Interpretation of NPs in generic and existential contexts in L3 Brazilian Portuguese

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This paper examines the interpretation of NPs in generic and existential contexts in the acquisition of Brazilian Portuguese (BrP) as a third language (L3) by learners who speak English and a Romance language (Spanish, French or Italian). The paper examines whether transfer / cross-linguistic influence is from English, Spanish/French/Italian, or both, and whether it matters which language is the learners' first language (L1) vs. their second language (L2). An Acceptability Judgment Task of NP interpretation in BrP is administered to L1-English L2-Spanish/French/Italian and L1-Spanish L2-English learners of BrP as an L3, as well as to a control group of native speakers of BrP. The findings point to a nuanced picture of transfer in L3 acquisition, in which both languages can serve as the source of transfer, but transfer from a previously learned Romance language is more pronounced than transfer from English, both for L1-English L2-Romance and L1-Spanish L2-English L3-learners of BrP.

Keywords: third language acquisition, Brazilian Portuguese, genericity, bare NPs, existential readings

1. Introduction

In this paper, we consider the interpretation of definite, indefinite, and bare (article-less) NPs in the acquisition of Brazilian Portuguese (BrP) as a third language (L3) by learners who speak English as well as Spanish or another Romance language (Italian or French). L3 acquisition is a growing field, and there has been much interest in the relative contributions of the learners' first language (L1) and second language (L2) to L3 acquisition. Most work in L3 acquisition (reviewed in the next section) has focused on morphosyntax, but our focus is on the semantics of NPs with and without articles. We pose the basic research question of *What are the sources of transfer in the domain of NP interpretation in L3 acquisition of Brazilian*

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Portuguese? In particular, we examine whether transfer or cross-linguistic influence is from English, from Spanish/French/Italian, or both, and whether it matters which language is the learners' L1 vs. their L2. In order to answer this research question, we conducted an experimental study with L1-English L2-Romance and L1-Spanish L2-English learners of BrP as an L3.[1] The findings point to a nuanced picture of transfer in L3 acquisition, in which both languages can serve as the source of transfer, with transfer from Romance being more pronounced than transfer from English, regardless of which language is the L1 vs. the L2.

2. Background

2.1 Transfer in third language acquisition

In recent years, linguists have begun to distinguish between the acquisition of an L2 and the acquisition of additional languages beyond the L2, also referred to as multilingualism or L3 acquisition. One aspect that differentiates L2 and L3 acquisition is language transfer. This is because L3 learners have access to two or more linguistic systems that could potentially influence the development of the L3 Interlanguage (García Mayo & Rothman, 2012). Language transfer has been investigated in many different bilingual situations, such as the L2 influencing the L1 (e.g. Cook, 2003; Montrul, 2010; Pavlenko, 2000), as well as the L1 influencing the L2 (e.g. Montrul, 2000; Oh, 2010; Slabakova, 2006, to mention just a few). However, in the case of bilinguals, there is only one potential source of transfer, and this cannot provide much information about multilingualism, in which there are two or more potential sources of transfer. This is why L3 acquisition presents the ideal conditions to examine the factors that determine language transfer.

Thus far, research on cross-linguistic influence in multilinguals has presented different and somewhat conflicting findings. Some studies on a variety of morphosyntactic aspects found that transfer comes preferably from the L1 (Hermas, 2010; Jin, 2009; Lozano, 2002; Na Ranong & Leung, 2009), whereas others found that transfer comes mainly from the L2 (Bardel & Falk, 2007; Falk & Bardel, 2011; Jaensch, 2011; Rothman & Cabrelli Amaro, 2010). A most prominent role for the L2 or the most recent acquired language is precisely what the L2 Status Factor

1. The original intent of this study was to test L1-English L2-Spanish and L1-Spanish L2-English learners of BrP. However, given the difficulties of recruiting enough learners with the right language profile, we expanded the L1-English L2-Spanish group to include learners whose L2 was French or Italian rather than Spanish, given that these three Romance languages behave the same with regard to the linguistic phenomenon under consideration (see Section 2.2). We henceforth use the term "Romance" as shorthand for Spanish/French/Italian.

hypothesis proposes (Bardel & Falk, 2007; Falk & Bardel, 2010). According to this model, the L2 acts as a filter and blocks access to the L1 grammatical features due to similarities between L2 and L3 acquisition.

Moving away from a position in which order of acquisition is taken as the main factor determining cross-linguistic influence, there is evidence that transfer can come from either the L1 or the L2 (Flynn, 2009; Flynn, Vinnitskaya, & Foley, 2004; Foote, 2009; Rothman, 2010, 2011; Montrul, Dias, & Santos, 2011, among others). Two different hypotheses have been formulated to account for language transfer that is not determined by order of acquisition. The Cumulative-Enhancement Model (Flynn et al., 2004) predicts that transfer can come from any of the previously acquired languages and will always have a positive effect or remain neutral. The Typological Primacy Model (TPM, Rothman, 2011, 2015) also maintains that both the L1 and the L2 are potential sources of transfer into the L3. However, according to the TPM, transfer at the initial stages of L3 acquisition is constrained by typological proximity, and once the internal parser assesses which language is typologically closer to the L3, the elected linguistic system will transfer entirely in the sense of the Full Transfer / Full Access Hypothesis for L2 acquisition (Schwartz & Sprouse, 1996). Therefore, the typologically closer system will be the one from which hypotheses about properties of the L3 grammar are made. Lastly, some scholars have shown that learners' perception of language proximity — what Kellerman (1983) called psychotypology — and not exclusively objective language proximity, is an influential factor on processes of cross-linguistic influence in L3 acquisition (e.g. Cenoz, 2001; De Angelis & Selinker, 2001; Singleton & O' Laoire, 2006). Nevertheless, the relationship between perceived language proximity and cross-linguistic influence has been empirically tested only more recently (Santos, 2013).

Linguistic proximity has been found to be an influential factor in determining the source of cross-linguistic influence of morphosyntactic and semantic properties in different studies within the acquisition of Romance languages (e.g. Carvalho & Silva, 2006; Foote, 2009; Montrul, Prince, & Thomé-Williams, 2009; Montrul et al., 2011; Rothman, 2010, 2011; Salaberry, 2005; Santos, 2013). These studies find that learners tend to transfer more from the language that is (perceived as being) closer to the language they are learning, regardless of whether it is the L1 or the L2. There is variation among studies, and even among different formulations of the TPM, in whether the focus is on proximity in a perceived (conscious) sense (e.g., Rothman, 2011), vs. on the importance of subconscious parsing of linguistic similarities (e.g., Rothman, 2013). Most studies have not used test instruments to address the role of linguistic proximity directly; one exception is Santos (2013), discussed in more detail below, which used a language distance questionnaire to address the role of perceived (conscious) linguistic proximity.

Many of the studies mentioned above analyzed the acquisition of BrP by L3 learners who already know English and Spanish. Montrul et al. (2011) looked at the acquisition of object expression in BrP by L1-English/L2-Spanish speakers and L1-Spanish/L2-English speakers. In a story-telling task, they found that both L1-English and L1-Spanish speakers made errors in BrP that could be traced back to Spanish (e.g., production of differential object marking, clitic climbing and clitic doubling). However, the L1-English group also produced significantly stronger pronouns in object position than the L1-Spanish speakers and the BrP native speakers, which could be attributed to transfer from English. Santos (2013) tested L3-BrP learners' knowledge of properties of the dative alternation in BrP and whether L3-BrP learners transferred from either Spanish or English in two judgment tasks and an oral production task. Although the L3-BrP learners transferred mainly from Spanish, transfer from English was attested in the L1-English group and among the L1-Spanish speakers who were highly proficient in English. Santos (2013) also administered a language distance questionnaire to her participants, and found that learners in both groups (L1-Spanish L2-English and L1-English L2-Spanish) rated BrP as more similar to Spanish than to English on nearly all measures. This suggests that perceived (conscious) linguistic proximity plays a crucial role at determining the source of cross-linguistic influence; however, the findings summarized above also show that transfer does not seem to be selective and can come from any previously acquired language, including languages that are not so closely related to the target language. In the present study, we examine the source of linguistic transfer in the L3 acquisition of a semantic phenomenon (NP interpretation) in BrP by learners who speak a Romance language and English as their L1/L2.

2.2 NP interpretation

2.2.1 *NP interpretation in English and Spanish/French/Italian*

In languages that have articles, bare (article-less) NPs can in principle have two types of interpretations: existential (exemplified in (1a–b)) and generic (in (1c–e)). When an NP has an existential interpretation, the sentence asserts the existence of the relevant individuals: e.g., (1a) asserts that there exist multiple cats that jumped out from behind the bushes, while (1b) asserts the existence of cats that I saw in the garden.

When an NP has a generic interpretation, the sentence makes a statement about the relevant kind: e.g., (1c) states that cats *in general, as a kind* like milk; it does not assert the existence of any specific individual cats that like milk. Similarly, (1d) is a statement about the attitude to cats *in general* in ancient Egypt, and (1e) asserts that my niece likes cats *in general, as a kind*, rather than that she likes specific cats. There are different ways of establishing the generic interpretation of bare

NPs (see Krifka et al., 1995 for an overview). For the purposes of this paper, we are concerned only with the sentence type in (1c), which makes a generic statement about the (typical) properties of a kind, and which contains the target NP in preverbal subject position. While bare plurals in English have generic readings, definite plurals do not: a sentence such as (1f), with a definite plural, makes a statement about a specific group of cats, and not about cats in general; in this, English contrasts with most Romance languages, as discussed below.

