

Generic sentences with indefinite and bare subjects in Brazilian Portuguese*

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This paper addresses the semantics of two types of generic sentences in Brazilian Portuguese (BPg): generic sentences with Indefinite Subjects (IS); and generic sentences with Bare Numberless (BN) subjects. The two types of sentences are both instances of generic quantification. Nonetheless, they differ in their semantics: IS sentences are more normative, whereas BN sentences are more descriptive. I show that Greenberg's 2002 approach for IS and Bare Plural English generic sentences holds for IS and BN generic sentences in BPg, and that the differences between the two sentences should be attributed to the fact that they express different kinds of modalities. The paper claims that the ability to induce different modalities is related to the different denotations of their subject nominals. IS subjects have atomic denotations and generalizations based on atoms are much more restricted than generalizations based on the number-neutral denotations of BN subjects.

1. Introduction

This paper addresses the semantics of two types of generic sentences in Brazilian Portuguese (BPg): (i) generic sentences with Indefinite Subjects (IS) as in (1); and (ii) generic sentences with Bare Numberless (BN) subjects as in (2). IS and BN generic sentences in BPg are similar in many ways to IS and Bare Plural (BP) generic sentences in English. Both types of sentences have been claimed in the literature to be instances of generic quantification and to have a logical form as in (3) (see Krifka *et al.* 1995, Chierchia 1995, 1998, Wilkinson 1991).¹

- (1) Um número par é divisível por 2.
a number even is divisible by 2
'An even number is divisible by 2'

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¹ For simplicity, my examples will mostly be with I-level predicates. I assume they have no event argument (see Kratzer 1995).

- (2) Número par é divisível por 2.
 number even is divisible by 2
 ‘Even numbers are divisible by 2’
- (3) **GEN** [x] (**even number** [x]; **divisible by 2** [x])

Nonetheless, IS and BP generic sentences are not completely synonymous: (i) IS sentences are perceived as more normative, whereas BP sentences are perceived as more descriptive; (ii) the two types of sentences are not felicitous in the same kinds of contexts – IS sentences fit ‘predictive’ contexts, whereas BP sentences fit ‘inductive’ contexts (see Lawler 1973, Burton-Roberts 1977, Declerck 1991, and more recently Greenberg 2002).

Greenberg 2002 claims that IS generic sentences express generalizations that are true ‘in virtue of’ some property of its subject, whereas BP generic sentences express descriptive generalizations. The author attributes the semantic differences between the two kinds of sentences to the different types of modalities they express. IS sentences are evaluated in worlds in which their subject has a certain culturally presupposed property. BP generic sentences, on the other hand, are evaluated in worlds that resemble ours in a vague way.

This paper shows that Greenberg’s approach also holds for IS and BN generic sentences in BPg, and that the differences between the two types of sentences should be attributed to the fact that they express different kinds of modalities. This paper claims that the ability to induce different modalities is related to the different denotations of indefinite and bare numberless subjects. IS subjects have atomic denotations, and generalizations based on atoms are much more restricted than generalizations based on the number-neutral denotations of BN subjects.

In section 2, I introduce the semantics of IS and BN generic sentences in BPg. Section 3 provides a brief overview of the currently prevalent approaches to the semantics of generically quantified sentences. Section 4 describes the differences between IS and BN sentences. In section 5, I present Greenberg’s 2002 account for English IS and BP generic sentences and discuss its application to BPg. In section 6, I argue that the differences between the two types of sentences should be attributed to the different denotations of their subject nominals. Finally, in section 7, I state the concluding remarks.

2. IS and BN generic sentences are instances of generic quantification in Brazilian Portuguese

Most current theories of genericity hold that there are two different modes of expressing it: (i) genericity may be expressed by the Determiner Phrase (DP); or (ii) it may be an effect of generic quantification. In the first case, the generic interpretation is achieved through the use of *kind referring expressions* – expressions that are by themselves capable of denoting kinds, as the DP *a onça* (‘the jaguar’) in (4a). The logical representation in (4b) expresses the fact that the DP *a onça* is like a proper name - the proper name of a species - and it may be directly taken as the argument of a predicate, just like the proper name *Jorge* in (5a-b).

