readings, only each necessarily enforces distributivity. In order to discuss why *each* but not *all* is necessarily interpreted as a distributive quantifier, Tunstall (1998; 106) introduced the differentiation condition (i.e., the differentiation of subevents) according to which *each*, differently from other quantifiers in English, is preferred in event structures that enforce total distributivity, as defined below:

The Differentiation Condition

> 'A sentence containing a quantified phrase headed by each can only be true of event structures which are totally distributive. Each individual object in the restrictor set of the quantified phrase must be associated with its own subevent, in which the predicate applies to that object, and which can be differentiated in some way from the other subevents'.
> Tunstall (1998; 100)

The quantifier *every*, differently from *each* in English does not require differentiation, or, in other terms, full distributivity. *Every* requires only partial distinctiveness:

The Event Distributivity Condition

> 'A sentence containing a quantified phrase headed by every can only be true of event structures which are at least partially distributive. At least two different subsets of the restrictor set of the quantified phrase must be associated with correspondingly different subevents, in which the predicate applies to that subset'.
> Tunstall (1998; 99-100)

To test these conditions in English, Tunstall (1998; 118) set up two types of contexts. The participants read two short paragraphs, one that described how much a set of objects or people differed (and in these cases, *each* was expected to be favored over *every*) and the second described how much a set of objects are the same. 'Participants were asked to choose whether *each* or *every* fit best into the final sentence of the passage, which referred again to the set of objects/people, and to circle their choice' (Tunstall 1998; 118). Tunstall experimental items are exemplified below:

34. "Different" condition

Max was writing a story about the uniforms that workers at local stores had to wear. The new supermarket on the corner required their employees to wear a button-down shirt with a collar, but various colors were allowed. On Monday, the deli clerk had on a striped shirt and the cashier in the express lane had on a floral shirt. The manager's shirt was red…

35. "Same" condition

Max was writing a story about the uniforms that workers at local stores had to wear. The new supermarket on the corner had a strict dress code. They required their employees to wear a white button-down shirt with a collar, a narrow red tie, and black pants. In addition, anyone with long hair had to put it up in a pony tail...

Final (target) sentence

When Max visited that store he wrote down on his notepad what (each / every) employee was wearing.

36. "Different" condition

Yvonne is a preschool teacher. Every morning before the kids arrive she gets the morning activities ready at the crafts tables. It's important that all of the tables are set up in a different way. The children like to know that they can go to the next table and do something else if they get bored. On Thursday, she put out painting supplies on one table, play dough on another, and paper and stickers on a third…

37. "Same" condition

Yvonne is a preschool teacher. Every morning before the kids arrive she gets the morning activity ready at the crafts tables. It's important that all of the tables are set up in the same way. The children like to know that they aren't missing something special at the next table. On Thursday, she put out painting supplies, including paper, different size brushes, and water-based paint…

Final (target) sentence

When the first little boy came in, he scrutinized (every / each) table
(Tunstall 1998; 118 – examples 51 and 52)

Thirty-eight English speakers participated in this experiment. The participants, as presented in the examples above, were asked to choose whether *each* or *every* fit better in the contexts presented. The results show that participants clearly favored *each* in the different condition (76% of answers) over *every* (24% of answers). Conversely, *every* is preferred in the same condition (63% of answers) over *each* (37% of answers). The same items are going to be tested in study 3, entitled as **BP Differentiation hypothesis** to test whether, *contra* the DP hypothesis that we defend in this paper, the difference between *cada* and *todos os* could be that *cada* requires differentiation of subevents while *todos os* cannot be used in scenarios that differentiate subevents.

3. STUDIES IN BRAZILIAN PORTUGUESE[3]

In this section I will present three studies that discuss three different aspects of the proposal put forth in this paper. The DP hypothesis (study 1), the Maximality hypothesis (study 2) and the Differentiation hypothesis (study 3). Studies 1 and 3 were run together in the same questionnaire. Study 2 and another study on maximality presented in the appendix 1 were run together, in a separate questionnaire.

Study 1: The DP hypothesis

In section 2, we saw that plural DPs can have collective or distributive interpretations. The DP hypothesis predicts that sentences with *todos os* will inherit a collective or distributive interpretation from the DP.