(1) a. Cats jumped out from behind the bushes.
b. I saw cats in the garden.
c. Cats (usually) like milk.
d. Cats were worshipped in ancient Egypt.
e. My niece really likes cats.
f. The cats like milk.

As shown in (1), bare plurals in English can have both existential and generic readings. In contrast, Spanish generally disallows bare plurals: both (2a) (the Spanish equivalent of (1a)) and (2b) (the Spanish equivalent of (1c)) are ungrammatical with bare plural NPs. For a plural NP to have an existential reading, a plural indefinite determiner should be used, as in (2c). The generic reading requires the plural definite determiner, as in (2d): Note that (2d) is ambiguous between a non-generic meaning, on which (2d) is about a specific group of cats, like (1f), and a generic meaning, on which (2d) is about cats in general, like (1c).

At the same time, existential readings of bare plurals are possible in Spanish under certain conditions (see King & Suñer, 1998), including coordination (3a) and modification (3b); bare plurals with existential readings are also possible in object position (3c).

(2) a. *Gatos saltaron de atrás de un arbusto.
cats jumped from behind of a bush
b. *Gatos adoran la leche.
cats adore the milk
c. Unos gatos saltaron de atrás de un arbusto.
some cats jumped from behind of a bush
"Some cats jumped from behind a bush."
d. Los gatos adoran la leche.
the cats adore the milk
"Cats love milk."

(3) a. Gatos y sapos saltaron de atrás de un arbusto.
cats and toads jumped from behind of a bush
"Cats and toads jumped from behind a bush."

b. Gatos salvajes saltaron de atrás de un arbusto.
cats wild jumped from behind of a bush
"Wild cats jumped from behind a bush."
c. Vi gatos afuera.
saw-1SG cats outside
"I saw cats outside."

French and Italian behave largely like Spanish with respect to the distribution of plural NPs. As shown in (4) (from Chierchia 1998), unmodified bare plurals are ungrammatical in Italian with both generic (4a) and existential (4b) readings. Generic readings of plural NPs are expressed via the definite article (4c), exactly as in Spanish; while Spanish uses a plural indefinite determiner for existential readings (as shown in (2c) above), Italian uses partitive constructions (4d). French behaves exactly like Italian in the four contexts in (4) (Chierchia 1998).[2]

(4) a. *Cani amano giocare.
dogs love play-Inf
b. *Cani stanno giocando fuori
dogs are playing outside
c. I cani amano giocare.
the dogs love play-Inf
"Dogs love to play."
d. Dei cani stanno giocando fuori.
of-the dogs are playing outside
"Dogs are playing outside."

Finally, note that neither English nor Spanish/French/Italian allows count nouns in the bare singular form, with any interpretation (but see Stvan 2007 on some exceptional cases): **Cat jumped out at me* and **Cat likes milk* are equally ungrammatical, as are the equivalent sentences in Spanish (**Gato me saltó*, **Gato adora la leche*).

According to Chierchia (1998), the difference between English and Spanish/French/Italian is parametric: English allows bare NPs to appear as arguments,

2. There are some differences among these Romance languages: as discussed by Chierchia (1998), among others, Italian and Spanish allow bare plurals in object position (3c) and with modification (3b), while French disallows bare plurals even in those positions. Chierchia explains this by appealing to different licensing conditions for bare arguments in these three languages. However, for the contexts tested in the present paper — unmodified plural NPs in preverbal subject position — the three languages behave the same.

while Spanish requires arguments to have a DP projection.[3] English bare plurals denote kinds: informally, *cats* denotes the kind which consists of all cats in any possible world. Existential and generic operators can quantify over instances of the kind. Informally, (1a) states that there exist members of the cat-kind that jumped out from behind the bushes, while (1c) states that in general, members of the cat-kind like milk.

The reason that English lacks bare singular NPs is that the semantic operation of kind-formation is undefined for singulars: it is not possible for a kind to have a singular instance in every possible world. Singular NPs in English must become DPs in order to function as arguments. If a singular NP combines with a definite determiner (*the cat*), it receives a definite interpretation, and if it combines with an indefinite determiner (*a cat*), it can receive either an existential or a generic interpretation, as in (5a–b). Singular indefinites can be quantified over by either the existential operator, so that (5a) states that there exists at least one cat that jumped out from behind the bushes, or the generic operator, in which case (5b) states that in general, if x is a cat, then x likes milk. Similarly, Spanish indefinites (as well as French and Italian ones) allow both existential and generic interpretations (5c–d).

(5) a. A cat jumped out from behind the bushes.
b. A cat (usually) likes milk.
c. Un gato saltó de atrás de un arbusto.
a cat jumped from behind from a bush
"A cat jumped from behind a bush."
d. Un gato adora la leche.
a cat adores the milk
"A cat loves milk."

According to Chierchia (1998), in Spanish/French/Italian, a bare NP cannot denote a kind and cannot appear in argument position. All arguments are DPs; existential readings are encoded on the indefinite determiners, as in (2c), while generic (kind) readings are encoded on definite determiners, as in (2d). It is possible to have a null D under certain licensing conditions, hence the availability of (3). Possible licensors include a lexical V head, which allows for the licensing of null D in the object DP, as in (3c), and a functional Focus head, with 'heavier' — modified

3. An alternative theoretical proposal, that of Longobardi (2001), assumes that all NPs have a DP layer, and that the difference between English and Spanish/French/Italian is that English has a weak D(eterminer) position (which can be null) while Spanish/French/Italian has a strong D position (which must be filled overtly). For the sake of exposition, we adopt Chierchia's framework in our paper, but nothing in our analysis hinges on this choice, namely on whether a phrase like *cats* in English should be analyzed as an NP with no DP layer (per Chierchia) or a DP with a null D (per Longobardi).

or coordinated — constituents receiving focal stress, as in (3a–b). In preverbal subject position, and in the absence of modification, null D is not licensed, hence the ungrammaticality of the bare plurals in (2a–b).[4]

2.2.2 *NP interpretation in Brazilian Portuguese*

BrP poses a problem for Chierchia's (1998) account, as pointed out by Schmitt and Munn (1999, 2002). With regard to the behavior of bare plurals, BrP is like English, allowing them to freely have both existential readings (6a) and generic readings (6b). At the same time, however, it also allows definite plurals with generic readings, as in (6c), like Spanish does. Like English and Spanish, BrP also allows both existential and generic readings for indefinite singulars (7a–b).

(6) a. Gatos pularam de trás dos arbustos.
cats jumped from behind from-the bushes.
"Cats jumped from behind the bushes".
b. Gatos gostam de leite.
cats like of milk
"Cats like milk."
c. Os gatos gostam de leite.
the cats like of milk
"Cats like milk."

(7) a. Um gato pulou de trás dos arbustos.
a cat jumped from behind from-the bushes
"A cat jumped from behind the bushes".
b. Um gato gosta de leite.
a cat likes of milk
"A cat likes milk."

The behavior of plural NPs in BrP goes against Chierchia's account, which predicts that all languages with articles behave either like English (unrestricted appearance

4. English as well as Romance languages also allow the use of definite singular NPs with generic interpretation; these are more common in formal or encyclopedic contexts, as in *The domestic cat is usually fond of milk*, or *The whale is a mammal*. As discussed by Carlson (1977), Vergnaud and Zubizarreta (1992) and Dayal (2004), among many others, definite singular generic terms are subject to restrictions that are not present for other types of generic NPs cross-linguistically. We follow the proposal of Dayal (2004) on which definite singular generics are derived by combining the regular definite determiner with a taxonomic NP, a process different from that which derives definite plural generics in Romance languages. Experimental evidence from Ionin, Montrul, & Santos (2011a) shows that definite singular generics exhibit the same behavior in English, Spanish and BrP; they therefore do not present an interesting case for the study of transfer in L3 acquisition, and we do not address them in the present work.

of bare plurals, and no generic readings for definite plurals) or like Spanish (restricted availability of bare plurals, generic readings expressed by definite plurals). On Chierchia's proposal, a bare NP should not have the same interpretation as a DP: the availability of an overt determiner encoding a particular semantic operation should block the covert application of that operation to a bare NP. Thus, the fact that the Spanish definite determiner encodes the generic interpretation means that bare NPs in Spanish are blocked from having generic readings. Yet the availability of generic readings to definite plurals in BrP does not prevent bare plurals from having generic readings as well. (See Dayal 2004 for a proposal on which languages can optionally encode kind readings on the definite determiner, exactly as is the case in BrP.)

Another problem for Chierchia's account is the fact that BrP also has bare singular NPs, which have both existential and generic readings. Bare singulars with existential readings are not very good in preverbal subject position (8a), but are improved in object position (8b) (see Schmitt & Munn, 2002, as well as Müller & Oliveira, 2004). According to Schmitt and Munn (2002), they also improve in preverbal subject position when embedded in a list context, as in (8c). Bare singulars are fine with generic readings, in both subject position (8d) and object position (8e).