- (4) a. A onça está ameaçada de extinção.
the jaguar is on-the-verge of extinction
‘Jaguars are on the verge of extinction’
- b. **on-the-verge-of- extinction** (THE-JAGUAR)
- (5) a. Jorge é inteligente.
Jorge is intelligent
‘Jorge is intelligent’
- b. **intelligent** (JORGE)

Both IS and BN sentences in BPg are instances of generic quantification (see Müller 2001, 2002), as is usually claimed for IS and BP generic sentences in Romance languages (see Longobardi 2001, Chierchia 1998). IS and BN generic subjects then are not kind-referring expressions in BPg. This is demonstrated by their inability to combine with kind predication, as in (6-7), and by the inexistence of a generic interpretation with one-event-only episodic predicates, as in (8).

- (6) *Uma onça / *Onça está ameaçada de extinção.
a jaguar/ jaguar is on-the-verge of extinction
‘Jaguars are on the verge of extinction’
- (7) *Uma manga/*Manga vai ficando maior quanto mais nos aproximamos
a mango / mango goes turning bigger as more SELF approach-1PPL
do Nordeste.
of-the Northeast
‘Mangoes keep getting bigger as we approach the Northeast’
- (8) *Um homem/ *Homem chegou na Lua em 1960.²
a man / man arrived in-the Moon in 1960
‘Men set foot on the Moon in 1960’

Generically quantified sentences are sentences in which the generic interpretation is achieved through the binding of the variables to be generalized over by the generic quantifier (see Krifka *et al.* 1995 and Heim 1982). As originally proposed by Kamp 1981 and Heim 1982, the variables are introduced in the logical form by indefinite nominals – in our case, IS and BN subjects. The logical forms of generically quantified sentences are tripartite structures where the generic quantifier (GEN) binds the variables to be generalized over in the restrictor and in the nuclear scope as in (9). According to this analysis, IS and BP generic sentences are sentences under the scope of a covert generic quantifier, as in (10).

² The asterisk refers only to the generic readings. In this example, the IS has a very natural existential reading.

(9) **GEN** [x,s] (**Restriction** [x,s] \wedge **C** [x,s]; **Nuclear Scope** [x,s])³

- (10) a. A jaguar runs/Jaguars run fast.
 b. **GEN** [x,s] (**jaguar** [x] \wedge **C**[s,x]; **run-fast** [x,s])

Paraphrase: If x is a jaguar/if x are jaguars and s is a normal running situation that contains x, x runs fast in s.

Note that the logical forms in (9) and (10b) do not elicit the semantics of GEN, and that they ascribe the same interpretation to both IS and BP subject generic sentences. The semantics of GEN will be discussed in the next section, and the differences between the two types of sentences will be discussed in sections 4 and 5.

3. The semantics of GEN

Krifka *et al* 1995, inspired by Kratzer 1981, claim that GEN should be interpreted as a modal quantifier. Sentences under the scope of the generic quantifier behave very much like modal sentences: (i) they tolerate exceptions; (ii) they express non-accidental generalizations; (iii) they can be paraphrased by counterfactual sentences; and (iv) they express a variety of generalizations (see Krifka *et al* 1995 and Greenberg 2002, among others).

The IS generic sentence in (11) is not synonymous with the universally quantified sentence in (12) – it does not become false if we find some dogs that are not good companions. Like most generic sentences, it tolerates exceptions. A more accurate paraphrase of (11) is (13). IS generic sentences demand that we take only normal situations into account, and that we set the exceptions aside. They are equivalent to counterfactual sentences. The truth conditions of counterfactual sentences are given in terms of possible worlds, as illustrated by (14) (see Heim 1982 and Lewis 1973).

- (11) Um cachorro é um bom companheiro.
 a dog is a good companion
 ‘A dog is a good companion’
- (12) All dogs are good companions.
- (13) Usually dogs are good companions.
- (14) If we take into account only the most normal or typical situations and/or worlds, in these situations and/or worlds, every dog is a good companion.