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3. All experimental items are presented on the appendices from 1 to 7, which can be found in my website: http://blogs.umass.edu/slima/papers/

In this study, we investigate whether *todos os* and *cada* are equally compatible with distributive scenarios, or whether speakers have a preference for *cada* over *todos os* in these cases. The hypothesis being tested is that *each* necessarily enforces distributivity and *todos os* does not. As a consequence, *todos os* may or may not be used in distributive contexts. If there is a preference for *cada* over *todos os*, that would be evidence that *cada* but not *todos os* enforces distributivity. If they overlap, then the questions to be answered are what is the frequency of the overlapping and in what type of context it occurs.

Method

Participants

Eight Brazilian Portuguese native speakers participated in the study. Given the robust nature of the effects (see results), it did not seem necessary to test more participants. Two were consulted in person and six were consulted by email.

Materials

Critical items

12 items were constructed with two forms each, as illustrated in (38). One form emphasized collective events (henceforth 'join' contexts) as illustrated in (38a) and the other form emphasized a distributive event (henceforth 'separately' contexts) as illustrated in (38b):

38a. Join context

As crianças tiveram uma atividade extra hoje na escola. Elas tinham que participar da construção de uma jangada parecida com uma jangada indígena. As crianças trabalharam na mesma jangada: Maria cortou a madeira, João colocou a parte lateral, Pedro colou a parte inferior e assim foi... até 1 jangada ficar pronta.

(*The children had an extra activity today at school. They had to participate in the construction of a raft similar to an indigenous raft. The children worked on the same raft: Maria cut the wood, João put together the lateral part, Pedro put together the lower part… until a raft was ready*)

(   ) Cada criança construiu uma jangada   (*Each child built a raft*)
(   ) Todas as crianças construíram uma jangada   (*All the children built a raft*)

38b. Separately context

As crianças tiveram uma atividade extra hoje na escola. Elas tinham que construir individualmente uma jangada parecida com uma jangada indígena. Em uma classe com 30 alunos, 30 jangadas foram construídas.

(*The children had an extra activity today in the school. They had to build individually a raft similar to an indigenous raft. In a class with 30 students, 30 rafts were built*).

(   ) Cada criança construiu uma jangada   (*Each child built a raft*)
(   ) Todas as crianças construíram uma jangada   (*All the children built a raft*)

These 12 items were counterbalanced in two lists. Each list also contained 8 items for study 3 and 16 fillers unrelated to the manipulation. Each list was randomized. Each item presented a context followed by two sentences that could describe the context. The participants were asked to choose the best sentence to describe the context. They were informed that they could choose more than one option and, in this case, they should rank the sentences using 1 for the best description of the context and 2 for the second best option.

Results and discussion

The results for study 1 are presented in Table 1. What we observe from Table 1 is that only *todos os* is compatible with collective events such as (38a):

Response types:	*Todos os* (only)	*Cada* (only)	Both (*Todos os* and *cada*)
Total percentage of answers:	100 %	0 %	0 %

Table 1. Results for contexts with collective events (join contexts) presented in terms of percentage of responses

Distributivity was also tested in this study. The results are presented in Table 2. We were checking whether *todos os* and *cada* are equally compatible in distributive scenarios. The results show that there is a clear preference for *cada* over *todos os* in such contexts. Nearly half of the responses (46%) selected *cada* as the only possible option:

Items	*Todos os* (only)	*Cada* (only)	Both (*Todos os* and *cada*)
Total number of answers	0 %	46 %	54 %

Table 2. Results for contexts with full distributive events (separately events) presented

in terms of percentage of responses

The results show that *todos os* was never considered as the only option in distributive contexts. Further, the participants that accepted both options consisted of a total of 54% of answers. For 46% of those, *cada* was the first best option and *todos os* was the second; 8% corresponds to the answers of one subject who answered that *cada* and *todos os* are equally good in distributive contexts. Previously in this paper I have argued that *cada* is a distributive quantifier, and *todos os* is not. Therefore, in a scenario where distributivity is emphasized (separately events) it is expected that *todos os* as a single option is strongly disfavored (0% of answers, Table 2). In conclusion, *todos os* is compatible with collective scenarios (as observed in Table 1). Further, it is not the primary choice in distributive contexts.

3.2. Study 2: The Maximality hypothesis[4]

In section 2 we have shown based on Brisson (1998) that plural DPs in BP are not necessarily maximal. When we say something like *as garotas comeram o sanduíche* 'The girls ate the sandwich', if 2 or 3 girls did not eat a sandwich the sentence is still going to be true. We also hypothesized that *todos os* will be incompatible with non-maximal DPs. In fact, *todos os* enforces maximality by fixing ill-fitting covers according to the maximality hypothesis.