(8) a. *Gato pulou de trás dos arbustos.
cat jumped from behind from-the bushes.

b. Eu vi gato atrás dos arbustos.
I saw cat behind from-the bushes
"I saw a cat / cats behind the bushes."

c. ?Gato e cachorro pularam de trás do arbusto.
cat and dog jumped from behind from-the bushes.
"A cat and a dog / cats and dogs jumped from behind the bushes."

d. Gato gosta de leite.
cat likes of milk.
"Cats like milk."

e. Eu gosto de gato.
I like of cat.
"I like cats."

Another property of bare singulars in BrP is that they are numberless: for example, a sentence such as (8b) is compatible with the speaker seeing one cat or multiple cats (see Müller 2002, and Munn and Schmitt, 2001, 2005, among others). Schmitt and Munn (2002) (see also Dobrovie-Sorin & Pires de Oliveira, 2008; Munn & Schmitt, 2005) propose that BrP bare singulars are DPs with a null (unfilled) D position, which can denote kinds; unlike plural NPs or DPs, BrP bare singulars

are argued to lack a Number projection, the projection that hosts the features corresponding to the singular/plural distinction. For our purposes, all that matters is that BrP bare singulars behave much like bare plurals in English as well as in BrP — and unlike bare plurals in Spanish — in that they readily have both generic and existential readings. The only constraint on bare singulars is that they are not very good in preverbal subject position with existential readings unless embedded in a list context, a property that Schmitt and Munn (2002) attribute to information structure. No definitive account on this restriction has been proposed in the literature.

2.2.3 *Summary*

To summarize, English, Spanish/French/Italian and BrP behave quite differently with regard to NP interpretation in existential and generic contexts. In existential contexts, all three languages allow indefinite singulars; English and BrP, but not Spanish/French/Italian, allow bare plurals with no restrictions. Bare singulars are ungrammatical in both English and Spanish; in BrP, they are possible, but with restrictions.

In generic contexts, all three languages once again allow indefinite singulars. English allows bare plurals but not definite plurals while the opposite is the case for Spanish. BrP allows all four options: indefinite singulars, bare plurals, definite plurals, and bare singulars. These facts are summarized in Table 1.

Table 1. Summary of NP interpretation in English, Spanish and BrP

Context	**English**	**Spanish**	**Brazilian Portuguese**
Existential contexts, NP in subject position	✓indefinite singular	✓indefinite singular	✓indefinite singular
	✓bare plural	*bare plural (*except with modification)*	✓bare plural
	*bare singular	*bare singular	*bare singular *(ok in list contexts)*
Generic contexts, NP in subject position	✓indefinite singular	✓indefinite singular	✓indefinite singular
	✓bare plural	*bare plural	✓bare plural
	#definite plural	✓definite plural	✓definite plural
	*bare singular	*bare singular	✓bare singular

✓ grammatical and has the target meaning
grammatical but lacks the target meaning
* ungrammatical

2.3 Articles and genericity in L2- and L3 acquisition

A number of studies have looked at the interpretation of NPs in generic environments in L2 acquisition. Slabakova (2006) examined existential and generic interpretations of bare plurals in the L2-Italian of native English speakers and the L2-English of native Italian speakers; like Spanish, Italian disallows generic readings of bare plurals, but allows existential readings of bare plurals in the presence of modification. Slabakova found that L1-Italian L2-English learners were quite targetlike in allowing the generic reading for bare plurals, while L1-English L2-Italian learners were not very successful at rejecting the generic readings of bare plurals; in other words, learning a new interpretation was easier than unlearning an existing interpretation. Serratrice, Sorace, Filiaci and Baldo (2009) studied how bilingual English/Italian children judged sentences with bare vs. definite plurals that set up a generic vs. specific interpretation. In the Italian version of the study, English/Italian bilinguals were less accurate than monolingual and Spanish/Italian bilingual children, incorrectly accepting bare plurals with generic as well as specific readings; in the English version of the study, all younger groups of children, including English monolinguals, were less accurate than the adult controls. The nature of the task, in which a single adverb, *here* vs. *in general,* was used to indicate the specific vs. generic reading, may have made the task particularly challenging for children.

Transfer effects with genericity have also been attested for studies of Spanish-speaking learners of English and English-speaking learners of Spanish. Ionin and Montrul (2010) found that L1-Spanish L2-English learners incorrectly allowed the generic reading of definite plurals, compared both to monolingual speakers of English, and to L1-Korean L2-English learners (Korean lacks articles, so L1-transfer from Korean, unlike L1-transfer from Spanish, would not lead to an overacceptance of generic readings of definite plurals). Montrul and Ionin (2010) found that Spanish/English bilinguals who grew up in the U.S. and were dominant in English were targetlike in English, allowing only non-generic readings of definite plurals, but non-target in Spanish, allowing generic readings of definite plurals less than Spanish monolinguals.

Ionin, Montrul and Crivos (2013b) studied the interpretation of both bare plurals and definite plurals in generic contexts by L1-Spanish L2-English learners as well as L1-English L2-Spanish learners. They found evidence of L1 transfer at lower proficiency levels in both directions: the L2-English learners incorrectly allowed generic readings of definite plurals, while the L2-Spanish learners were less likely to allow generic readings of definite plurals than native Spanish speakers, and also showed a slight overacceptance of bare plurals with generic readings. While transfer effects were most evident in a Truth Value Judgment Task, the

learners in Ionin et al. (2013b) were more targetlike in an Acceptability Judgment Task: even at lower proficiency levels, learners of English rated bare plurals higher than definite plurals in generic contexts, while the opposite was the case for learners of Spanish. Cuza, Guijarro-Fuentes, Pires and Rothman (2013) similarly found targetlike performance with definite and bare plurals in the Spanish of advanced L1-English L2-Spanish learners. Snape, García Mayo, and Gürel (2013), using a written elicitation task, found that L1-Spanish L2-English learners occasionally incorrectly supplied the definite article with plural NPs in generic contexts, but did so less than L1-Japanese and L1-Turkish L2-English learners. Some transfer effects with the interpretation of definite plurals were also found in Kolb's (2014) study with L1-English L2-French child learners.[5]

To sum up, there is evidence that L1-transfer affects interpretation of plural NPs in generic contexts in L2 acquisition, but that it is also possible for learners to overcome transfer in this domain, and to attain the target mapping between NP form and NP interpretation.

Turning to L3 acquisition, in prior research (Ionin, Grolla, Montrul & Santos, 2013a), we have examined the interpretation of plural NPs in generic contexts in BrP, by learners who speak either English as their L1 and Spanish as their L2, or Spanish as their L1 and English as their L2.[6] We found that, in an Acceptability Judgment Task, both learner groups rated definite plurals higher than bare plurals as well as bare singulars in generic contexts; this suggests transfer from Spanish, regardless of whether it was the learners' L1 or their L2, consistent with other studies of the L3 acquisition of BrP (e.g., Montrul et al., 2011; Santos, 2013). At the same time, we found that learners whose L1 was English rated bare plurals in generic contexts higher than did learners whose L1 was Spanish, suggesting that transfer from English also played a role, but only if it was the learners' L1, not their L2.

5. In addition to the above studies on English/Romance combinations, genericity has also been investigated in German/Romance combination. Standard German behaves like English with regard to plural NP interpretation, but the situation is complicated by the fact that, as noted by Krifka et al. (1995), some dialects of German allow both bare plurals and definite plurals to have generic readings, much as is the case in Brazilian Portuguese. For discussion of both native-speaker performance in German, and transfer effects in German/Romance bilinguals in the domain of plural NP interpretation, see Kupisch and Pierantozzi (2010), Kupisch (2012), Kupisch and Barton (2013), and Kolb (2014).

6. We are aware of only one other study on L3 acquisition of articles, Treichler, Hamann, Schönenberger, Voeykova, and Lauts (2009). However, this study (with L1-Russian L2-German L3-English learners) looked only at non-generic contexts; Treichler et al. found suggestive evidence of L2-transfer from German to English, but the small samples and lack of inferential statistics mean that the results must be treated with caution.

However, our prior study focused on generic contexts and did not examine existential contexts. Thus, it is unclear whether the low ratings of bare plurals and bare singulars indicated that learners specifically disallowed these forms with generic readings, or that they would disallow them in other contexts as well; do the learners assume that BrP is like Spanish, and disallows bare arguments entirely? Or do they in fact allow bare arguments, but restrict generic readings to definite plurals? The second limitation of our prior study was the small size of the sample, with only 14 learners in the L1-English and 10 learners in the L1-Spanish group.

In the present study, we build upon our previous work by comparing the interpretation of different NP types with generic and existential readings, with a larger sample of subjects. We also make a methodological change, presenting the target sentences one at a time, rather than side-by-side (as was done in our previous work), in order to avoid the possibility that learners make an explicit metalinguistic comparison between the different NP types.

3. Experimental study

As discussed above, our current study examined the NP interpretation in the acquisition of BrP as a third language by L1-English L2-Romance speakers and by L1-Spanish L2-English speakers. Specifically, we examine the role of transfer in this configuration, and ask whether learners are influenced by transfer, and if so, whether the transfer comes from the learners' L1, their L2, both languages, or the language which is structurally closer to BrP.