Let us now compare the universally quantified sentence in (15) to the BN sentence in (16). Sentence (15) describes a peculiar fact about the state of Bahia. Sentence (16), on the other hand, describes a general pattern concerning teachers in Bahia. If due to a rare coincidence the situation described by (15) turned out to be true, the sentence in (16) would remain false. This would be so because generically quantified

³ C[x,s] means something like “s contains x and s is an appropriate situation for the event described by the Nuclear Scope to occur in”. See Krifka *et al* 1995 and Chierchia 1995 for details about the formalism.

sentences express non-accidental generalizations. They state that the generalizations they express are also valid in other hypothetical situations. Note that sentence (16) can also be paraphrased by the counterfactual sentence in (17).

Modal sentences ask us to take into account other situations and/or possible worlds when we evaluate their truth or falsity. They do not speak only of things as they are, but make us think of ideal situations where things are as they ‘should be’, as they ‘usually are’, as we ‘wished they were’, and so on.

(15) Todas as professoras primárias têm olho azul na Bahia.
All the teachers elementary-school have eye blue in-the Bahia.
‘All elementary school teachers have blue eyes in Bahia’

(16) Professora primária tem olho azul na Bahia.
Teacher elementary-school has blue eye in-the Bahia
‘Elementary school teachers have blue eyes in Bahia’

(17) Typically, if this were a high school teacher in Bahia, he would have blue eyes.

Besides being modal, GEN is also universal because it quantifies over all individuals or situations under its scope (exceptions aside) as illustrated by the paraphrases of (18) and (19).

(18) A dog is a good companion.
Paraphrase: ‘Usually, all dogs are good companions’

(19) Elementary school teachers have blue eyes in Bahia.
Paraphrase: ‘Typically, all elementary school teachers have blue eyes in Bahia’

Kratzer 1981 develops a theory that accounts for the interpretation of modal sentences in natural languages. She shows that the semantics of modal sentences in natural languages involves three parameters: a modal force, a modal base and an ordering source. The *modal force* determines whether the sentence expresses universal or existential quantification over worlds. It is expressed by the necessity and the possibility operators of modal logic. The necessity operator (N) quantifies over every possible world, so that a sentence under its scope is claimed to be true in all worlds, as illustrated by (20). The possibility operator (P) claims that there is at least one world in which the sentence under its scope is true, as in (21).

(20) N (an even number is divisible by 2)
Paraphrase: ‘In all worlds, every even number is divisible by 2’

(21) P (Jorge is happy)
Paraphrase: ‘There is at least one world in which Jorge is happy’

The expression of modality in natural languages is much more subtle, though. Sentences like (22) and (23), for example, do not express a logical truth or a logical possibility. Their interpretations are dependent on context, as their paraphrases show. A context may be characterized as a set of propositions. Modal sentences of natural

languages are evaluated against the set of propositions which constitute their *modal base*. Since every proposition may be defined as the set of worlds in which it is true, the modal base is a set of sets of worlds. It determines the worlds over which the modal operator quantifies.

(22) It is necessary that Jorge leaves.

Possible paraphrase: ‘In view of the relevant circumstances, it is necessary that Jorge leaves.’

(23) It is possible that Jorge leaves.

Possible paraphrase: ‘In view of the circumstances, it is possible that Jorge leaves.’

Finally, the *ordering source* ranks the worlds of the modal base according to some world chosen as standard. Imagine that (22) expresses a command. In that case, besides evaluating the truth of the sentence relative to worlds in which the relevant circumstances are true – worlds in which Jorge entered a church without a shirt, for instance – we have to rank these worlds relative to a standard world where rules are always followed. A closer paraphrase to the meaning of (22), according to this analysis, is (24) or, in more formal terms, (25).

(24) Considering the relevant facts and taking into account the usual norms of good social behavior, it is necessary that Jorge leaves.

(25) In all worlds in which the relevant circumstances obtain, and that are worlds in which the norms are respected, Jorge leaves.

Kratzer’s theory of modals is used by Heim 1982, Krifka 1987, and Krifka *et al* 1995 to describe the semantics of GEN. The *modal force* of GEN is always universal quantification over the relevant worlds. The *modal base* of generic sentences is always *circumstantial*. They are evaluated relative to some contextually determined circumstances. The ordering source will be contextually determined.