In this study, first we want to test the prediction that *todos os* will be necessarily incompatible with non-maximal scenarios. Second, we want to test whether *todos os* and DPs are equally good in maximal scenarios (as DPs can be maximal) or if there will be a preference for *todos os* over DPs in this kind of scenario.

Method

Participants

Eight Brazilian Portuguese native speakers participated in the study. All of them received a questionnaire in the format ' Google forms' and answered it by email.

Materials

12 items consisting of non-maximal contexts (41a) and maximal contexts (41b), which were divided into counterbalanced lists and presented in random order, along with 12 items for study 3 and 14 filler items unrelated to the manipulation.

39a. Non-maximal context

Maria é treinadora de atletismo do clube Gamelinha e Anita é treinadora do clube Paulista. Elas inscreveram os atletas de suas equipes para a seleção de atletismo que representaria o Brasil nas Olimpíadas. A federação decidiu escolher 8 dos 10 atletas do clube Gamelinha que se inscreveram e nenhum do clube Paulista.

Maria is an athletics trainer in the Gamelinha club and Anita is a trainer in the Paulista club. They registered the athletes of their teams for the selection of athletes to be part of the Brazilian team for the Olympic games. The federation decided to choose 8 of 10 athletes in the club Gamelinha and no athletes from the Paulista club.

Naquele mesmo dia, a treinadora Anita disse aos atletas do clube Paulista….
In the same day, the trainer Anita said to the athletes of the Paulista club…

( ) Os atletas do clube Gamelinha foram escolhidos
( ) *The athletes of the Gamelinha club were chosen*

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4. Another study on maximality is presented on appendix 1. The study presented on appendix 1 was a tentative to provide more evidence for our characterization of maximality by testing whether a mismatch of referents would have a blocking effect in maximal scenarios. We observed that this is not the case. These results support the proposal discussed in this paper, that is, maximality is a pragmatic effect triggered according to speakers' expectations and it is therefore independent of referentiality. See appendix 1 for details (http://blogs.umass.edu/slima/papers/).

( ) Todos os atletas do clube Gamelinha foram escolhidos
( ) *All the athletes of the Gamelinha were chosen*

39b. Maximal contexts

Maria é treinadora de atletismo do clube Gamelinha e Anita é treinadora do clube Paulista. Elas inscreveram os atletas de suas equipes para a seleção de atletas para a equipe que representaria o Brasil nas Olimpíadas. A federação decidiu escolher 10 dos 10 atletas do clube Gamelinha que se inscreveram e nenhum do clube Paulista.

Maria is an athletics trainer in the Gamelinha club and Anita is a trainer in the Paulista club. They registered the athletes of their teams for the selection of athletes to be part of the Brazilian team for the Olympic games. The federation decided to choose 10 of 10 athletes in the club Gamelinha and no athlete from the Paulista club.

Naquele mesmo dia, a treinadora Anita disse aos atletas do clube Paulista….
In the same day, the trainer Anita said to the athletes of the Paulista club…

( ) Os atletas do clube Gamelinha foram escolhidos
( ) *The athletes of the Gamelinha club were chosen*

( ) Todos os atletas do clube Gamelinha foram escolhidos
( ) *All the athletes of the Gamelinha were chosen*

Each item presented a context followed by two sentences (one including a plural DP (only) and another including *todos os*) that could describe the context. The participants were asked to choose the best sentence to describe the context. They were informed that they could choose more than one option and, in this case, they should rank the sentences considering 1 the best description of the context and 2 for the second best option.

Results and discussion

The results for study 2 are presented in Table 3. What we observe from Table 3 is that plural DPs are strongly favored in non-maximal scenarios:

Response types:	DP (only)	*Todos os* (only)	Both (*Todos os* and DP only)
Total percentage of answers:	92 %	0 %	8 %

Table 3. Results for non-maximal contexts presented in terms of percentage of responses

As predicted, the results for the study 2 show that there is a clear preference for plural DPs in these scenarios (92% of answers). A small percentage of answers (8%) refer to the participants that consider both options (plural DPs and todos os) as good descriptions of the scenario. No answers pointed to todos os (only), as expected. These results confirm the hypothesis that todos os is incompatible with non-maximal scenarios.