We are therefore in a position to compare the predictions of several different models in L3 acquisition: the L2 Status Factor hypothesis (Bardel & Falk 2007, Falk & Bardel 2010), which assigns a privileged role to the L2 with regard to transfer, the Cumulative-Enhancement Model (Flynn et al. 2004), which predicts transfer from both the L1 and the L2, provided that it is positive transfer only, and the Typological Primacy Model (Rothman 2011, 2015), which predicts transfer only from the language that is typologically and structurally closer to the L3. Spanish/French/Italian are typologically and structurally closer to BrP than English, so if structural proximity matters for transfer, we expect learners to be influenced by transfer from Romance rather than English.[7] We note that the same prediction

7. The TPM is a model designed specifically to address the initial stages of acquisition; as discussed below, our learners are not in the initial stages, and indeed our task would be too difficult for learners at the very initial stage of acquisition. We acknowledge that the TPM cannot be fully tested with learners in a non-initial stage, but we also note that very few studies test learners at the very beginning of acquisition. We believe that considerations of structural proximity

Table 2. Predictions for transfer in L3 acquisition, based on different models

Group	**L2-Status Factor**	**Cumulative Enhancement Model**	**Typological Primacy Model**
L1-English L2-Romance L3-BrP learners	Transfer from Spanish/French/ Italian	Positive transfer from both Spanish/ French/ Italian and English	Transfer from Spanish/ French/Italian
L1-Spanish L2-English L3-BrP learners	Transfer from English	Positive transfer from both Spanish and English	Transfer from Spanish

holds if perceived structural proximity plays a role: as shown by Santos (2013), based on the results of a language distance questionnaire, L1-English L2-Spanish and L1-Spanish L2-English learners of L3-BrP perceive BrP to be structurally closer to Spanish than to English on all measures (sentence structure, vocabulary and pronunciation).

Table 2 spells out what each model predicts for transfer in L3 acquisition of BrP by speakers of English and Romance. We will show the specific predictions that these models make for NP interpretation after we present our task categories.

A limitation of the current study is that our participants were tested only in their L3, and not in their L2; the testing session on BrP was already quite lengthy, and it was not feasible to test learners on further tasks in their L2. In light of this limitation, we cannot be entirely certain, for any given L3-learner in our study, whether s/he has in fact mastered the properties of genericity in their L2. However, prior research on the acquisition of plural NP interpretation by both L1-Spanish L2-English and L1-English L2-Spanish learners (Ionin et al., 2013b) found evidence of successful acquisition even at fairly low proficiency levels. Specifically, in an Acceptability Judgment Task administered by Ionin et al. (2013b), even low/intermediate proficiency L1-Spanish L2-English learners rated bare plurals significantly higher than definite plurals with generic readings, while the opposite was the case for L1-English L2-Spanish learners of low/intermediate proficiency. Thus, it is reasonable to assume that the L3-BrP learners in our study are aware of how definite plurals vs. bare plurals behave in their L2.

are relevant even for learners past the initial stage: as long as learners perform in a non-target manner, we have to ask what leads to their performance, and whether transfer from a structurally similar language is responsible. Of course, if learners perform in a target manner, we do not know whether they previously went through a stage consistent with TPM predictions.

3.1 Methodology

The participants in our study belonged to three groups: native BrP speakers, native English speakers who learned Spanish, Italian and/or French prior to learning BrP, and native Spanish speakers who learned English prior to learning BrP.[8]

The participants completed a language background questionnaire and three tasks: an Acceptability Judgment Task of NP interpretation in Brazilian Portuguese, a language distance questionnaire about the similarity of BrP to English and to Spanish, and a proficiency test of BrP. The proficiency test consisted of a multiple-choice cloze test (30 points) and a multiple-choice vocabulary test (20 points), for a maximum proficiency score of 50 points. It was developed based on a standardized test used to test proficiency in Spanish, the DELE (Diploma de Español como Lengua Extranjera), which was developed by the Spanish Ministry of Education and has been used for many years. The BrP proficiency test used in the present study has previously been used in other studies of L3-BrP, including Montrul et al. (2011), Ionin, Montrul and Santos (2011b) and Ionin et al. (2013a). Montrul et al. (2011) carried out a reliability analysis on the 50 test items, and found that the Cronbach alpha was .95, which indicates that the test is very reliable.

The language-distance questionnaire was the same one originally developed and used in Santos (2013). We do not discuss it here for reasons of space, but note that our findings converged with those of Santos (2013): both learner groups (as well as the native BrP group) rated BrP as significantly closer to Spanish than to English, thus confirming that Spanish is perceived as a structurally closer language to BrP.

8. In order to cast the net as widely as possible, we recruited and tested any learners of BrP who were native speakers of English and/or Spanish; a detailed language background questionnaire was administered to ensure that all participants included in the data analysis had the appropriate language profile. Excluded from the data analysis were the (very few) native English speakers who learned Brazilian Portuguese without previously studying any other Romance languages, and the native Spanish speakers who learned Brazilian Portuguese without previously studying English. Also excluded were speakers who were native in a language other than English or Spanish, or who were bilingual in English and Spanish from childhood, since in the latter case, it was not clear which of these languages was their L1 vs. their L2. However, we retained a participant who was bilingual in English and Polish, and another one bilingual in Spanish and Mandarin. These participants reported being dominant in English/Spanish, and grew up in the U.S. and in Chile, respectively. Polish and Mandarin lack articles, and thus do not resemble either English or Spanish in terms of NP interpretation.

3.1.1 *Participant characteristics*

Learners who scored lower than 24 out of 50 on the proficiency test were excluded from the data analysis.[9] After the exclusions, the group of native English speakers, henceforth the 'English group', contained 21 participants, while the group of native Spanish speakers, henceforth the 'Spanish group', contained 23 participants. The control group of native BrP speakers, henceforth the 'BrP group', contained 22 participants. All 22 BrP speakers, 20 of the Spanish speakers and 14 of the English speakers were tested in Brazil; the Spanish and English speakers were students of Brazilian Portuguese at a large Brazilian University. The remaining three Spanish speakers and seven English speakers were tested at a U.S. university, where they were enrolled in Brazilian Portuguese classes. All learners — both those tested in Brazil and those tested in the U.S. — began their study of BrP as adults, after the age of 18. Most of the learners (34 out of 44) had been studying BrP for three years or less at the time of the study. Eight learners (four from the English group and four from the Spanish group) had begun studying BrP between four and six years before the start of the study. The remaining two learners (both from the English group) had begun their study of BrP eight and 14 years, respectively, before taking part in the study.

All of the learners had studied multiple languages. In the English group, all 21 participants studied at least one Romance language prior to studying BrP: 11 studied Spanish, four — French, two — Spanish and Italian, three — Spanish and French, and one — Spanish, French and Italian. Since Spanish, French and Italian behave the same for the purposes of NP interpretation, we do not distinguish learners who spoke one vs. another of these languages.[10] Several participants in the English group also studied non-Romance languages (Arabic, German, Hebrew,

9. The cut-off of 24 out of 50 may appear arbitrary; in fact, the three learners excluded due to low proficiency all scored 18 or lower on the proficiency test, making them outliers in terms of proficiency.

10. The models of L3 acquisition discussed in Section 2.1 do not address how transfer plays out when the target language is a fourth or fifth language of the learners. As pointed out by an anonymous reviewer, an English speaker who has studied both Spanish and Italian (for example) prior to studying BrP could be transferring from any of his or her previously learned languages; if such a learner shows a pattern consistent with transfer from Spanish/French/Italian, we have no way of knowing whether they are transferring from Spanish, Italian, or both. However, given that Spanish, Italian and French behave the same for the linguistic phenomenon under consideration, this is not necessarily a problem. Our focus is on whether transfer is from English or from a previously learned Romance language, and whether it matters which language (English vs. a Romance language) was acquired first. We are not addressing the question of which Romance language participants transfer from, or the question of whether both second and third languages transfer in the case of fourth language acquisition.

Table 3. Participant characteristics

Groups	N	Age at testing	Prof. test score (maximum 50)
English L1	21	Mean 27 SD (7.1) Range 20–43	Mean 34 SD (7.8) Range 24–48
Spanish L1	23	Mean 25 SD (4.0) Range 20–37	Mean 41.4 SD (6.1) Range 25–48
BrP L1 (native speakers)	22	Mean 28 SD (7.9) Range 18–54	Mean 48.9 SD (1.1) Range 47–50

Irish and Swahili), and one participant was a heritage speaker of Polish. All participants in the English group were born in English-speaking countries (primarily the U.S., but also the United Kingdom and Ireland), with the exception of the heritage Polish speaker, who was born in Poland and moved to the U.S. at age three.

In the Spanish group, all 23 participants studied English prior to studying BrP. Many of the participants also studied other Romance languages (Italian, French, Catalan and Occitan) and non-Romance languages (German and Japanese); one participant was a heritage speaker of Mandarin. The participants in the Spanish group were born in a variety of Spanish-speaking countries, including Argentina, Chile, Colombia, Honduras, Mexico, Peru, Spain, and Uruguay.

Table 3 summarizes the ages and proficiency test scores of the three groups. A one-way ANOVA on the proficiency test scores showed a significant difference between the groups ($F(2,63) = 36.5$, $p < .001$). Post-hoc tests (Tukey) revealed that the native speakers in the BrP group had significantly higher scores in the proficiency test than each of the learner groups, while the Spanish group had significantly higher scores than the English group. While matching the two learners groups for proficiency would have been ideal, this was not possible, as the native Spanish speakers clustered towards the higher end of the proficiency range, and the English speakers — towards the lower end of the proficiency range; the similarity between Spanish and BrP (e.g., in terms of much shared vocabulary) may be partly responsible for the greater proficiency of the native Spanish speakers.