The interpretation of generic sentences will then call for different modal bases and ordering sources. Sentence (26), for example, calls for evaluation in worlds that are compatible with Brazilian customs, and ranks these worlds in order to pick out the most stereotypical ones. Sentence (27), on the other hand, speaks of worlds that behave according to what we know about animals and ranks them relative to their ‘normality’.

(26) Um brasileiro come feijoada às quartas.
a Brazilian eats *feijoada* on-the Wednesdays
‘A Brazilian eats *feijoada* on Wednesdays’

Paraphrase: ‘In view of Brazilian customs, and taking into account worlds where Brazilians behave typically, a Brazilian eats *feijoada* on Wednesdays.’

(27) Onça é carnívora.
Jaguar is carnivorous
‘Jaguars are carnivorous’

Paraphrase: ‘In view of what is known, and taking into account only ‘normal’ situations, jaguars are carnivorous.’

The use of ordering sources accounts for the tolerance of exceptions of generically quantified sentences. GEN quantifies over worlds similar enough to a contextually chosen standard. Sentence (27), for example, generalizes over ‘normal’ worlds, worlds in which jaguars have the normal properties of the adult jaguars of our world. We are led to set aside exceptional worlds, worlds where, for instance, jaguars are only fed carrots and milk. The interpretation of GEN according to this view is illustrated in (28b) and (28c) and (29b) and (29c).

- (28) a. An even number is divisible by 2.
 b. **GEN** [x] (**even number** [x]; **divisible by 2** [x])
 c. $\forall w'$ (w' is appropriately accessible from w) $\forall x$ ((even-number [x,w']) (divisible-by-2 [x,w']))

Paraphrase: ‘In all worlds w' appropriately accessible from w , every even number is divisible by 2.’

Modal force: necessity (\forall)

Modal base: circumstantial (‘in view of mathematical laws’)

Ordering source: not needed if one assumes that mathematical laws are universal

- (29) a. Jaguars are carnivorous
 b. **GEN** [x] (**jaguar** [x]; **carnivorous** [x])
 c. $\forall w'$ (w' is appropriately accessible from w) $\forall x$ ((jaguar [x,w']) (carnivorous [x,w']))

Paraphrase: ‘In all worlds w' appropriately accessible from w , every (non-exceptional) jaguar is carnivorous.’

Modal force: necessity (\forall)

Modal base: circumstantial (‘in view of what we know about animals...’)

Ordering source: worlds are ranked relative to a ‘normal’ world

We have seen that the interpretation of GEN as a modal universal quantifier accounts for many of the properties of IS and BP generic sentences – their tolerance of exceptions, the law-likeness of their generalizations, and their similarity to counterfactuals. IS and BP generic sentences, however, as we will see in the next section, are subject to different types of contextual restrictions.

4. Differences between IS and BN generic sentences

Differences and similarities between IS and BP English generic sentences have been described in the literature for some time (Burton-Roberts 1997, Declerk 1991, Lawler 1973 and, more recently, Greenberg 2002). Just like IS and BP English generic sentences, both IS and BN generic sentences in BPg: (i) express non-accidental generalizations; (ii) may express laws; and (iii) tolerate exceptions.

Imagine there are only three lions left in the world and that because of a madman's attack all of them have had one of their legs cut off. Even in such an extreme case as this one, both (30a) and (30b) would count as false, for the generalization is entirely accidental. The sentences in (31) clearly express a mathematical law and illustrate the ability of IS and BN generic sentences to express laws in BPg. The tolerance of exceptions of IS and BN generic sentences in BPg is illustrated by (32a, b) which are true in spite of their obvious exceptions.

- (30) a. Um leão tem três pernas.
 a lion has three legs
 'A lion has three legs'
- b. Leão tem três pernas.
 Lion has three legs
 'Lions have three legs'
- (31) a. Um número par é divisível por 2.
 a number even is divisible by 2
 'An even number is divisible by 2'
- b. Número par é divisível por 2.
 Number even is divisible by 2
 'Even numbers are divisible by 2'
- (32) a. Um cachorro é um bom companheiro.
 a dog is a good companion
 'A dog is a good companion'
- b. Cachorro é bom companheiro.
 dog is good companion
 'Dogs are good companions'

And now for the differences: First, both IS and BN subjects may be interpreted generically in sentences with episodic predicates. Nevertheless, they have different restrictions. Note that (33a), when uttered out of the blue, calls for a specific interpretation of its subject – “A certain Brazilian eats *feijoada* today”. The BN subject of (33b), on the other hand, is always generic – “Every Brazilian eats *feijoada* today”.