The distribution of DPs and *todos os* in maximal contexts was also tested. As plural DPs are compatible with maximal contexts and *todos os* enforce maximality, the question was whether there is a strong preference for *todos os* over DPs in this kind of context. The results are presented in Table 4:

Response types:	DP (only)	*Todos os* (only)	Both (*Todos os* and DP only)
Total percentage of answers:	31 %	6 %	63 %

Table 4. Results for maximal contexts presented in terms of percentage of responses

The results suggest that both options are good descriptions for maximal scenarios (63%). The results presented on Table 2 support Brisson's argumentation that although plural DPs do not enforce maximality, they are compatible with it, given that 31% of answers supported that DPs can be used as to referring to maximal scenarios.

To explain the low percentage of participants that choose todos os only in maximal contexts (6%) one may hypothesize that the choice of using todos os in a given context depends on pragmatic properties, i.e., the speaker's decision to emphasize a maximal set (see also footnote 4). None of the contexts presented in the questionnaire emphasized an intention of the speaker to highlight maximality. This is, however, a hypothesis to be explored in future research.

In sum, the crucial aspect to be observed from the results of study 2 is that that todos os is incompatible with non-maximal contexts (0% of responses). As predicted, todos os is only compatible with maximal contexts.

3.3.   Study 3: the BP differentiation hypothesis

In English, as described by Tunstall (1998) a distributive quantifier such as *each* requires differentiation of subevents. Study 3 investigated whether differentiation of subevents is required for *todos os* or *cada*.

Method

Participants

Eight Brazilian Portuguese native speakers participated in the study. These are the same participants as study 1. Two participants were consulted in person and 6 were consulted by email.

Materials

Critical items

To test the differentiation condition, eight items were tested. Four items, taken from Tunstall (1998) and adapted to Brazilian Portuguese, checked whether the differentiation condition applies when we compare *todos os* and *cada* in two different types of contexts (contexts (40) and (41) below, possible answers (42))[5]. Participants had two options to follow up the target sentence (42) and they had the

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5. The other four items have tested the differentiation condition considering the contrast between todo and todo o, the two other forms associated to the root tod-. We are not going to discuss the results for those items in this paper, as these forms are not in the scope of our discussion. A brief overview of the results for these items is presented in the appendix 4 (see http://blogs.umass.edu/slima/papers/).

option to rank the first and second best option as in study 1. The eight items were counterbalanced in two lists and each list was randomized.

40. "Different" condition

Ivone é uma professora da pré-escola. Todas as manhãs, antes de as crianças chegarem, ela deixa os materiais para as atividades nas mesas. As mesas não são arrumadas do mesmo jeito porque crianças gostam de saber que elas podem ir para a próxima mesa e fazer uma coisa diferente se elas ficarem entediadas. Na quinta, ela colocou os artigos de pintura em uma mesa, os papeis em uma outra, as massas de modelar em uma terceira mesa e assim foi.

(*Yvonne is a preschool teacher. Every morning before the kids arrive she gets the tables with the materials ready. The tables are not set up in the same way because the children like to know that they can go to the next table and do something else if they get bored. On Thursday, she put out painting supplies on one table, papers on another, and play-doh in another, and so on*)

41. "Same" condition

Ivone é uma professora da pré-escola. Todas as manhãs antes de as crianças chegaram ela deixa os materiais para as atividades nas mesas. As mesas são sempre arrumadas da mesma forma porque as crianças gostam de saber que elas não perdem nada de especial se elas não vão para outra mesa. Na quinta-feira, os materiais que ela colocou nas mesas foram: material para pintura, papel, massa de modelar e lápis de cor.

(*Yvonne is a preschool teacher. Every morning before the kids arrive she gets the tables with the materials ready. The tables are set up always in the same way because the children like to know that they aren't missing something special at the next table. On Thursday, the materials she put on the tables were: painting supplies, paper, play-doh and color pencils*)

42. Target sentence: quando o primeiro menino entrou....
    When the first little boy came in...

(   ) Ele observou com muita atenção todas as mesas (*he scrutinized all the tables*)
(   ) Ele observou com muita atenção cada mesa   (*he scrutinized each table*)

Results and discussion

The results for the study 3 are presented in Table 5 and Table 6. First, what we observe from Table 5 is that contexts that highlight clearly differentiated events are more likely to be described with *cada* instead of *todos os*:

Items	*Todos os* (only)	*Cada* (only)	Both (*Todos os* and *cada*)
Total number of answers	0 %	50 %	50 %

Table 5. Results for contexts with clear differentiation of events

(the differentiation condition) presented in terms of percentage of responses

The results in Table 5 show that *cada* is preferred in scenarios where the differentiation condition is stressed (50% of answers). The other half choose both *cada* and *todos os* as possible descriptions in scenarios that stress the differentiation condition. Of this total, 37, 5% said that *cada* is the best option followed by *todos os* and 12,5% said that they are equivalent. In our previous discussion of this task in English (see section 2.3), we saw that in English *each* is preferred in scenarios that favor differentiation between the subevents while other quantifiers that can be distributive but do not enforce distributivity (such as *every*) are possible, but not preferred in these scenarios.