3.1.2 *Acceptability Judgment Task*

The main task of the study was an Acceptability Judgment Task (AJT) testing NP interpretation in definite, existential and generic contexts. We discuss only existential and generic contexts here, since they are the focus of the present study. Each task item consisted of a very short (two/three-sentence long) passage, followed by a

target sentence; for the target items, the target sentence always contained the target NP in preverbal subject position.[11] Participants were asked to judge how appropriate the sentence was in the context of the story, using a scale from 1 to 4, where 1 stood for 'completely inappropriate' and 4 stood for 'completely appropriate'.

All target NPs denoted animals, in order to control for animacy (animate NPs are more natural preverbally than inanimate ones, at least in existential sentences), as well as to ensure learner familiarity with the vocabulary.[12] In the existential contexts, the relevant animal was mentioned for the first time in the target sentence, and not mentioned in the passage: in fact, the passage set up an expectation of surprise, as shown in (9). This was done to ensure an indefinite rather than a definite reading. The target NP varied between bare plural (9a), bare singular (9b) and indefinite singular (9c). Bare plurals and indefinite singulars are fully acceptable in BrP with existential readings, though the bare plural sounds slightly formal, as is also the case in English. The bare singular is unacceptable in the absence of a list context. Recall that bare plurals in this context are acceptable in English but not Spanish; indefinite singulars are acceptable in both, and bare singulars — in neither.

(9) *Existential context*
Eu não recomendaria aquele hotel para ninguém. Eu tive experiências bem desagradáveis lá. Por exemplo, você sabe o que aconteceu no meu quarto uma manhã?

11. The decision to focus on the preverbal subject position was based on the results of a pilot study with native BrP speakers, in which we elicited judgments to sentences with the target NP in preverbal subject, postverbal subject, and object positions. The results for the preverbal subject position in existential and generic contexts were very clear, with each NP type being either clearly accepted or clearly rejected by native BrP speakers. In contrast, the judgments concerning NPs in postverbal position were more variable. It is impossible to interpret the performance of learners in contexts where native speakers themselves do not give clear judgments; therefore, we chose to focus only on those contexts where native speaker judgments are clear. Additionally, the preverbal subject position is one in which bare plurals are completely unacceptable in Spanish, as discussed above; in postverbal position, bare plurals are more acceptable in Spanish, making it more difficult to separate the effects of transfer from Spanish vs. English.

12. An anonymous reviewer expressed concern that the presence of a particular NP type in the story context could prime the participants to rate that NP type high in the target sentence. It was impossible to avoid using different NP types in the contexts. In order not to provide too much information about BrP bare singulars to the learners, we used bare singulars only in non-specific and/or quantitative environments (e.g., *muito rato,* literally 'much rat' in (10)), and not in the kinds of existential or generic contexts that the target sentences tested. We also tried to avoid using the target NP itself in the context insofar as this was possible. Given that overall, different NP types were used in different contexts, it is unlikely that any one NP type would have had a particularly strong priming effect.

a. Gatos subiram na minha cama. [bare plural]
b. Gato subiu na minha cama. [bare singular]
c. Um gato subiu na minha cama. [indefinite singular]

English translation: I would not recommend this hotel to anyone. I had some very unpleasant experiences there. For example, do you know what happened one morning in my hotel room?

a. Cats climbed onto my bed. [bare plural]
b. Cat climbed onto my bed. [bare singular]
c. A cat climbed onto my bed. [indefinite singular]

In the generic context, the passage made it clear that no specific animals were under discussion, and the target sentence made a generic statement about the relevant animal type, as shown in (10). The target NP varied between bare plurals (10a), bare singulars (10b) and definite plurals (10c). All three NP types are fully acceptable with generic readings in BrP; in contrast, Spanish allows only definite plurals in such contexts, and English — only bare plurals.

(10) *Generic context*

Na minha casa tem muito rato e não tem nenhum gato. Talvez eu coloque um prato com leite lá fora para atrair uns caçadores de ratos. Estou me baseando no senso comum.

a. Gatos adoram leite. [bare plural]
b. Gato adora leite. [bare singular]
c. Os gatos adoram leite. [definite plural]

English translation: In my house, there are a lot of rats and no cat. Maybe I'll put out a saucer of milk; perhaps this will attract some hunters of rats. I am basing this on common sense.

a. Cats adore milk. [bare plural]
b. Cat adores milk. [bare singular]
c. The cats adore milk. [definite plural]

In the actual task, each passage was followed by only one target sentence. For each context type, twelve token sets were created, each containing the target sentence with three different NP types, as shown above. The token sets were then distributed across three lists, so that each list contained four sentences with each NP type; each passage appeared once in each list. For example, list1 contained the passage in (10) only with sentence (10a), list2 contained it only with sentence (10b), and list3 — only with sentence (10c). This was done so that participants would not explicitly compare different NP types by seeing them in the context of the same passage.

Overall, each of the three lists contained 36 target items: 12 with existential contexts (four per NP type), 12 with generic contexts (four per NP type), and

12 with anaphoric definite contexts (not discussed here). Additionally, the lists contained the same 24 fillers, which varied the tense and aspect of the verb in the target sentence; the target sentences in the filler items always had a pronoun in subject position, in order to avoid focusing participants' attention on the subject NP. The 60 task items (36 target items and 24 fillers) were blocked and randomized for order of presentation.[13]

3.1.3 *Predictions*

We are now in a position to make predictions for performance on the AJT by the two learner groups. We first consider what would happen if learners transfer the syntax/semantics mappings from their previously learned languages to BrP. Transfer from English should lead to acceptance of bare plurals in both contexts, and of indefinite singulars in existential contexts, coupled with rejection of bare singulars in both contexts, as well as rejection of definite plurals in generic contexts. Transfer from Spanish should lead to rejection of bare plurals and bare singulars in both context types; only indefinite singulars should be accepted in existential contexts, and only definite plurals in generic contexts. Cumulative positive transfer from both languages should lead learners to correctly accept both bare plurals and indefinite singulars in existential contexts, and both bare plurals and definite plurals in generic contexts; however, learners should still differ from native speakers with regard to bare singulars: while native BrP speakers are predicted to accept bare singulars in generic contexts, learners are predicted to reject them in both contexts.

Yet another possibility is that learners have been exposed to enough BrP input to learn that bare singulars are grammatical in BrP (unlike in English and Spanish), and that bare plurals can occur preverbally (unlike in Spanish), while definite plurals and indefinite singulars are also freely available. In that case, we may find that learners freely allow all NP types in both existential and generic contexts. In the generic contexts, this would give rise to targetlike performance, but for the wrong reasons: learners would be giving high ratings to bare singulars not because they have acquired the semantics of bare singulars, but simply because they have recognized that bare singulars are grammatical in BrP. We would need to look to existential contexts: if learners are overgeneralizing with bare singulars, recognizing them

13. List1 was responded to by eight participants in the English group, eight in the Spanish group and eight in the BrP group; list2 was responded to by seven participants in the English group, eight in the Spanish group and seven in the BrP group; and list3 — by six participants in the English group, seven in the Spanish group and seven in the BrP group. While we originally tried to test the same number of participants on each list, this was not always possible, due to some participants being excluded (see Footnote 8).

as grammatical, but not attending to interpretation, they should accept them with existential as well as with generic readings, unlike native speakers.

A similar logic holds for bare plurals: if learners accept them with existential as well as generic readings, this could be due to transfer from English (rather than Spanish), but it could also be due to simply recognizing that bare plurals are grammatical in BrP, without acquiring the fine nuances of their meaning. Looking at bare plurals alone, we would not be able to tease apart the different explanations of (i) transfer from English (English allows bare plurals to have both generic and existential readings, and learners transfer this to BrP); (ii) acquisition of grammaticality only (learners recognize that bare plurals are possible in preverbal position in BrP, and accept them without paying attention to interpretation); and (iii) successful acquisition of syntax/semantics mappings (learners learn, from the input, that BrP bare plurals have both generic and existential readings). However, these explanations can be teased apart if we look at performance on other NP types: under (i) (transfer from English), we expect bare singulars to be rejected, and we also expect definite plurals to be rejected with generic readings, unless, of course, transfer takes place from Spanish as well as English. Under (ii) (learning of grammaticality but not of form/meaning mappings), we expect learners to freely accept bare plurals as well as bare singulars in both contexts, thus exhibiting overgeneralization; and under (iii) (successful learning of form/meaning mappings), we expect learners to differentiate between bare plurals and bare singulars, accepting both with generic readings, but only the former with existential readings.

The above predictions are summarized in Table 4. By examining the performance of both the English group and the Spanish group with regard to the predictions in Table 4, we will be able to determine whether the pattern of performance is consistent with any of the models of L3 acquisition listed in Table 2, or whether it is best accounted for by appealing to overgeneralization.

