

Universal *todo(s)*, quantification, and domain restriction in Spanish.

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Today's talk:

- **Empirical domain:** syntax and semantics of universal *todo(s)* in Spanish.
- **Goals:**
 - Claims:
 - * singular *todo* is an **unrestricted universal quantifier** (\approx *every*)
 - * plural *todos* is not a quantifier; it's a **maximality operator** (\approx *all*)

Roadmap:

- Section 1: *Todo* vs. *Todos*
 - Syntactic differences
 - Meaning differences
- Section 3: Analysis
 - *Todo* = universal quantifier
 - *Todos* = maximality operator
- Section 4: Conclusions

1 *Todos* vs. *todo*

1.1 Background

- The semantic literature usually treats a quantifier like *every* as follows (Heim & Kratzer 1998; Chierchia & McConnell-Ginet 2000; Jacobson 2014, among many others):
 - (1) *Every linguist loves Chomsky.*
 - a. $\forall x$ such that x is a linguist, x loves Chomsky
 - b. $\{x: x \text{ is a linguist}\}$ is a subset of $\{x: x \text{ loves Chomsky}\}$

- Traditional/descriptive Spanish studies consider *todos* a universal quantifier, and the plural counterpart of *todo*—both are analyzed in the same terms as *every* (1); they recognize some syntactic and interpretative differences between *todos* and *todo*.
 - Sánchez López 1999: *todos* is a *cuantificador indefinido* (since it doesn't specify an exact number). She claims that '*todos* cuantifica un conjunto determinado' and it's a universal quantifier. When comparing *todos* vs. *todo*, she notes: 'la diferente rección implica diferencias respecto de la naturaleza del elemento cuantificado.'
 - Quer 2014: 'trataremos los determinantes *todo* y *todos los* como si fueran idénticos. [...] Representan el mismo tipo de cuantificador (el cuantificador universal), pero existen rasgos interpretativos que los diferencian y en los cuales no podemos entrar aquí'.
 - see also Gutiérrez Rexach 2014, Fabregas 2018, among many others.
- Syntactic distribution and the resulting interpretations of *todo*–*todos* differ significantly:
 1. what they can be combined with
 2. their (un)availability of floating
 3. (lack of) contextual restrictions
 4. collective and distributive readings

[Note: we focus on *todo* and *todos* in subject position.]

1.2 What does *todo(s)* combine with?

- *todos* combines with **definite plural DPs** $\rightarrow [todos + DP_{\text{plural}}]$
 - headed by a definite determiner, a demonstrative, or a possessive (2a); but not an indefinite determiner (2b)
 - (2) a. *todos {los | estos | mis} libros*
'all {the | these | my} books'
 - b. **todos unos libros*
Intended: 'all some books'
- *todo* combines only with a **singular bare noun** $\rightarrow [todo + N_{\text{singular}}]$
 - (3) *todo libro*
'every book'
- *todo* can also combine with **singular definite DPs** $\rightarrow [todo + DP_{\text{singular}}]$
 - (4) *todo el libro*
'the entire book'

[Note: we focus on the first two configurations.]

1.3 Floating

- [*todos* + DP_{plural}] can float:

(5) **(Todos)** los estudiantes **(todos)** comieron pizza **(todos)**.
 ‘(All) the students (all) ate pizza (all).’

- [*todo* + N_{singular}] cannot float:

(6) ***(Todo)** estudiante **(*todo)** merece una segunda oportunidad **(*todo)**.
 ‘*(Every) student deserves (*every) a second chance (*every).’

1.4 Contextual restrictions

- [*todos* + DP_{plural}] refers to the totality of entities in a given context:

(7) **Todos los sintactistas** comieron pizza.
 ‘All the syntacticians ate pizza.’

→ For all x, if x is a syntacticians, then x ate pizza

- Contextual restriction (see Stanley & Szabó 2003 for an overview):

(8) Muchos linguistas vinieron a mi fiesta. **Todos los sintactistas** comieron pizza.
 ‘Many linguists came to my party. All the syntacticians ate pizza.’

→ *todos los sintactistas* refers to the set of syntacticians in a given context—i.e., those who came to the party last night, not all the syntacticians in the whole world.