The second question investigated in this study was whether *cada* can occur in contexts where the differentiation condition is not enforced. The results are presented in Table 6:

Items	*Todos os* (only)	*Cada* (only)	Both (*Todos os* and *cada*)
Total number of answers	50 %	12,5 %	37, 5 %

Table 6. Results for contexts with no differentiation of events (same condition)

presented in terms of percentage of responses

The results in Table 6 show that '*todos os* (only)' was chosen in 50% of answers. A total of 12,5% responses indicated '*cada* (only)'. For responses indicating that *cada* and *todos os* are possible in these contexts, 25% chose *cada* over *todos os* and 12, 5% chose that *todos* os and *cada* are equally good in this case.

The results above disconfirm the BP Differentiation hypothesis. That is, the difference between *cada* and *todos os* is <u>not</u> that *cada* requires differentiation of subevents or that *cada* cannot be used in scenarios that differentiate subevents. Although *cada* is preferred in contexts where the differentiation of subevents is stressed, *cada* can be used in scenarios without differentiation (see Table 6). Further, *todos os* is indeed permitted in differentiation scenarios.

To conclude the presentation of the results of these studies, we will discuss the participants' answers for four special fillers that tested whether *todos os* and *cada* are interchangeable.

Fillers

Simple fillers

16 fillers were used in the questionnaire that included studies 1 and 3 and 14 fillers were used in the questionnaire that included studies 2 and 4 (see footnote 4 for study 4). The fillers used in the questionnaire related to studies 2 and 4 (presented in the appendix 7[6]) are unrelated to the manipulation (each subject answered 2 fillers related to the use of numerals on downward entailing scenarios, 6 questions on 'portioning' mass nouns and 4 questions on event partitions (collective, partial distributive and full distributive events). All fillers, but 4 items, were unrelated to the manipulation. The four fillers that were related to the manipulation are discussed below. All the other filler items are presented in the appendices 6 and 7.

Special fillers: some observations for the characterization of todos os and cada

Materials

Four special fillers asked about the possibility of using *cada* instead of *todos os* (and vice versa) based on examples taken from a web search. The web search was based on the items *todas as famílias*, *cada família*, *todos os estudantes* and *cada estudante*. The nouns were chosen randomly and they characterize group (*família* 'family') and non-group nouns (*estudante* 'student'), respectively. Here are three examples of items used in this task:

43a. **Todas as** famílias infelizes se assemelham; **cada** família infeliz é infeliz a sua maneira.
*(*All happy families are similar; each unhappy family is unhappy on its own way)

No caso da frase acima, significa a mesma coisa se eu digo 'todas as famílias infelizes' ao invés de 'cada família infeliz'?

(In the sentence above, would it mean the same thing if I say 'all unhappy families' instead of 'each unhappy family'?)

43b. Um centro acadêmico (CA) é uma entidade que representa **todos os** estudantes de curso
(An academic center (CA) is an entity that represents all the students in a course)

No caso da frase acima significa a mesma coisa se eu digo 'cada estudante' ao invés de 'todos os estudantes'?

(In the case of the sentence above, would it mean the same thing if I say 'each student' instead of 'all the students'?)

43c. Um centro acadêmico (CA) é uma entidade que representa **cada** estudante de curso
(An academic center (CA) is an entity that represents each student in a course)

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6. See http://blogs.umass.edu/slima/ for appendix 7.

No caso da frase acima significa a mesma coisa se eu digo " todos os estudantes" ao invés de 'cada estudante'?

(In the case of the sentence above, would it mean the same thing if I say "all the students" instead of 'each student'?)

In 43a, the participants consistently emphasized that if *todos os* replaces *cada*, we loose the particularity of the unhappy families. The modifier 'à sua maneira' (*on its own way*) is also indicated as a trigger for *cada*, because of the particularity effect. It was also mentioned by the participants that *todas as famílias* may imply a collective/group of unhappy families (what highlight that a collective as well as a distributive reading are salient in sentences with *todos os*).