Table 4. Predictions for performance in the AJT

	Transfer from English	**Transfer from Romance**	**Transfer from both English and Romance**	**Over-generalization**	**Target in Brazilian Portuguese**
Existential contexts	✓bare plural ✗bare singular ✓indefinite singular	✗bare plural ✗bare singular ✓indefinite singular	✓bare plural ✗bare singular ✓indefinite singular	✓bare plural ✓bare singular ✓indefinite singular	✓bare plural ✗bare singular ✓indefinite singular
Generic contexts	✓bare plural ✗bare singular ✗definite plural	✗bare plural ✗bare singular ✓definite plural	✓bare plural ✗bare singular ✓definite plural	✓bare plural ✓bare singular ✓definite plural	✓bare plural ✓bare singular ✓definite plural

✓ = predict acceptance; ✗ = predict rejection

3.2 Group results

As noted above, the three groups differed significantly from one another in terms of their proficiency test scores. Therefore, in analyzing performance on the AJT, we do not compare the groups to one another: it is to be expected that the two learner groups will be less targetlike than the BrP group, while the English group, which had the lowest proficiency, will be less targetlike than the Spanish group. Instead, we focus on the patterns within each group, examining them with regard to the predictions in Table 4.

3.2.1 *Within-category comparisons*

For our first set of comparisons, we examine how each group rated the three NP types in each of the two contexts. For each context and for each group, we conducted a one-way repeated measures ANOVA comparing performance on the three NP types in that context.

The results for performance in the existential contexts are given in Figure 1. The native BrP speakers gave the highest ratings to indefinite singulars, lower ratings to bare plurals, which was expected, given that bare plurals are slightly unnatural in preverbal position, and much lower ratings to bare singulars. In contrast, the two learner groups gave fairly high ratings to bare singulars, compared to the other two NP types. NP type in the existential context was significant for the BrP group ($F(2, 42) = 61$, $p < .001$), with post-hoc tests (Tukey) revealing that

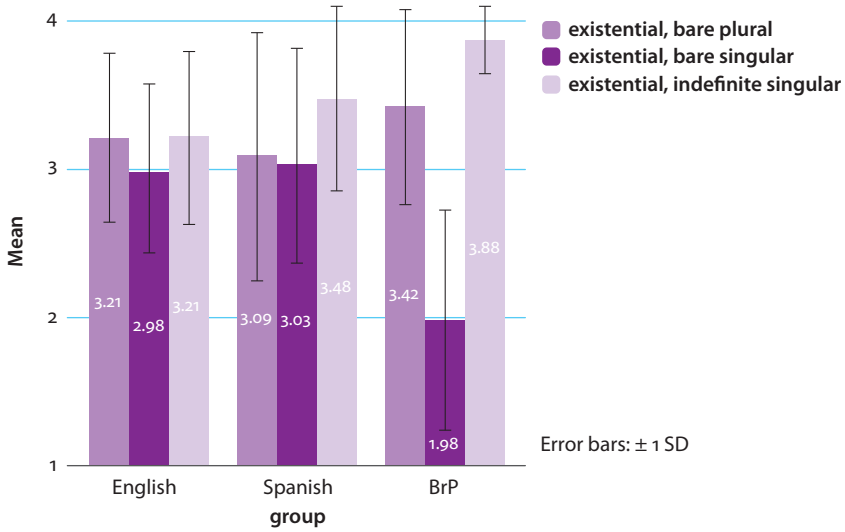

Figure 1. Performance in existential context, by group: mean ratings on a scale from 1 to 4

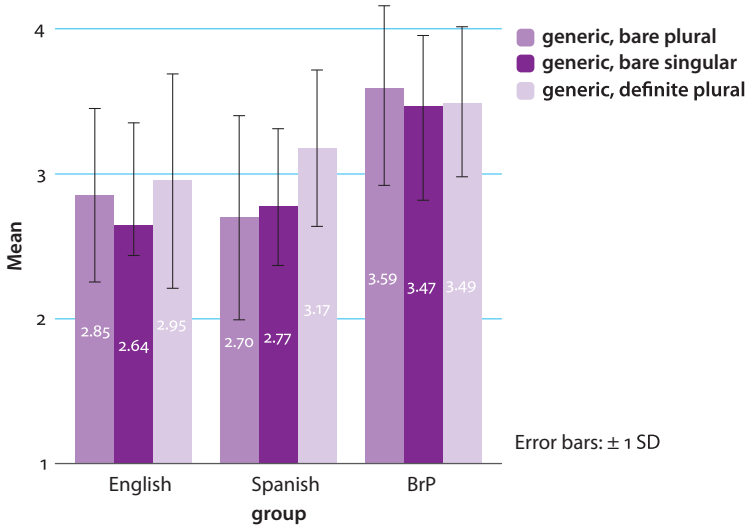

Figure 2. Performance in generic context, by group: mean ratings on a scale from 1 to 4

indefinite singulars were rated significantly higher than bare plurals, while both indefinite singulars and bare plurals were rated significantly higher than bare singulars. NP type in the existential context was also significant for the Spanish group ($F(1.5, 34) = 4.7$, $p < .05$, Greenhouse-Geisser correction for violation of sphericity); while numerically indefinite singulars had the highest ratings, post-hoc tests (Tukey) did not find significant differences between any pair of NP types in this context. There was no effect of NP type in the existential context for the English group ($F(2, 40) = 1.4$, $p = .25$).

We turn next to the generic context, the results for which are given in Figure 2. Now, it is the native BrP group that rated all three NP types similarly, while the two learner groups gave the highest numerical ratings to definite plurals. There was no effect of NP type in the generic context for the BrP group ($F(2, 42) = .62$, $p = .54$). For the Spanish group, NP type in the generic context had a significant effect ($F(2, 44) = 6.4$, $p < .01$); post-hoc tests (Tukey) revealed that definite plurals were rated significantly above both bare plurals and bare singulars, which did not differ from each other. For the English group, despite the numerical differences seen in Figure 2, NP type did not reach significance ($F(2, 40) = 1.9$, $p = .16$).

3.2.2 *Cross-category comparisons*

In addition to the within-category comparisons, we also examined performance on just the two bare NP types in both categories, in order to determine whether they were rated equally high (or low) with both existential and generic readings. Performance on the bare NPs is shown in Figure 3. As this figure shows, the native

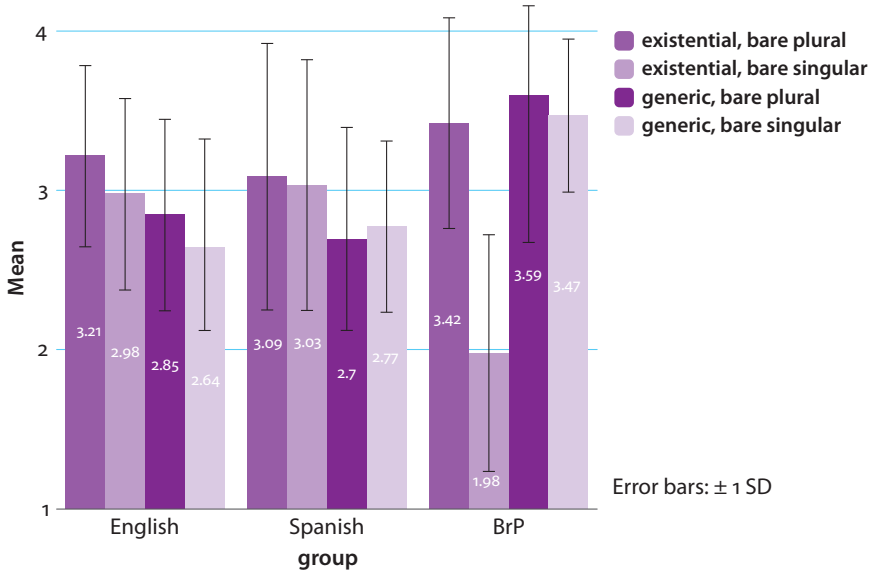

Figure 3. Performance on bare NPs across categories: mean ratings on a scale from 1 to 4

BrP speakers gave low ratings to just bare singulars in the existential context, and high ratings otherwise; the learner groups, on the other hand, gave higher ratings to both bare NP types in the existential context than in the generic context.

For each group, we conducted a two-way repeated-measures ANOVA with context (existential vs. generic) and bare NP type (bare plural vs. bare singular) as the two within-subjects variables. For the BrP group, there was a significant effect of context ($F(1, 21) = 41$, $p < .001$), a significant effect of NP type ($F(1, 21) = 37$, $p < .001$), and a significant interaction between the two factors ($F(1, 21) = 36$, $p < .001$). Follow-up paired-samples t-tests with a Bonferroni correction (alpha level set to 0.05/4, or 0.0125) revealed the source of the interaction as follows. In the existential context, bare plurals were rated significantly above bare singulars, but in the generic context, the two NP types were rated no differently; bare singulars were rated significantly higher in the generic than the existential context, but there was no such difference for bare plurals.

The performance of the two learner groups was quite different. In the case of the English group, there was a significant effect of context ($F(1, 20) = 8.8$, $p < .01$), but no effect of NP type ($F(1, 20) = 3.0$, $p = .10$) and no interaction ($F(1, 20) = .03$, $p = .87$). Both NP types were rated significantly higher in the existential than the generic context, and while bare plurals were rated numerically above bare singulars in both contexts, this difference did not quite reach significance.

