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An Experimental Study on the Interpretation of Bare Singulars in Mexican Spanish

Um estudo experimental sobre a interpretação de singulares nus no espanhol mexicano

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Abstract: This paper explores the interpretation of bare singulars (count nouns that are not preceded by determiners) as *coche* ("car") in *María compró* ***coche*** *ayer* ("Mary bought (a/some) car(s) yesterday") in Mexican Spanish. A quantity judgment task was performed with 134 L1 Mexican speakers and they had to choose one between two scenarios where different quantities of the tested noun were shown. In this task, while presenting two different characters, one that has two big portions of *x* (Volume) and another that has six different portions of *x* (Number), it is presented a comparative sentence (*Marcelo tiene más X que Lena* ("Marcelo has more X than Lena")) and asked whether the sentence was true or false given the context. The results show that a Number interpretation was preferred for bare singulars (*Marcelo tiene más bici que Lena* ("Marcelo has more bike than Lena")) and a Volume interpretation was preferred for substance mass nouns (*Marcelo tiene más agua que Lena* ("Marcelo has more water than Lena")). That is, the absence of the plural morpheme (mass syntax) does not trigger a mass interpretation of bare singulars; bare singulars are interpreted as pluralized count nouns even when they are not pluralized.

Keywords: Mexican Spanish; bare singulars; count/mass distinction; quantity judgment task.

Resumo: Esse trabalho explora a interpretação de singulares nus (nomes contáveis que não são precedidos de determinantes) como *coche* ("carro") em *María compró* ***coche*** *ayer* ("Maria comprou (um/alguns) carro(s) ontem") no Espanhol Mexicano. Um julgamento de quantidade foi feito com 134 falantes mexicanos L1 e eles tiveram que

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escolher um entre dois cenários em que diferentes quantidades do nome testado eram mostradas. Nessa tarefa, enquanto duas personagens diferentes foram apresentadas, uma que possuía duas porções grandes de *x* (Volume) e outra que possuía seis diferentes porções de *x* (Número), *é apresentada uma sentença comparativa (Marcelo tiene más X que Lena* ("Marcelo tem mais X que Lena")) e perguntado se a sentença é verdadeira ou falsa, dado o contexto. Os resultados mostram que a interpretação de Número foi a preferida para singulares nus (*Marcelo tiene más bici que Lena* ("Marcelo tem mais bicicleta que Lena")) e a interpretação de Volume foi a preferida para nomes massivos de substância (*Marcelo tiene más água que Lena* ("Marcelo tem mais água que Lena")). Isto é, a ausência de morfema de plural (sintaxe massiva) não desencadeia uma interpretação massiva de singulares nus; singulares nus são interpretados como nomes contáveis pluralizados mesmo que eles não estejam pluralizados.

Palavras-chave: Espanhol Mexicano; singulares nus; distinção contável/massiva; tarefa de julgamento de quantidade.

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1 Introduction

A consensus in the literature about Spanish is that count (e.g. *perro* ("dog")) and mass nouns (e.g. *agua* ("water")) do not have the same distribution. First, while count nouns can be pluralized and combined directly with numerals, mass nouns cannot (*tres perros* ("three dogs")/ **tres aguas* ("*three waters")). Constructions with numerals and mass nouns are hypothesized to require an intervening container phrase (*tres vasos de agua* ("three cups of water")) except in some restricted scenarios, particularly, in 'restaurant talk' as in *tres cafés, por favor* ("three coffees, please") (cf. FRISSON; FRAZIER, 2005, p. 28). Second, some quantifiers are more likely to occur with mass nouns (*demasiado esfuerzo* ("too much effort")) (CARTER, 2007, p. 84). A question that has been debatable is the productivity, distribution and interpretation of the so-called bare singulars. Bare singulars are count nouns that occur in a sentence without being preceded by a determiner and that are not pluralized as illustrated in (1) and (2):

(1) Lleva **jersey**.
wear-IND.PRS.3sg pullover
'She is wearing a pullover' (one or more than one).

(2) Comprará **coche**.
buy-IND.FUT.3sg car
'She will buy a car' (one or more than one).
(ESPINAL, 2010, p. 984 – examples 2a and 2b)

In this paper we discuss the interpretation of bare singular nouns in Mexican Spanish from an experimental perspective. Based on a quantity judgment task (BARNER; SNEDEKER, 2005's paradigm) we will explore the interpretation of bare singulars (count nouns, e.g. *coche* ("car")) in contrast with substance mass nouns (e.g., *agua* ("water")) and object mass nouns (e.g. *mobiliario* ("furniture")) in *have*-predicates.

Previous literature on bare singulars in Romance languages has explored the interpretation of such constructions both from a formal semantics perspective as well as from an experimental perspective. From the formal semantics literature, much research on the field started after Chierchia (1998)'s typology that predicted the existence of languages where mass nouns could occur in the bare singular form (*I drank water*) but count nouns could not (**I have book*). Specialists on Romance languages observed that this did not apply either to Brazilian Portuguese (cf. DOBROVIE-SORIN; OLIVEIRA, 2008; MÜLLER, 2002; MUNN; SCHMITT, 2005; PARAGUASSU; MÜLLER, 2008; OLIVEIRA; ROTHSTEIN, 2011; SCHMITT; MUNN, 1999; among others) or Catalan/ dialects of Spanish (cf. DAYAL, 2003; DOBROVIE-SORIN *et al*., 2006; ESPINAL; MCNALLY, 2009; FARKAS; SWART, 2003; OGGIANI MORGAS, 2011; Van GEENHOVEN, 1996). The work on bare singulars in Spanish has documented the distributional restrictions of bare singulars, but it has not explored, to the best of my knowledge, the interpretation of bare singulars in contrast with other nouns (substance and object mass nouns) experimentally. That is the goal of this paper.