- (33) a. Um brasileiro come feijoada hoje.
 a Brazilian eats *feijoada* today
 'A Brazilian eats *feijoada* today'
- b. Brasileiro come feijoada hoje.
 Brazilian eats *feijoada* today
 'Brazilians eat *feijoada* today'

The same pattern does not hold for the pair of sentences in (34) – they both have a salient generic reading. Intuitively, the difference between the two pairs of sentences is that we know that there is a property, e.g., that people are not supposed to work on important religious holidays, that supports the generalization stated by (34). The same is not true for (33).

- (34) a. Um judeu não trabalha hoje (said on Yom Kippur day).
 a Jew not works today
 ‘A Jew does not work today’
- b. Judeu não trabalha hoje (said on Yom Kippur day).
 Jew not works today
 ‘Jews do not work today’

I will now depict two scenarios in order to clear up this point: an ‘inductive scenario’ and a ‘predictive’ scenario (see Greenberg 2002, chap. III). We will see that IS sentences fit predictive scenarios, whereas BN sentences fit both types of scenarios.

Inductive Scenario: It’s Wednesday and we are taking one of our visitors for lunch for the first time. We check the menu of many restaurants and our visitor notices that the main dish is always *feijoada*. She should say (35b), not (35a).

- (35) a. #Um brasileiro come feijoada hoje.
 a Brazilian eats *feijoada* today
 ‘A Brazilian eats *feijoada* today’
- b. Brasileiro come feijoada hoje.
 Brazilian eats *feijoada* today
 ‘Brazilians eat *feijoada* today’

Predictional Scenario: It’s Wednesday and we are taking one of our visitors for lunch. Since she knows the Brazilian tradition of eating *feijoada* on Wednesday, she may utter either (36a) or (b).

- (36) a. Um brasileiro come feijoada hoje.
 a Brazilian eats *feijoada* today
 ‘A Brazilian eats *feijoada* today’
- b. Brasileiro come feijoada hoje.
 Brazilian eats *feijoada* today
 ‘Brazilians eat *feijoada* today’

Second, IS sentences have a flavor that has been described as analytic or normative, whereas BN sentences have a descriptive or inductive flavor. Note the naturalness of the generic interpretation of both sentences in (37). In this case, we know that ‘having four strophes’ is an essential, defining property of ‘being a sonnet’. On the other hand, in (38a), ‘being popular’ is not an analytical or essential property of ‘being a romantic song’, and the sentence does not have a salient generic reading.

- (37) a. Um soneto tem quatro estrofes.
 a sonnet has four strophes
 ‘A sonnet has four strophes’
- b. Soneto tem quatro estrofes.
 sonnet has four strophes
 ‘Sonnets have four strophes’
- (38) a. #Uma canção romântica é popular.⁴
 a song romantic is popular
 ‘A romantic song is popular’
- b. Canção romântica é popular.
 song romantic is popular
 ‘Love songs are popular’

Third, IS subjects that express extremely unusual classes tend to be interpreted existentially, whereas similar BN subjects are interpreted generically. Compare the pair of sentences in (39) to the pair of sentences in (40). In (39a), the class denoted by ‘Brazilian musician born on the 4th of July in Piauí’ is very uncommon and the specific reading of the subject is very salient. In (40a), on the other hand, the class of actors is quite natural to us and, in this case, the generic interpretation is also salient. Note also that the generic interpretation is the only possible one for the BN-sentences in (39b) and (40b).⁵

- (39) a. Um músico brasileiro nascido em 4 de julho no Piauí
 a musician Brazilian born in 4 of July in-the Piauí
 escreve canções sofisticadas.
 writes songs sophisticated
 ‘A Brazilian musician born on the fourth of July in Piauí writes very sophisticated songs’
- b. Músico brasileiro nascido em 4 de julho no Piauí escreve
 musician Brazilian born in 4 of July in-the Piauí writes
 canções sofisticadas.
 songs sophisticated
 ‘Brazilian musicians born on the fourth of July in Piauí write very sophisticated songs’

⁴ ‘#’ marks that the generic reading is odd.