In the case of the Spanish group, there was also a significant effect of context ($F(1, 22) = 5.9$, $p < .05$), but no effect of NP type ($F(1, 22) = .01$, $p = .90$) and no

interaction ($F(1, 22) = .5$, $p = .49$). The Spanish speakers, like the English speakers, gave significantly higher ratings to both bare NP types in the existential than the generic contexts; they made no distinction between bare plurals and bare singulars, in either context.

To sum up, the two learner groups found bare NPs more acceptable with existential than with generic readings, making no distinction between singular and plural bare NPs.

3.3 Individual results

Given the somewhat mixed results at the group level, and the lack of significant effects in the English group, we supplemented the group analysis with a qualitative individual participant analysis. We conducted a separate analysis for the generic and existential contexts.

3.3.1 *Individual participant analysis: existential context*

For each participant, we examined the participant's mean rating of each of three NP types tested in the existential context (bare plural, bare singular, indefinite singular). Indefinite singulars are expected to be accepted by all groups, since they are fully grammatical with existential readings in all three languages. Therefore, we excluded from individual analysis any participant who rated indefinite singulars, on average, below 3.0 on the 1-to-4 scale; participants who give such low ratings to indefinite singulars are either not understanding the meaning of the context or — in the case of native speakers — not paying attention. This cut-off resulted in the exclusion of one native English speaker, five native Spanish speakers, and four native BrP speakers. For the remaining participants, we classified them into five patterns, based on their responses. The patterns are given in (11), and discussed below: "rated above" here stands for "rated at least half a point higher than", while "rated the same as" stands for "rated within half a point of each other". So, for example, a response of 4.0 to indefinite singulars, 3.5 to bare plurals, and 2.0 to bare singulars would place a participant into Pattern 1, while a response of 3.5 to indefinite singulars, 3.25 to bare plurals, and 2.75 to bare singulars would place a participant into Pattern 2.[14]

14. It was not clear how to classify cases where a participant's ratings were placed at .25-point intervals: e.g., 3.75 to indefinite singulars, 3.5 to bare plurals, and 3.25 to bare singulars. In such a case, the ratings of indefinite singulars and bare singulars (3.75 and 3.25) are half a point apart, placing the participant into Pattern 1, 2 or 3. Yet bare plurals are only .25 points from both indefinite singulars and bare singulars, requiring placement into Pattern 4. In such cases, we made the decision to place participants into the "all the same" Pattern 4.

(11) Individual patterns: existential contexts
Pattern 1: indefinite singulars rated above bare plurals AND bare plurals rated above bare singulars
Pattern 2: bare plurals rated above, or the same as, indefinite singulars; AND both indefinite singulars and bare plurals rated above bare singulars
Pattern 3: indefinite singulars rated above both bare plurals and bare singulars; AND bare singulars rated either above, or the same as, bare plurals
Pattern 4: indefinite singulars, bare plurals, and bare singulars all rated the same
Pattern 5: other

Pattern 1 is a possible target pattern: as we saw in the group results, native BrP speakers rated indefinite singulars above bare plurals, probably because bare plurals sound slightly artificial in preverbal position of existential sentences, and rated both indefinite singulars and bare plurals well above bare singulars. Pattern 1 is also consistent with transfer from English, in which bare plurals also sound slightly artificial in preverbal position relative to indefinite singulars, while bare singulars are not grammatical. Pattern 2 is also a possible target pattern, and is also consistent with transfer from English: both indefinite singulars and bare plurals are grammatical in existential sentences in English as well as in BrP, while bare singulars are ungrammatical in English, and infelicitous in preverbal position of existential sentences in BrP. Pattern 3 is consistent with transfer from Spanish, which allows only indefinite singulars, and not bare NPs, to occur in preverbal position. Pattern 4 would result if learners have learned that bare singulars are grammatical in BrP, and have overgeneralized them to existential as well as generic contexts. Pattern 5 includes all other possible patterns: bare singulars rated on a par with indefinite singulars but higher than bare plurals, or vice versa, or bare singulars rated higher than both other NP types; these patterns are not expected on any type of either transfer or overgeneralization.

The results of the individual analysis in existential contexts are given in Figure 4. While each group has at least one member in each pattern, for the BrP group, the most common patterns are 2 and 4. Pattern 2 is fully consistent with the grammar of BrP, and with the group results of the BrP group. Pattern 4 is somewhat surprising, and the fact that several (specifically, five) native BrP speakers fell into this pattern suggests that bare singulars are not entirely ungrammatical in existential sentences; this result is consistent with Schmitt and Munn's claim (1999, 2002) that bare singulars are infelicitous in preverbal position because of information structure constraints, rather than entirely ungrammatical.

For the two learner groups, all patterns are represented to a similar extent: native English speakers are slightly more likely to fall into Patterns 1 and 2, which are consistent with transfer from English, but also consistent with native BrP grammar,

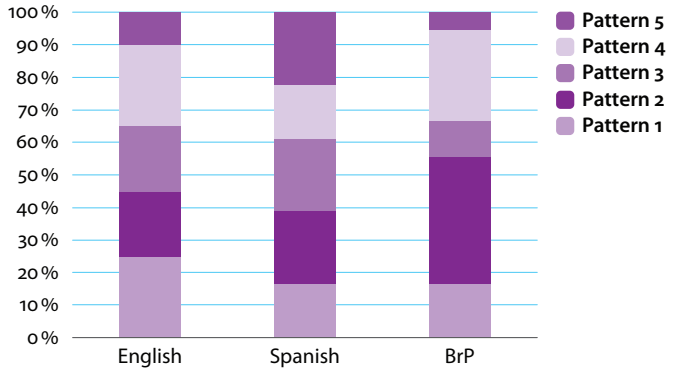

Figure 4. Individual patterns: existential context. Percentage of each group exhibiting each pattern.

while native Spanish speakers are slightly more likely to fall into Pattern 3, consistent with transfer from Spanish. However, these differences are minimal. Native English speakers are more well represented than Spanish speakers in Pattern 4, while the reverse holds for Pattern 5; neither of these patterns is attributable to transfer. Thus, no clear patterns for individual learners emerge in existential contexts, which is largely consistent with within-category group comparisons.

3.3.2 *Individual participant analysis: generic context*

For each participant, we examined the participant's mean rating of each of three NP types tested in the generic context (bare plural, bare singular, definite plural). We expect all participants to give high ratings at least to one category of plurals (bare plurals or definite plurals), given that each plural type expresses generic readings in either English or Spanish/French/Italian, and both do so in BrP. There is no reason for participants to reject both bare plurals and definite plurals in generic contexts: if they do so, this indicates that they either do not understand the context, or are not paying attention. We therefore excluded from analysis all participants whose average ratings for bare plurals and for definite plurals were *both* below 3.0. This resulted in the exclusion of two native English speakers, two native Spanish speakers, and three native BrP speakers.

For the remaining participants, we classified them into five patterns, based on their responses. The patterns are given in in (12), and discussed below: "rated above" and "rated the same as" are defined in exactly the same way as in existential contexts (see previous section).[15]

15. Once again, it was not clear how to classify cases where a participant's ratings average were placed at .25-point intervals (e.g., 4.0, 3.75 and 3.5). We followed the same procedure as in existential contexts (see footnote 14), and classified such participants into the "all rated the same" pattern — in the case of generic contexts, Pattern 1.

(12) Individual patterns: generic contexts
Pattern 1: definite plurals, bare plurals and bare singulars all rated the same
Pattern 2: bare plurals rated above both definite plurals and bare singulars
Pattern 3: definite plurals rated above both bare plurals and bare singulars
Pattern 4: definite plurals and bare plurals rated the same; AND both plural NP types rated above bare singulars
Pattern 5: other

Pattern 1 is the target pattern, given that all three NP types can express generic readings in BrP; it is also consistent with overgeneralization (learners accept all NP forms, regardless of interpretation). Pattern 2 is expected under transfer from English (only bare plurals have generic readings), while Pattern 3 is expected under transfer from Spanish (only definite plurals have generic readings). Pattern 4 is expected under cumulative transfer from both English and Spanish, with both bare plurals and definite plurals, but not bare singulars, expressing generic readings. Pattern 5 includes all other possible patterns: bare singulars rated on a par with bare plurals and above definite plurals, or vice versa, or bare singulars rated above both plural NP types. The results are given in Figure 5.

As shown in Figure 5, native BrP speakers are represented primarily in Pattern 1 (as expected, and consistent with group results), but are also quite common in Patterns 3 and 5. This is not particularly surprising: even though all three NP types can express generic readings in BrP, it has been noted by Munn and Schmitt (2005) that bare plurals are slightly more formal than either definite plurals or bare singulars. Thus, while in general native BrP speakers gave high ratings to all three NP types in generic contexts, some gave the highest ratings to definite plurals (Pattern 3), and others gave particularly high ratings to bare singulars (Pattern 5).