This paper is structured as follows. First, I overview the characteristics of bare singulars described in the literature of Spanish (Section 2). Then, I present my research questions and experimental studies in Mexican Spanish (Section 3). Finally, I discuss the results of this study in light of the relevant literature (Section 4).

2 Literature on bare singulars in Spanish

2.1 Grammatical properties of bare singulars

Espinal and McNally (2009), Espinal (2010) and Oggiani Morgas (2011) have described the distribution of bare singulars in the Peninsular Spanish, Catalan and Uruguayan Spanish. Below we overview the properties that characterize bare singulars in Spanish.

Object position bare singulars are hypothesized to be only grammatical in the object position, as exemplified in the contrast between (3) and (4):

Bare singular: subject position.

(3) *Niño vive en la montaña.
Boy live-IND.PRS.3sg in the mountain
'A boy lives in the montain.'

Bare singular: object position.

(4) Juan tiene auto.
Juan have-IND.PRS.3sg car
'Juan has a car.'

(OGGIANI MORGAS, 2011, p.7 – examples 4 and 5)

Lexical restriction of verbs it is claimed that bare singulars are more likely to occur as arguments of possessive and locative verbs (*have*-predicates: *comprar* ("to buy"), *tener* ("to have"), *vender* ("to sell"), *llevar* ("to wear")):

(5) Juan lleva sombrero.
Juan carry-IND.PRS.3sg hat
'Juan carries a hat.'

(6) * Juan rompió vaso.
Juan break-IND.PRF.3sg glass.
'Juan broke a glass.'

(OGGIANI MORGAS, 2011, 13a-13b).

Number neutrality bare singulars are hypothesized to be number neutral, that is, can be interpreted as referring to a single individual as well as to a plural set, as exemplified in (1) and (2).

Adjectives Furthermore, it is claimed that bare singulars are more likely to be acceptable with adjectives that denote a subkind of a particular kind (7a) than with qualitative and descriptive adjectives that modify a particular individual (7b):

(7) a. Juan tiene pareja formal.
Juan have-IND.PRS.3sg partner formal
'Juan has a long-term partner.'

b. * Juan tiene pareja alta.
Juan have-IND.PRS.3sg partner tall
'Juan has a tall partner.'
(OGGIANI MORGAS, 2011; 8 – examples 7 and 8)

When characterizing bare singulars in Spanish, the literature has compared the distribution of bare singulars with indefinites (*Yo he visto un perro* ("I saw a dog")) and with bare plurals (*Yo he visto perros* ("I saw dogs")). Oggiani Morgas (2011) has explored a series of features that could be used to distinguish bare singulars from those other classes in the discursive/referential level. Below I present the constructions used by Oggiani Morgas to distinguish bare singulars from indefinites.

Distributive and cumulative interpretations Oggiani Morgas has shown that bare singulars but not indefinites allow a cumulative interpretation. In the examples below, the bare singular *apartamento* 'apartment' could be interpreted as one or more than one apartment in each city, while the indefinite just could be interpreted as one apartment in each city.

Bare singular:
Context 1 (distributive):
Context 2 (cumulative):

(8) a. Juan tiene apartamento en distintas ciudades.
Juan have-IND.PRS.3sg apartment in different cities
'Juan has an apartment in different cities.'
(OGGIANI MORGAS, 2011; 8 – examples 9a)

Indefinites:
Context 1 (distributive):
~~Context 2 (cumulative):~~

b. Juan tiene un apartamento en distintas ciudades.
Juan have-IND.PRS.3sg an apartment in different cities
'Juan has an apartment in different cities.'
(OGGIANI MORGAS, 2011; 8 – examples 9b)

Scope Oggiani Morgas, (2011) has also argued that bare singulars take narrow scope under negation and under intensional verbs (like *querer* ("to want")) while indefinites take wide scope in the same environment. A similar claim is made by Miller and Schmitt (2005),[1] while indefinites are ambiguous (9a), bare singulars are restricted to a narrow scope interpretation (9b).

(9) a. El niñito no trajo una pelota. (neg > a, a > neg)
The boy neg bring-IND.PRF.3sg a ball
"The boy didn't bring a ball."

Narrow scope interpretation: "*the boy didn't bring any balls"* (neg > a)

[1] The authors did an experimental study with L1 Chilean Spanish speakers and have shown that the interpretation of bare singulars and indefinites is indeed different in terms of scope.

Wide scope interpretation: "*there was a certain ball (out of a set a balls) that the boy didn't bring"* (a > neg)

b. El niñito no trajo pelota. (neg > a, *a > neg)
The boy neg bring-IND.PRF.3sg ball
"The boy didn't bring a ball."