⁵ My claims hold for colloquial spoken BPg. BN subject sentences with a specific interpretation occur frequently in headlines. They do not occur, however, either in the spoken language or in other forms of written language.

- (40) a. Um ator famoso ganha muito dinheiro.
 an actor famous earns much money
 ‘A famous actor makes a lot of money’
- b. Ator famoso ganha muito dinheiro
 actor famous earns much money
 ‘Famous actors make a lot of money’

Summarizing, we may say that, in spite of their similarities, IS and BN generic sentences differ systematically. IS generic sentences only express generalizations that are backed up by some culturally shared information, whereas BN generic sentences are generalizations *per se* - they do not imply/presuppose any supporting information. In the next section, I present Greenberg’s 2002 account of the similarities and differences in the semantics of IS and BP subject generic sentences of English.

5. Greenberg's 2002 account

For Greenberg 2002, both IS and BP English generic sentences are instances of generic quantification. As we have seen above, in these cases, genericity is an effect of the GEN quantifier binding the variables over which the generalization is stated. Greenberg adopts Krifka *et al*’s 1995 proposal that GEN is a modal quantifier, and locates the differences between the two types of sentences in the kind of modality each one is capable of expressing. According to the author, IS sentences and BP sentences differ in the kind of modality they involve, i.e., they characterize different sets of accessible worlds relative to which they are evaluated (tolerance of exceptions aside).

IS generic sentences only express ‘in virtue of’ generalizations. “This means that an integral part of the meaning of these sentences is having in mind some appropriately chosen property or aspect of our world, in virtue of which the generalization they express is true” (Greenberg 2002:64). Thus, the meaning of the English sentence (41a), is paraphrasable by (41b). The logical form in (42) expresses the truth conditions of sentence (41a).

- (41) a. A Brazilian is easy-going.
 b. ‘In virtue of a certain property associated with being a Brazilian (e.g. being influenced by the country’s mild climate) every Brazilian is easy-going.’
- (42) $\forall w' (\forall x (\wedge \text{Brazilian } [x,w']) (\wedge \text{being influenced by Brazil’s mild climate } [x,w']))$
 $(\forall x (\text{Brazilian } [x,w']) (\text{is-easy-going } [x,w']))$

Paraphrase: ‘In all worlds where every Brazilian has the property of being influenced by the country’s mild weather, every Brazilian is easy-going.’

As for bare plural subject sentences, Greenberg 2002 claims that they may express both ‘in virtue of’ and descriptive generalizations. When expressing a descriptive generalization, BP sentences only claim that the generalization is not accidental, that there is a pattern to the phenomena. There is no demand that the generalization be in virtue of some shared property. Its modal base is made of worlds similar to ours in a rather vague way. An English sentence like (43a) thus, when interpreted as a descriptive

generalization, is closely paraphrased by (43b). The logical form in (44) expresses the truth conditions of the BP sentence (43a), according to Greenberg.

- (43) a. Brazilians are easy-going.
 b. ‘The generalization “every Brazilian is easy-going” is not accidental - i.e. not limited to the actual set of circumstances - but is expected to hold in other circumstances.’

(44) $\forall w' (\text{Max } [w', w]) \forall x ((\text{Brazilian } [x, w']) (\text{easy-going } [x, w'])),$ where:

Max (w', w) holds iff w' is maximally similar to w except for what is needed to allow for the existence of more, less, or totally different Brazilians (Lewis 1986).

Paraphrase: *Brazilians are easy-going* is true in w iff in all worlds maximally similar to w , every Brazilian is easy-going.’

Greenberg’s theory explains the more restricted behavior of IS sentences because these sentences are said to be true of worlds in which the IS subject has a certain property. The accessible worlds are thus drastically restricted. The fact that IS sentences are not felicitous with subjects that express extremely uncommon classes is thus explained: we cannot find accessible worlds in which the sentence can be evaluated – we cannot find a property that is systematically associated with the subject property.