The quantifier *cada* emphasizes particularization and personalization of the events in the set. *Todos os* does not have this pragmatic effect. As one of the participants pointed out, if we use the quantifier *cada* or the modifier *todos os*, the sentence will keep being grammatical in both ways, but "the rhetoric effect changes completely", as one of the participants suggested. In 43b and 43c, the participants highlighted the distinction between individual interests (if we use 'cada estudante') in contrast to collective interests, or simply, the non-stress of individuality (if we use 'todos os estudantes'). These results are consistent with the other special fillers observed (presented in the appendix 6).

In sum, what we have observed is that none of the contexts is incompatible with any of these forms (*cada* and *todos os*), but rather that each item triggers different pragmatic effects. While *todos os* triggers a maximal effect, c*ada* emphasizes the particularity of the subevents.

3.4. General Discussion

The goal of this paper was to discuss the features 'maximality' and 'distributivity' in Brazilian Portuguese from an experimental perspective. We have shown that maximality and distributivity are independent phenomena, based on the analysis of the distribution of two items: *todos os* and *cada*, which are described as universal distributive quantifiers in the literature.

From study 1 we concluded that *todos os*, as a modifier, inherits collective and distributive readings from its plural DP complement (*contra* the quantifier hypothesis and in favor of the DP hypothesis). This is not possible for *cada*, as observed in the results of study 1, as *cada* can only be associated with distributive interpretations. In addition, *todos os* enforces maximality and was clearly incompatible with non-maximality scenarios as observed in study 2 (in favor of the Maximality hypothesis).

Study 2 provided further elements for the characterization not only of *todos os* but also for the characterization of the feature 'maximality' itself. We observed that even though *todos os* triggers maximality, it is not necessarily the preferred form in maximal scenarios as DPs are compatible with maximality. Therefore, the choice between a plain DP (that is compatible with maximality, but does not enforce it) and *todos os* (strong 'maximalizer') may rely on pragmatic factors (i.e., on whether the speaker intends to emphasize maximality).

The second major topic of this paper was distributivity, which was an aspect tested in both studies 1 and 3. Study 1 (Table 2) showed that *cada* necessarily enforces distributivity and is the preferred form in distributive contexts. On the other hand, *todos os* is compatible with distributive scenarios, but does not trigger distributivity. In study 3, we observed that even though *cada,* like *each,* is preferred in contexts where the differentiation of subevents is stressed (which is a characteristic of

full distributive events), *cada* can be used in scenarios without differentiation (see Table 6). Further, *todos os* is permitted in differentiation scenarios, because it is compatible with distributivity, but only by inheritance because plurals DPs can be distributive. The results in Table 6 show that in scenarios where the differentiation condition is not stressed, *todos os* is preferred, but *cada* is also possible in this kind of scenario, which suggests that the differentiation condition is not a requirement, but a possible feature associated with *cada*.

CONCLUDING REMARKS

Even though the semantics and syntax of *todos os* and *cada* have been extensively discussed in the Brazilian literature, this paper contributes to a new perspective on these items based on experimental evidence. We have shown that despite the fact that these items may occur in the same contexts – and initially lead to the observation that they share the same properties – in fact they emphasize different properties.

The findings in this paper lead to the observation that maximality is a pragmatic effect related to fixing ill-fitting covers. *Todos os* enforces maximality, but not distributivity. By hypothesis, we would expect that distributive scenarios do not strongly imply maximality. However, to test this hypothesis, we need to understand better partial distributive events (where there is distributivity, but not down to the minimal event, allowing some collective sub-events). This is left to further investigation.

MAXIMALIDADE E DISTRIBUTIVIDADE NO PORTUGUÊS BRASILEIRO

RESUMO

Neste artigo analisamos as propriedades semânticas de cada e todos os, os quais têm sido analisados na literatura como quantificadores universais distributivos. A partir de uma série de estudos experimentais, pretendemos mostrar que tod- (a raiz de todos os) não é um quantificador que acarreta distributividade, mas, ao invés disso, um modificador que acarreta maximalidade (Brisson 1998, 2003) quando a raiz tod- é combinada a DPs plurais. Cada, por outro lado, é marcado para distributividade.

PALAVRAS-CHAVE: maximalidade; distributividade; DPs; quantificadores; psicolinguística.

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