Narrow scope interpretation: "*the boy didn't bring any balls"* (neg > a)
(MILLER; SCHMITT, 2005; 92 - examples 1 and 2)

Telicity Oggiani Morgas (2011) also claims that bare singulars favor atelic predicates (10a), while indefinites are compatible with both (10b):

Bare singular

(10) a. Juan va a buscar apartamento durante un año/
Juan go-FUT.3sg look for-INF apartment for a year
#en un año.
in one year
'Juan is going to look for an apartment for a year/#for a year'

Indefinite

b. Juan va a buscar un apartamento durante
Juan go-FUT.3sg look for-INF an apartment for
year/
un año/ en un año
one year in one year
'Juan is going to look for an apartment for a year/for a year.'
(OGGIANI MORGAS, 2011; examples 12a and 12b)

2.2 Formal approaches for bare singulars

So far we have seen that the literature suggests that the distribution of bare singulars is characterized by: 1) being restricted to the object position; 2) number neutrality, and 3) not sharing the same discursive

properties as indefinites (as proposed by Oggiani Morgas, 2011; *contra* Espinal, 2010). Crucially, bare singulars are indeed grammatical in some dialects of Spanish. Given that, the question that I will address in this paper is the interpretation of bare singulars (count nouns) in comparison with mass nouns.

The puzzle that motivates this project is the following: while bare singulars have a plural counterpart (*coche/coches* ("car/cars")), substance mass nouns don't (*arena/*arenas* ("sand/*sands")): as illustrated in the introduction, substance mass nouns cannot be pluralized except in very restricted coercion scenarios (*me gustaría dos aguas, por favor* ("I would like two (bottles of) water, please")).[2] If syntax drives the interpretation of nouns, will the interpretation of count nouns in Mexican Spanish depend on its syntactic form? Will we find significant differences in the interpretation of *Juan tiene más* ***coche*** *que Maria* ("Juan has more car than Maria") (bare singular) and *Juan tiene más* ***coches*** *que Maria* ("Juan has more cars than Maria") (bare plural)? Or, will the interpretation of *coche* ("car") in its bare and plural form remain the same regardless its syntactic form? In the next section I explore this question experimentally.

3 On the interpretation of Bare Singular Mexican Spanish

3.1 Introduction

In this project I conducted two experimental tasks: a grammatical judgment (*likert* scale) task and a quantity judgment task. The grammatical judgment task was performed in order to verify the level of acceptance of bare singulars in Mexican Spanish. In this task, 28 L1 Mexican Spanish speakers were introduced with sentences with bare singulars in the subject and object position and had to evaluate its acceptability. Participants had to evaluate whether a sentence sounded possible/good for them or impossible/bad. Participants had to rate the sentences on a scale from 1 to 5 where 1 was considered impossible and 5 possible. The participants were exposed to 18 sentences of four different types of sentences as described below:

[2] Here, I am talking specifically about Spanish. In other languages such as Brazilian Portuguese, there are expressions like *as águas-do mar* 'the sea waters' or *as areias do deserto* 'the desert sands'. This is not the case of bare singulars in Spanish.

1) Intransitive sentences (bare singular in the subject position).
2) Transitive sentences (bare singular in the subject position).
3) Transitive sentences (bare singular in the object position).
4) Transitive sentences (bare singular in the subject and object position).

Following the literature on the topic (cf. Section 2), I expected that sentences with bare singulars in the subject position would be more likely to be evaluated as unnatural/impossible sentences (rating: 1 or 2). Contrariwise, sentences where bare singulars are in the object position would be more likely to be evaluated as natural/possible sentences (rating: 4 or 5). All the sentences are exposed bellow on table 1:

TABLE 1 – *Experimental sentences used in the Likert Scale Study*

Sentences	**Sentence type (as presented above)**
Perro ladra y tiburón nada. (“Dog(s) bark and sharks swim”)	1
Juan encontró lodo en su jardín. (“Juan have founded sludge in his garden”)	3
Cucaracha busca comida vieja para alimentarse. (“Cockroach(es) look for old food to feed themselves”)	4
La policía procura ladrón. (“(The) police look for thiev(es)”)	3
Ventana se quebró. (“(A) window has broken”)	1
Niño encontró su amigo en la escuela. (“(A) child founded his friend in school”)	2
Oso busca comida en verano. (“Bear(s) look for food in summer”)	4
María alquiló apartamento por dos semanas. (“Maria rents apartment(s) for two weeks”)	3
Chocolate se acabó. (“There is no more chocolate”)	1
Juana tiene perro. (“Juana has dog(s)”)	3

Leche hirvió. (“(The) milk boiled”)	1
El viejo lleva bastón para sostenerse. (“The old man carries (a) bat to sustain himself”)	3
Hierba crece. (“Grass grow up”)	1
Leche tiene mucho calcio. (“Milk has a lot of calcium”)	2
Niño brinca. (“Child(ren) play”)	1
Hormiga llevó hoja en la espalda. (“Ant(s) took leaves in their back”)	4
Marcus llevó manzana ayer para la fiesta. (“Marcus took apple(s) to the party yesterday”)	3
Mariposa tenía asas coloridas. (“Butterflie(s) have colors wings”)	2

The results support my original predictions: sentences with bare singulars in the subject position were rejected by most participants while sentences with bare singulars in the object position were more likely to be accepted (Table 2).

TABLE 2 – *Percentage of evaluation 4-5 (natural/possible) per type of sentence*

Position of bare singular	**Percentage 4-5 responses**
Intransitive sentences (bare singular in the subject position).	21%
Transitive sentences (bare singular in the subject position).	13%
Transitive sentences (bare singular in the object position).	51%
Transitive sentences (bare singular in the subject and object position).	16%

Further corroborating evidence for the results found on the grammatical judgment task come from a *corpus* search in the database Corpus del Español del Siglo XXI (CORPES).[3] We searched for four

[3] http://www.rae.es/recursos/banco-de-datos/corpes-xxi

count nouns (*coche* ("car"), *bolígrafo* ("pen"), *bici* ("bicycle") and *pelota* ("ball")); out of the 216 sentences were those nouns occurred (a total of 2119 files were searched), 47 occurrences included bare singular nouns in object position. In most cases, those nouns occur with *have*-predicates like *Trae coche?* ("Did you bring (a/the) car(s)?"), *Como no traía bolígrafo*... ("(She) did not used to bring pen(s)…"), *Romero lanzó pelota* ("Romero threw ball(s)") and *Todas mis amigas tenían bici* ("All my friends had bike(s)").