The reason why IS sentences have a law-like flavor is that for an IS sentence to be felicitous, it is necessary that there be a property systematically associated with its subject, and that the knowledge about this property be culturally shared. This very characteristic explains the preference of IS subjects for a specific interpretation in contexts in which there is no salient property that can be associated to the IS subject.

BP sentences, on the other hand, can express more descriptive generalizations and do not demand that the generalizations be due to some more basic or essential property of their subjects. Therefore the worlds in which they are evaluated are worlds that are similar to ours in a more general and vague way. That is why their occurrence is much less restricted.

In section 3, we saw that the similarities and differences between IS and BN sentences in BPg are the same as the ones found for IS- and BP-sentences in English. The characterization of these sentences as ‘in virtue of’ generalizations and descriptive generalizations apply to BPg. I will then follow Greenberg 2002 in attributing them to the different types of modalities expressed by each of these kinds of sentences.

The question that remains to be answered is how to derive the differences between the worlds accessed by IS and BN generic sentences from the different semantics of indefinite descriptions and bare nominals in BPg.

6. Deriving the differences between IS and BN sentences in BPg

In this section, I claim that the differences between the kinds of modalities expressed by IS and BN generic sentences in BPg should be attributed to the different denotations of singular indefinite descriptions and of bare numberless nominals in the language.

How does Greenberg 2002 explain the difference in availability of accessibility relations according to the different semantics of IS and BP generic sentences? According to her, IS subjects are indefinites, whereas BP subjects are kind-referring expressions. When BP sentences participate in generically quantified sentences, therefore, some kind of realization relation makes instances of the kind available for quantification (Chierchia 1998, Krifka *et al* 1995, von Stechow 1994, Delfitto 1996).

Greenberg points out that the restriction of GEN in IS generic sentences contains a property expression, and that properties systematically relate to other properties. This way, the similarity of the accessible worlds to the actual one in IS generic sentences is automatically characterized in terms of properties provided by our real world knowledge. Consequently, only the ‘in virtue of’ accessibility relation is available.

BP generic sentences, on the other hand, have kind expressions in their restrictions. Kinds come with no systematic relation to other properties since they are entities, not properties. The effect is that the characterization of the accessible worlds of BP sentences is defined in a default, vague way (maximal similarity), and both the ‘descriptive’ and the ‘in virtue of’ accessibility relations are available.

Greenberg’s 2002 explanation cannot be applied to BPg since IS and BN subjects are both predicates in the language. This means that the different semantics of the two sentences cannot be attributed to the kind-referring versus generic quantification distinction. So the question remains of what it is about the denotations of IS and BN subjects that makes them favor the expression of different types of modalities.

In Müller 2001, 2002, I claim that both common nouns and bare numberless nominals in BPg have denotations that are mass in the sense that they cannot be counted. Common nouns and BNs in BPg have number-neutral denotations - they denote both atoms and pluralities. One piece of evidence for their being number-neutral comes from the fact that these nominals behave as if they have a non-discrete denotation. A sentence like (45) means that Jorge reads an indefinite number of magazines after dinner. He may read one or more magazines; actually, Jorge does not even need to read a whole magazine.

- (45) Jorge sempre lê revista depois do jantar.
 Jorge always reads magazine after of-the dinner
 ‘Jorge always reads magazines after dinner’

Unlike languages with a clear distinction between count and mass nouns, where bare singular NPs have a very restricted distribution, Bare Numberless Nominals in BPg are extremely frequent and broadly used. BPg bare numberless nominals, even when denoting ontologically discrete entities, occur in typical mass contexts such as with the mass quantifier ‘muito’ (46); with the word *suficiente* (‘enough’), which can only be used with mass terms (47): and with mass ‘classifiers’ (48) (see Bunt 1985).