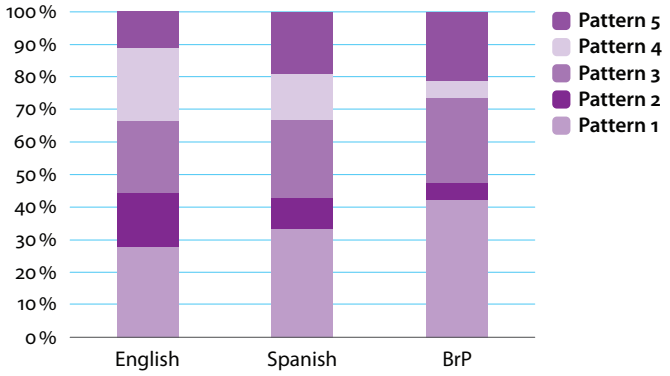

Figure 5. Individual patterns: generic context. Percentage of each group exhibiting each pattern.

In the case of learners, there is once again a lot of similarity between the two groups. Native English speakers are slightly more commons in Pattern 2 (consistent with transfer from English) and Pattern 4 (consistent with transfer from both English and Spanish), while native Spanish speakers are slightly more common in Pattern 1 (target performance). The two groups are equally well represented in Pattern 3 (consistent with transfer from Spanish). While the differences are quite small, they are consistent with what we observed in the group data: both learner groups show evidence of transfer from Spanish, while only the English group shows evidence of transfer from English.

3.4 Summary

We now consider the groups' performance in light of the predictions in Table 4. The native BrP speakers performed exactly as predicted, giving high ratings to five out of six conditions: only bare singulars with existential readings were rated low. For the Spanish group, the results were most consistent with transfer from Spanish: this learner group gave the highest ratings to indefinite singulars in existential contexts, and to definite plurals in generic contexts; bare NPs (both singular and plural) received the lowest ratings in both contexts, and were rated no differently from one another. This is fully consistent with transfer from Spanish, the learners' L1, which does not allow bare NPs (either singular or plural) in preverbal subject position, with either existential or generic readings. The only part of the findings not fully consistent with transfer from Spanish is the fact that bare NPs received significantly higher ratings in existential than in generic contexts. We will come back to this point in the discussion section.

The results of the English group are less clear. If we look at within-group comparisons, NP type does not reach significance in either context. Given that the English group had the lowest proficiency, it is possible that the learners simply found the test too hard and accepted or rejected all NP types indiscriminately. However, there are two reasons to think that is not the entire explanation. First, the English speakers, like the Spanish speakers, rated definite plurals above bare NPs in the generic category; while this difference did not reach significance, this may be due to low statistical power. Second, if we look at cross-category comparisons, we see that the English speakers rated bare NPs significantly higher with existential than with generic readings, and that the difference between bare plurals and bare singulars also approached significance (with $p = .10$). Thus, the English group's performance was not random, but indicated a differentiation between the two contexts as well as between the two bare NP types. The English group's performance is not consistent with any of the patterns in Table 4, but rather appears to fall between patterns: performance in the generic contexts is more consistent

with transfer from Spanish (definite plurals received the highest ratings, though this difference did not reach significance), while performance in the existential contexts is more consistent with transfer from English (bare plurals rated as high as indefinite singulars), with the additional finding that bare singulars, which are ungrammatical in English, were rated as high as bare plurals, which are grammatical in English. The high ratings of bare singulars in existential contexts is consistent with overgeneralization (see Table 4): the English speakers have recognized that bare singulars are grammatical in BrP, and allow them in existential as well as generic contexts.

4. Discussion

We started this paper with a question about possible sources of transfer in the L3 acquisition of NP interpretation in Brazilian Portuguese. The findings are somewhat mixed, and do not align neatly with any major model of L3 acquisition. At the same time, they are quite consistent with prior studies of L3 acquisition of BrP (Montrul et al., 2011; Santos, 2013), which find that for learners who speak both English and Romance, Romance is the primary source of transfer in BrP (consistent with the Typological Primacy Model), but that L1-English speakers also exhibit transfer from English.

In our study, transfer from Romance can account for the preference for definite plurals over bare NP types in generic contexts, for both groups. The fact that this difference reached significance in the Spanish group but not in the English group could mean the transfer effect is stronger when Spanish is the L1 rather than the L2. However, it could also be due to the English group having lower proficiency in BrP, and as a result having less certainty in their judgments. Our sample does not allow us to disentangle those two explanations. We note that in our previous work (Ionin et al., 2011b, 2013a), we found a significant preference for definite plurals over bare NPs in generic contexts with both L1-Spanish L2-English and L1-English L2-Spanish learners of BrP; the background and proficiency levels of the learners in our prior study were very similar to those of the learners in our current study, so the fact that we found a weaker preference for definite plurals in the present study is most likely a question of methodology. As mentioned earlier, in our prior study, the target sentences were presented side by side, allowing for an explicit comparison of NP type. In our current study, learners saw only a single sentence in the context of each passage. Without an explicit comparison, learners made a weaker contrast between bare and definite NPs, but the contrast is nevertheless there, and reaches significance in the case of the Spanish group.

At the same time, transfer from Romance cannot readily account for performance in existential contexts. Although the Spanish speakers rated bare NPs as significantly less acceptable than indefinite singulars in the existential context, they still gave very high ratings to bare NPs in this context. In fact, both the English group and the Spanish group rated bare NPs significantly higher with existential than with generic readings. This is not accounted for under transfer from either Spanish, which disallows bare NPs in subject position, with either reading, or English, which allows bare plurals to have generic as well as existential readings. It is also notable that both learner groups gave high ratings to bare singulars in the existential context, in which bare singulars were rejected by native BrP speakers.

We propose an explanation of these findings along the following lines. Learners are exposed to BrP input in which bare NPs, both plural and singular, are clearly present. Given that our learners are not at the very beginning stage of acquisition, they have already learned that BrP allows bare singulars (unlike English and Spanish) as well as bare plurals (unlike Spanish). Upon learning about the existence of bare singulars in BrP, learners need to map them to a particular meaning. Transfer from English should tell them that bare plurals can be either generic or existential, and a reasonable hypothesis is that bare singulars have the same range of interpretations available to them. At the same time, however, the learners are exposed to definite plurals with generic readings. There is reason to believe that definite plural generics are more common in BrP input than either bare plural or bare singular generics: although we are not aware of any corpus studies on this topic, we note that bare plural generics are more common in more formal, written registers, and bare singulars in more informal ones (cf. Munn & Schmitt, 2005); definite plurals are common across registers. Thus, learners have established that, like Spanish, BrP expresses generic readings via definite plurals; they hypothesize that BrP is like Spanish in that the availability of generic readings to definite plurals blocks the availability of the same readings to bare NPs (cf. Chierchia, 1998). In fact, BrP is quite unusual in that it allows definite plural and bare plural (as well as bare singular) generics to co-exist. Not being aware of this, learners have categorized BrP as a language like Spanish, in which generic readings are expressed by definite plurals. At the same time, they have categorized it as a language like English, which allows bare plurals with existential readings. Furthermore, having been exposed to bare singulars in the input, they allow them to have existential readings as well. They clearly have not yet acquired the constraints on information structure (cf. Schmitt & Munn, 1999, 2002) that disallow bare singulars in preverbal subject position in the absence of a list context; having learned that bare singulars are grammatical in BrP, they overgeneralize them to existential contexts in which they are not allowed.

We also note that the English group, but not the Spanish group, rated bare plurals higher than bare singulars in both contexts, and that this difference approached significance. This is particularly notable given that the English group otherwise exhibited few statistically significant effects, compared to the Spanish group, possibly because of their lower proficiency. It is possible that the preference for bare plurals over bare singulars is a result of residual transfer from the learners' L1, English, which has bare plurals but not bare singulars. In contrast, Spanish disallows both bare plurals and bare singulars, so the Spanish group makes no distinction between these two NP types in BrP.

5. Conclusion

To sum up, we find tentative evidence from transfer from Spanish (in the form of a preference for definite plurals in generic contexts) regardless of whether it's the learners' L1 or their L2, as well as possible residual transfer from English (in the form of a preference for bare plurals over bare singulars) only when English is the learners' L1. We also find a general preference for existential rather than generic interpretations of bare NPs, in both groups — a difference that we have attributed to how the learners analyze BrP input. Individual results are consistent with both native Spanish and native English speakers exhibiting transfer from Spanish, but overall we found a variety of individual patterns, not all of which are attributable to transfer from a particular language: some individual performance patterns indicate targetlike performance, while others suggest a pattern of overgeneralization of bare singulars.

A number of questions are open for further research. First, it is important to find and test higher-proficiency English-speaking learners of BrP, in order to match English and Spanish speakers for BrP proficiency. Second, given that the learners allow bare singulars in BrP, it would be fruitful to test whether they are aware of the properties of bare singulars, such as the fact that they are number-neutral and the fact that their grammaticality improves in list contexts. Third, it would be worthwhile to test learners in their L2 as well as their L3, in order to test transfer from the L2 vs. from the L1 more directly. Without a direct L2/L3 comparison, we cannot definitively conclude that the learners' performance is due to transfer; it could instead be due to properties of the input, such as possibly greater frequency of definite plurals than bare plurals in generic contexts (although no corpus studies have been done to address this issue).

The findings of the present study, taken together with other prior studies of L3-BrP, show that transfer in L3 acquisition does not neatly align with the predictions of any model of L3 acquisition: while transfer from the structurally close

language (Spanish) does appear to predominate, consistent with the Typological Primacy Model, it cannot fully account for the patterns of performance. Transfer from the structurally closer language appears to work in concert with transfer from the L1, as well as learners' analysis of the input, in affecting the course of L3 acquisition.

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