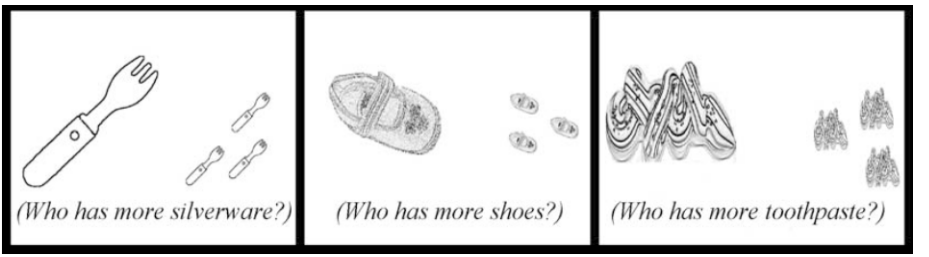
3.2 Quantity judgment task

3.2.1 Preliminary aspects of the method

Quantity judgment tasks have been used in a variety of languages as a useful task to explore the interpretation of count, substance and object mass nouns. The seminal work of Barner and Snedeker (2005) for English was composed of three studies. The first one was a study where the participants were asked the question 'Who has more x?' while being exposed to two sets: one that included a single big object (a big fork, a big shoe) or pile of substance (a pile of toothpaste) and another that included three objects (three forks, three shoes) or three piles of substances (Figure 1). 'X' in 'Who has more x?' could be a count noun such as *shoes*, a mass noun such as *toothpaste* or what is called in the literature an object mass noun: that is, a noun that denotes an object (*silverware*) but that has the same syntactic distribution as a mass noun (cf. CHIERCHIA, 2010; GRIMM; LEVIN, 2011; SCHWARZSCHILD, 2011).[4] In English, nouns such as *silverware* cannot be combined directly with numerals, cannot be pluralized and cannot be combined with the count quantifiers such as *many* (**many silverware*).

[4] Two observations about object mass nouns should be made: first, not all languages have object mass nouns; second, a given object mass noun in a language A won't necessarily be an object mass noun in another language. The same holds for other categories of nouns; for example, *hair* is mass in English, but count in Italian (*capelli*) (LUZZATI; MONDINI; SEMENZA, 2012, p. 65).

FIGURE 1 – Stimuli for Barner and Snedeker (2005, study 1)



Observing Figure 1 it is clear that the 'Number' set (e.g. three small forks) was never as voluminous as the 'Volume' set (e.g. big fork). That was intentionally designed: the participant had to choose either the numerous set (characterized by a smaller volume/dimension in comparison with the other set) or a voluminous set (that comprehend of a singleton set with a large object). In this task, Barner and Snedeker (2005) were investigating whether participants would provide different answers based on the syntactic distribution of the nouns (count nouns vs. substance/object mass nouns) or whether they would base their judgments on the denotation of nouns (objects: count nouns/object mass nouns vs. substances: substance mass nouns).

Their second study followed the same reasoning, but participants were exposed to two big objects/piles of substances vs. six small objects/ piles of substances (Figure 2). This follow-up was done because of object mass nouns. Given the example provided in Figure 1, Barner and Snedeker wanted to make sure that the participants were not reanalyzing *silverware* in 'Who has more silverware?' as 'Who has more fork?'.

FIGURE 2 – Stimuli for Barner and Snedeker (2005, study 2)

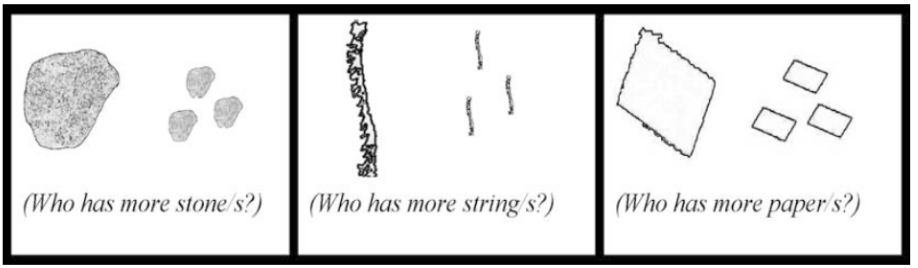
The results for Barner and Snedeker (2005) studies 1 and 2 are presented on Table 3. Participants (16 adults and 16 4-year olds) based their responses on Number in most trials for count and object mass nouns and on Volume for substance mass nouns.

TABLE 3 – Responses presented in percentage of Number responses (BARNER; SNEDEKER, 2005 – Studies 1 and 2)

	Study 1 (Adults)	**Study 1 (Children)**	**Study 2 (Adults)**	**Study 2 (Children)**
Count noun	100%	89%	93.8%	97.9%
Mass noun	0%	9%	0%	39.6%
Object mass nouns	97%	95%	97.9%	91.7%

The third of Barner and Snedeker's studies is particularly relevant for us, as it involved what the authors called "flexible nouns". Flexible nouns are nouns that allow a count and a mass syntax in English: that is, they can be pluralized (*who has more chocolates*?) and they can be used in their bare form (*who has more chocolate*?) as well. The nouns tested were nouns that allow this variation in English: *chocolate, paper, string, stone*. The same methodology used in Study 1 and 2 was used in Study 3 (cf. Figure 3).