- (46) Tem muita mala no carro.
 Has much suitcase in-the car
 ‘There are many suitcases in the car’
- (47) Eu já escrevi carta suficiente hoje.
 I already wrote letter enough today
 ‘I’ve written enough letters for today’

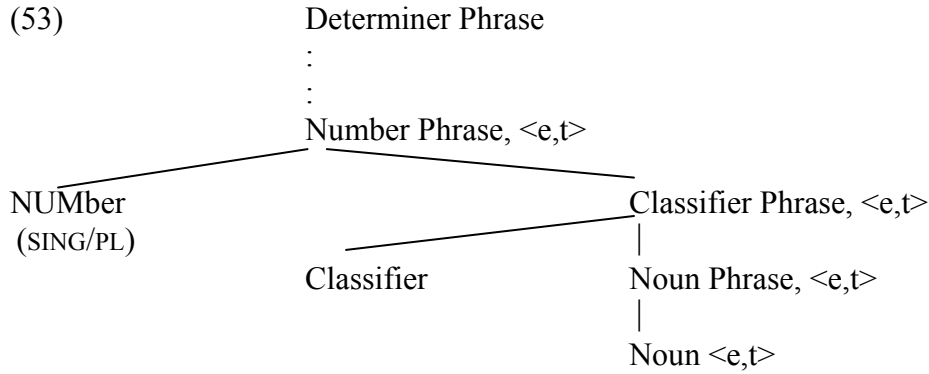
- (48) Jorge queimou 10 quilos de jornal hoje.
 Jorge burned 10 kilos of newspaper today
 ‘Jorge burned 10 kilos of newspapers today’

Bare Numberless nominals can occur with collective predicates (49), unlike singular indefinite descriptions (50). They are also unable to provide a domain for distributive quantifiers such as *cada* in BPg (51), as opposed to indefinite descriptions (52).

- (49) Urso se reúne em caverna.
 bear self meets in cave
 ‘Bears meet in caves’
- (50) *Um urso se reúne em caverna.
 a bear self meets in cave
 ‘A bear meets in caverns’
- (51) *Cada aluno leu livro.
 Each student read book
 ‘Each student read books’
- (52) Cada aluno leu um livro.
 Each student read a book
 ‘Each student read a book’

In Müller 2001 and 2002, I claim that BPg has a NUMBER operator and a CLASSIFIER operator that act on the number-neutral denotation of Noun Phrases (NP). The structure in (53) is meant to represent the scope relations of these operators inside the Determiner Phrase (DP) in BPg. The operator CL is a sortal operator – it turns mass into individuals. When covert, it is a default classifier that turns mass into entity – an ‘entitizer’.

The NUMBER operator, when SINGULAR, selects the atomic entities of an already classified NP denotation. The PLURAL operator selects the non-atomic entities of the denotation of a NP. An IS-phrase always ends up with an atomic denotation - at the point where the indefinite article is adjoined to the structure both CL and NUM have applied. On the other hand, a BN-phrase has a number-neutral denotation – neither the CL nor the NUM operation has applied.



Let us now tackle the question of how the differences between the denotations of IS- and BN-Phrases lead to their favoring this or that kind of modality.

In BPg, generalizations made by IS sentences are stated over atomic individuals, whereas generalizations of BN sentences are founded on a number-neutral domain, where the substance is not yet classified or counted. Generalizations based on atomic entities have to be very robust, since the patterns concerning these entities are based on properties of each of the atomic individuals in the domain. If all atomic individuals of a domain have a certain property, and this domain embraces various worlds, this property is, in some way, ‘essential’. A richer domain, on the other hand, like the one of bare numberless nouns (BNs), allows for a broader number of patterns to emerge – many other patterns that do not rely necessarily on individual properties may emerge. In this sense, the denotation of BNs, being pre-sortal, does not depend on ‘laws’ or on ‘essential’ properties of each of its members.

7. Concluding remarks

Based on my previous work on BPg (Müller 2001, 2002), this paper builds on the analysis of both IS and BN generic sentences as instances of generic quantification sentences. As suggested by Greenberg 2002 for English IS and BP sentences, IS generic sentences in BPg are claimed to express ‘in virtue of’ generalizations; whereas BN generic sentences in BPg are claimed to express both ‘in virtue of’ and descriptive generalizations. The differences between the two types of sentences are attributed to the fact that they express different kinds of modalities, that is, they are evaluated in different sets of possible worlds. Finally, the paper claims that the difference between the worlds accessed by IS and BN generic sentences is a result of the generic quantifier having scope over different types of entities: atomic entities in the case of IS subjects, and number-neutral entities in the case of BN subjects - the different denotations allow for more or less restricted patterns to emerge.

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