FIGURE 3 – Stimuli for Barner and Snedeker (2005, study 3)



For Study 3, Barner and Snedeker (2005) report that flexible nouns in count syntax (*chocolates*) were more likely to be associated with the Number response while flexible nouns in mass syntax were more likely to be associated with the Volume response (cf. Table 4).

TABLE 4 – Responses presented in percentage of Number responses (BARNER; SNEDEKER, 2005 – Study 3 – Flexible nouns)

	Study 3 (Adults)	**Study 3 (Children)**
Count syntax	97%	95%
Mass syntax	3%	25%

That is, these results suggest that morphosyntax (absence and presence of the plural morpheme) affected the judgments of English speakers when evaluating flexible nouns.

The main difference between English and Romance languages such as Mexican Spanish and Brazilian Portuguese is that the set of nouns that allow bare singular nouns Mexican Spanish and Brazilian Portuguese is not as small as it is in English. For that reason, the question for languages where bare singulars are productive is whether the interpretation of those nouns when bare is a mass interpretation (Volume) due to the syntax or is count (Number) due to the semantics of the noun. This is explored in the following study.

3.2.2 Quantity judgment studies in Mexican Spanish

Based on the paradigm proposed by Barner and Snedeker (2005) reviewed in 3.2.1 I did a study in Mexican Spanish were participants had to evaluate bare singular nouns. In this task, participants were exposed with two sets of objects: one voluminous (Volume) and another associated with a numerous set (Number). 134 L1 speakers of Mexican Spanish participated in this task.

Participants answered eight critical questions: three questions that included count nouns (*bici* ("bycicle"), *coche* ("car"), *pelota* ("ball")) (Figure 4), three with substance mass nouns (*agua* ("water"), *arroz* ("rice"), *azúcar* ("sugar")) (Figure 5) and two with object mass nouns (*joyería* ("jewelry"), *mobiliario* ("furniture")) (Figure 6). The target question consisted of comparing two individuals (a man and a woman): one of them owned a voluminous set of objects or portions of a substance and another owned a numerous set of objects or portions of a substance. The target question was *Juan tiene más X que Maria?* ("Juan has more X than Maria?"). Participants had to answer 'yes' or 'no'. Two lists were created with the same questions. The character who owned the Volume and the Number set varied within the list (50% on the right, 50% of the time on the left).

FIGURE 4 – Example of stimulus (count noun) – *Juan tiene más pelota que Maria?* ("Juan has more ball(s) than Maria?")

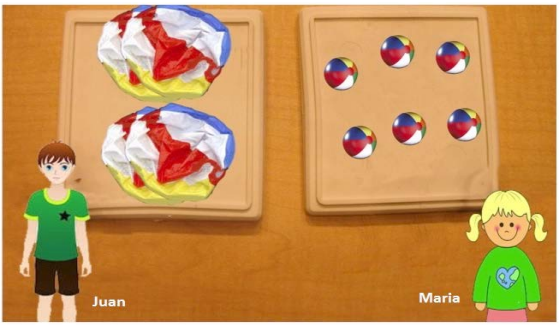
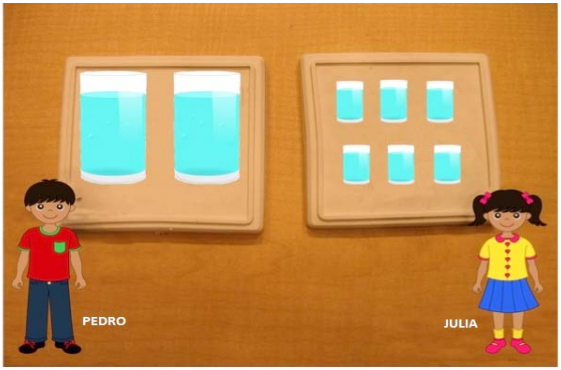


FIGURE 5 – Example of stimulus (object mass noun) – *Lucas tiene más mobiliario que Carol?* ("Lucas has more furniture(s) than Carol?")

FIGURE 6 – Example of stimulus (mass noun) – *Pedro tiene más agua que Julia?* ("Pedro has more water(s) than Julia?")



Participants also answered one control question at the end of the questionnaire where one of the count nouns was pluralized (*Marcelo tiene más bolígrafos que Lena*? ("Marcelo has more pens than Lena?")/ *Marcelo tiene más bicis que Lena*? ("Marcelo has more bicycles than Lena?")). We expected that the plural would always trigger a Number response. All the materials (critical and control sentences) are introduced on Tables 5 and 6.

TABLE 5 – Critical and control questions (Mexican Spanish) – List 1

Critical question	**Type of noun**	**Picture Right**	**Picture Left**
Juan tiene más pelota que Maria? ("Juan has more ball(s) than Maria?")	Count	Volume	Number
Pedro tiene más agua que Julia? ("Pedro has more water than Julia?")	Mass	Volume	Number
Carla tiene más joyería que Paula? ("Carla hay more jewelry(ies) than Paula?")	Object mass noun	Volume	Number
Julio tiene más arroz que Ana? ("Julio has more rice than Ana?")	Mass	Number	Volume
Marcelo tiene más bici que Lena? ("Marcelo has more bicycle(s) than Lena?")	Count	Volume	Number
Lucas tiene más mobiliario que Carol? ("Lucas has more furniture(s) than Carol?")	Object mass noun	Number	Volume
Pedro tiene más coche que Julia? ("Pedro has more car(s) than Julia?")	Count	Number	Volume
Rafael tiene más azúcar que Sofia? ("Rafael has more sugar than Sofia?")	Mass	Volume	Number
Control question	**Type of noun**	**Picture Right**	**Picture Left**
Marcelo tiene más bolígrafos que Lena? ("Marcelo has more pens than Lena?")	Count	Number	Volume

TABLE 6 – Critical and control questions (Mexican Spanish) – List 1

Critical items	Type of noun	Picture Right	Picture Left
Juan tiene más pelota que Maria? ("Juan has more ball(s) than Maria?")	Count	Number	Volume
Pedro tiene más agua que Julia? ("Pedro has more water than Julia?")	Mass	Number	Volume
Carla tiene más joyería que Paula? ("Carla has more jewelry than Paula?")	Fake mass noun	Number	Volume
Julio tiene más harina que Ana? ("Julio has more flour than Ana?")	Mass	Volume	Number
Marcelo tiene más bolígrafo que Lena? ("Marcelo has more pen(s) than Lena?")	Count	Number	Volume
Lucas tiene más mobiliario que Carol? ("Lucas has more furniture than Carol?")	Fake mass noun	Volume	Number
Pedro tiene más coche que Julia? ("Pedro has more car(s) than Julia?")	Count	Volume	Number
Rafael tiene más azúcar que Sofia? ("Rafael has more sugar than Sofia?")	Mass	Volume	Number
Control question	**Type of noun**	**Picture Right**	**Picture Left**
Marcelo tiene más bicis que Lena? ("Marcelo has more bicycle(s) than Lena?")	Mass	Volume	Number

3.2.2.1 Results

The results of this study are presented on Table 7.

TABLE 7 – Results of the Quantity Judgment Task in Mexican Spanish in percentage of 'Number' responses

Noun type	Percentage of 'Number' responses
Count noun (bare singulars)	74 %
Substance mass noun	16 %
Object mass nouns	87 %
Count nouns (plural – control question)	96%

ANOVA tests were run and indicated a significance in relation to the variable type of noun ($p=0$ ($p<0,05$)). The results suggest that the participants favor a Number interpretation for count and object mass nouns (as well as for the control [bare plural] as expected) and a Volume interpretation for substance mass nouns. That is, despite the mass syntax of bare singulars, participants favor a cardinal interpretation for those nouns. Similar results were found in Brazilian Portuguese (LIMA; GOMES, 2016), a language characterized by allowing bare singulars in object position productively. These results might suggest that the semantics of the nouns, and not their syntax, drives the interpretation of bare singulars in Mexican Spanish in quantity judgment tasks.

4. General discussion

The results found here are parallel to the results found in previous studies for Brazilian Portuguese (LIMA, 2015; GOMES; LIMA, 2015; LIMA; GOMES, 2016). Table 8 summarizes the results of similar tasks in Brazilian Portuguese.

TABLE 8 – Percentage of Number responses - Quantity judgments tasks in Brazilian Portuguese (cf. LIMA; GOMES, 2016)

Noun type	Percentage of 'Number' responses
Substance mass nouns (bare)	31%
Object mass nouns (bare)	88%
Count nouns (bare singular)	80%
Count nouns (plural form; control question)	92%

The results of quantity judgment in Mexican Spanish (as well as in Brazilian Portuguese) suggest that bare singulars will be interpreted based on their semantics as count nouns despite the syntactic features (mass syntax). Two aspects can be taken into consideration when analyzing these results. First, in the *corpus* search I found no example of a bare singular being interpreted as a mass noun (Volume interpretation). All examples are associated with a count (Number), not a mass (Volume) interpretation (cf. Appendix 1). Second, these results could be explained

in terms of the lexical statistics hypothesis put forth by Samuelson and Smith (1999). In novel word tasks where a novel word (*blicket*) was preceded by a determiner that could be associated with count and mass nouns (*the blicket, my blicket*) Samuelson and Smith observed that participants tended to analyze novel words as count nouns. Their explanation for this phenomenon is the fact that count nouns are more frequent in English. If we establish a parallel between this proposal and the results found here, we could say that in Mexican Spanish participants favor a count interpretation of bare singulars because these nouns are more frequently found in 'Number' contexts. That is, *pelota* 'ball' is usually interpreted as a count noun and is usually counted, regardless its syntactic form. This fact, however, does not exclude the possibility (to be verified in future work) that bare singulars could allow a mass interpretation. Semantic theories that proposed that bare singulars denote kinds (cf. OLIVEIRA; ROTHSTEIN, 2011) would predict that both Volume interpretation and a Number interpretation would be available. That is because kinds are open to different measurements, because they denote lattice structures with vague atoms. This is not the case for the plural nouns, which denote atomic lattice structures; thus, they can only be counted. From an ontological perspective, the proposal requires the domain of individuals to be sorted: kinds have properties that are not those of plural predicates (BEVILÁQUA; OLIVEIRA, 2014, p. 273).

Experimental work in Brazilian Portuguese has shown that bare singulars can be interpreted as mass nouns in tasks were a mass interpretation is favored (cf. BEVILÁQUA; OLIVEIRA, 2014). That is, in marked contexts, bare singulars may be interpreted as mass, but this is not likely to be the most plausible interpretation of bare singulars.

Final remarks

This paper explored the interpretation of bare singulars (count nouns that are neither preceded by a determiner nor suffixed by a plural morpheme) in argument position in Mexican Spanish. In languages like English most count nouns should either appear in their singular form preceded by a determiner (*I saw* ***a*** *ball*) or pluralized without necessarily being preceded by a determiner (*I saw ball****s***) but not in a bare singular form *(* I saw ball*). In English, a small set of count nouns (i.e., flexible nouns) can occur as bare and as plural arguments (*stone/*

stones; chocolate/chocolates; string/strings; paper/papers). Previous studies (BARNER; SNEDEKER, 2005) investigated the interpretation of flexible nouns. In quantity judgment tasks, participants are presented with two characters: one that has a big portion of X (where X can be a noun that denotes an artifact such as *chair* or substance such as *water*) and another that has many portions of X. The participants were asked either the 'bare singular' question, "Who has more X?" or the 'plural' question, "Who has more X**s**?". Barner and Snedeker (2005) observed that when the flexible noun occurred in its bare form ("who has more **stone**?") participants preferred a Volume interpretation; contrariwise when the noun occurred in its plural form ("Who has more **stones**?") participants preferred a cardinal/number interpretation. In this paper I presented the results of a quantity judgment task in Mexican Spanish where the alternation bare vs. plural form is not restricted to a small set of nouns. A likert scale task, corpora search and previous literature on the topic (ESPINAL, 2010; ESPINAL; McNALLY, 2009; OGGIANI MORGAS, 2011) suggest that bare singulars can occur in object argument position (*María compró* ***coche*** *ayer* ("Mary bought (a/some) car(s) yesterday")) in some dialects of the Spanish language investigated so far.

Given that, the goal of this paper was to investigate the interpretation of bare singulars in Mexican Spanish in contrast with bare plurals and mass nouns. Would bare singulars be available for a count interpretation (cardinality) given that bare singulars are count nouns that denote entities that are available for counting (cf. CHIERCHIA 1998, 2010), or would the mass syntax overrule the semantic properties of those nouns and trigger a mass interpretation as observed for English?

The results for the quantity judgment task (134 Mexican Spanish adult speakers) have shown that participants consistently chose the 'Number' response for bare singulars (74%) and object mass nouns (87%) while mass nouns were rarely associated with the 'Number' answer (16%). Critically, the participants associated bare plurals with the 'Number' interpretation in most of the trials (96% of the trials).

These results show that bare plurals (*Marcelo tiene más* ***bicis*** *que Lena* ("Marcelo has more bicycles than Lena")) are necessarily associated with the Number interpretation. These results are compatible with much literature in semantics that has shown that the plural blocks any mass interpretation of nouns in Romance languages (cf. MÜLLER, 2002; OLIVEIRA; ROTHSTEIN, 2011). Bare singulars were preferably

interpreted as referring to Number by the participants. These results suggest that while a pluralized noun is necessarily associated with a cardinal interpretation (number of individuals), bare singulars can be interpreted as referring to Volume (by hypothesis), but are preferably interpreted as referring to cardinalities despite the mass syntax (no determiner, non-pluralized nouns). In English this seems not to be the case because the set of flexible nouns is very restricted; as such the alternation between the bare singular and bare plural form for flexible nouns might be an strategy for emphasizing a Volume interpretation for such nouns (in their bare form). In Mexican Spanish, we observed that the default interpretation for count bare singulars in neutral contexts is a Number interpretation in contrast with mass nouns where the default interpretation is Volume. These results are parallel with similar studies on bare arguments in Brazilian Portuguese (cf. LIMA; GOMES, 2016) where bare plurals are always associated with a Number interpretation and bare singulars are interpreted as referring to Number, not Volume, contrary to the pattern observed in the English data. Thus, based on data from Mexican Spanish in contrast with the data from Brazilian Portuguese, this paper shows that in languages where bare singulars (count nouns) can be productively used, they will not be interpreted as a mass noun (Volume). That is compatible with the lexical statistics hypothesis (SAMUELSON; SMITH, 1999): the fact that count nouns are more frequently used in Number contexts (*un perro/perros* ("a dog/ dogs"), etc) makes that bare singulars (*perro* ("dog")) will be more likely to be interpreted as referring to Number, regardless their syntactic form. As such, the Number interpretation is not restricted to pluralized nouns; bare singulars are preferably interpreted as Number and a mass interpretation (Volume) is likely to be available, but restricted to marked contexts. Meanwhile, further studies are needed to verify whether bare singulars denote kinds in Mexican Spanish as Oliveira and Rothstein (2011) suggested for bare singulars in Brazilian Portuguese.

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APPENDIX 1

Countable nouns corpus search:

Pelota

"El otro día una mujer agarró su vientre y lo arrancó, se puso a jugar pelota con su embarazo, ella dijo al final, y ambos mirarían la blancura de la leche."

"¿Vas a jugar pelota después del trabajo?, preguntó."

"Hernández se combinó con tres relevistas para tirar pelota de siete hits y Miguel Flores se fue de 4-2 con tres producidas, al ganar los Sultanes de Monterrey 8-0 a Langosteros de Cancún, para asegurar la serie."

"Lee dominó a los Rockies de Colorado al lanzar pelota de seis hits y los Filis de Filadelfia comenzaron ayer la defensa de su título de la Serie Mundial con una victoria de 5-1 en su primer partido en los playoffs del 2009 en las Grandes Ligas."

"Silva volvió a traer pelota de cuadrangular, en la Serie Final de la Mexicana del Pacífico admitió en un juego cuatro vuelacercas y ahora fueron tres."

"Matt Albers, Tommy Hottovy y Dan Wheeler se combinaron para lanzar pelota de dos hits en dos entradas y un tercio."

"Sobre la escalinata de la universidad había un par de chiquillos jugando pelota."

"El cubano Michael Tejera lanzó pelota de cinco imparables y dos anotaciones a lo largo de cinco entradas, pero el tamaulipeco Pablo Ortega fue víctima de un tardío rally quisqueyano de dos anotaciones en el séptimo rollo para enfilarse al triunfo."

"Romero lanzó pelota de cinco imparables en igual número de entradas y el bullpen venezolano esparció una carrera, sucia y seis inatrapables el resto de la ruta."

"Miguel Ojeda y Carlos Valencia impulsaron tres carreras cada uno y Roberto "Metralleta" Ramírez lanzó pelota de tres hits en seis innings para que los Diablos Rojos del México apalearan 13-1 a los Saraperos de Saltillo y se quedaron con la serie 2-1."

"El pítcher estelar de los neoyorquinos tiró pelota de cuatro hits en ocho entradas, en las que admitió una carrera y concedió una base por bolas, además de que ponchó a siete enemigos."

"Mauricio Lara lanzó pelota de un hit en cinco innings y se combinó con cuatro relevistas para que los Algodoneros de Guasave blanquearan 3-0 a los Águilas de Mexicali para igualar el compromiso."

"Travis Minix (3-2) lanzó pelota de tres hits en siete entradas y se combinó con Thomas Melgarejo y Miguel Saladín (4) para que los Saraperos de Saltillo blanquearan 3-0 a los Tecolotes de Nuevo Laredo para ligar su cuarto éxito en fila."

"Ricky Nolasco lanzó pelota de cuatro imparables hasta la novena entrada y Ronny Paulino bateó cuadrangular de tres carreras en la victoria de los Marlines de Florida por 5-1 sobre los Filis de Filadelfia y el veterano Jamie Moyer (1-1)."

"En cuatro entradas tiró pelota de siete hits, seis carreras limpias y concedió dos boletos."

"Derek Lowe cargó la derrota, luego de seis rollos en los que tiró pelota de nueve hits y cuatro carreras."

"Dempster (4-3) fue retirado de la lista de lesionados y lanzó pelota de cuatro hits en cinco innings en su primera salida desde el 15 de junio, cuando experimentó una molestia muscular en la espalda."

"En el patio central los niños jugaban pelota escandalosamente."

Bici

"En esa **época,** todas mis amigas tenían bici y siempre andábamos de arriba para abajo."

"En esa **época,** si no tenías bici, no eras nadie."

Bolígrafo

"Como no traía bolígrafo debió ejercitar la memoria, lo que apenas."

Coche

"Ha de ser horrible trabajar de chofer y no tener coche."

"Ella soñará con mejorar, con tener coche, casa grande, vestidos y amigas importantes."

"En cambio, se acercaría más el momento de tener coche y no avisar dónde iría;"

"Tengo dinero, coche, las joyas que quiero."

"¿Trae coche?"

"Pocos traen coche propio, los más andan en camión."

"- Va a ir Bárbara porque ella tiene coche."

"Aquí no hay coche."

"No tengo coche."

"Está muy lejos, además usted tiene coche y yo no."

"Es la única que conozco que tiene coche en donde quepa la consola."

"¿En su casa tienen coche?"

"-Pero no tenemos coche, comandante."

"-¿Tienen coche? -pregunta el comandante a León y a Georgina."

"A buscar a Mary. Hijos, qué mala suerte que no tengas coche, manito.. Este...¿Miguel?"

"Entonces te recomiendo que tu estrella de cristal la coloques en el espejo retrovisor del coche, claro, si tienes coche (Mishanti hace la aclaración para no herir los sentimientos del pobre diablo), si no, cómprate unas veladoras de la abundancia y encomiéndate a la diosa Lakshmi, e invócala para que tu denario bendito."

"¿Traes coche?"

"No tengo coche."

"Quizá en sectores que en términos demográficos son minoría, como los universitarios y más de universidades privadas, usualmente territorio de privilegiados en medio de una vasta mayoría de gente que no habla dos idiomas ni tiene coche del año, ni viaja de vacaciones al extranjero, pero se trata de una teleaudiencia que representa millones de potenciales clientes o enemigos con capacidad de compra e influencia de decisión futura."

"De todo hice, mientras tuve coche: me les acerqué a unas y a otras, dejé que se me acercaran algunas (pocas, en realidad), utilicé miradas apropiadas, invité copas, y recibí al cien por ciento fracasos rotundos."

"Pero fueron tiempos felices porque tuve los mejores amigos, la mejor educación, tuve coche antes que todos mis amigos, me fui de reventón desde los 14 años porque tenía hermanos más grandes que me llevaban como mascota."

"-¡Qué bueno que no trajimos coche! -Lucía."

"Sé que no trajo coche."

"como la familia no tenía coche, el medio de transporte oscilaba entre el tranvía con ruta hacia Chapultepec, o alguno de los autobuses citadinos que indicaban su ruta con yeso disuelto en agua para pintar el itinerario en el parabrisas: "Escandón-Buena Vista,"

"Calatrava no tenía coche, pero le bastaba pedir aventón hasta el muelle, y una vez allí tomar un autobús hasta el centro de la ciudad; sin embargo prefería vivir exiliado -decía estudiar física- y no visitar la ciudad."

"Como un año o poco más antes de caer al bote, un amigo que tenía coche me dio un aventón a mi casa saliendo de la escuela."