- [*todo* + N_{singular}] is not possible in cases that require contextual restriction:

(9) Muchos linguistas vinieron a mi fiesta. **#Todo sintactista** comió pizza.
 Intended: ‘Many lnodeinguists came to my party. Every syntactician ate pizza.’

- [*todo* + N_{singular}] is only possible in truly generic contexts:

(10) **Todo estudiante** merece una segunda oportunidad.
 ‘Every student deserves a second chance.’

1.5 Collective and distributive readings

- [*todos* + DP_{plural}] can have both collective and distributive readings

(11) **Todos los filósofos** admiran a un lingüista.

‘All the philosophers admire a linguist.’

✓ collective reading: All the philosophers admire the same linguist.

✓ distributive reading: Each philosopher admires a different linguist.

- [*todo* + N_{singular}] can only have distributive readings

(12) **Todo filósofo** admira a un lingüista.

‘Every philosopher admires a linguist.’

✗ collective reading: All the philosophers admire the same linguist.

✓ distributive reading: Each philosopher admires a different linguist.

- [*todos* + DP_{plural}] can combine with collective predicates

(13) a. **Todas las chicas** se saludaron.

‘All the girls greeted each other.’

b. **Todas las chicas** se reunieron en el comedor.

‘All the girls gathered in the dining room.’

c. **Todas las chicas** formaron un grupo.

‘All the girls formed a group.’

- [*todo* + N_{singular}] cannot combine with collective predicates

(14) a. ***Toda chica** se saludó.

Intended: ‘Every girl greeted each other.’

b. ***Toda chica** se reunió en el comedor.

Intended: ‘Every girl gathered in the dining room.’

c. ***Toda chica** formó un grupo.

Intended: ‘Every girl formed a group.’

1.6 Interim summary

- Due to the differences in their distribution and interpretation → *todos* ≠ *todo*:

	<i>todos</i>	<i>todo</i>	<i>every</i>	<i>all</i>
syntax	DP _[pl]	N _[sg]	N _[sg]	DP _[pl] /N _[pl]
floating	yes	no	no	yes
contextual restriction	yes	no	yes	yes
collective readings	yes	no	no	yes

- Based on a similar comparison between *all* and *every*, Brisson (1998, 2003) concludes that *all* is not a quantifier, but interacts with the quantification introduced by the determiner to rule out *non-maximality*.

1.7 Exceptions and maximality

- What's the semantic contribution of *todos* in [*todos* + DP_{plural}] configurations?
- Plural definite articles allow for both *maximal* and *non-maximal* interpretations:

(15) Ayer, las chicas escalaron la montaña.
'Yesterday, the girls climbed the mountain.'

 - ✓ **Maximal interpretation:** Every girl climbed the mountain
 - ✓ **Non-maximal interpretation:** There might be some girl that did not climb, but most of them did.
- In English, adding *all* removes the non-maximal interpretation. The same is observed in Spanish when adding *todos*:

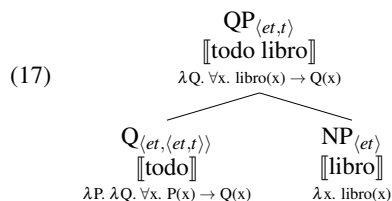
(16) Ayer, **todas** las chicas escalaron la montaña.
'Yesterday, all the girls climbed the mountain.'

 - ✓ **Maximal interpretation:** Every girl climbed the mountain
 - ✗ **Non-maximal interpretation:** There might be some girl that did not climb, but most of them did.
- Interim conclusion: The contribution of *todos* is to rule out non-maximal interpretations (i.e., rule out readings that allow for exceptions), just as English *all*.

2 Analysis

2.1 *Todo* as a universal quantifier

- Background: theory of Generalized Quantifiers (GQs) (Montague 1974, et. seq.)
- Todo* is a quantifier, of type $\langle et, \langle et, t \rangle \rangle$, and can only combine with NPs, of type $\langle et \rangle$:



- Domain restriction: the domain of strong quantifiers is contextually (explicitly or implicitly) restricted by covert domain variables (see Etcheberria & Giannakidou 2019, i.a.)

- (18) a. Many linguists came to the party last night; **every syntactician ate pizza**.
b. $\forall x$, if x is a syntactician and x belongs to C , x ate pizza

- The nominal argument of the universal quantifier is the set of syntacticians who came to the party last night, not the syntacticians in the whole world. This is achieved by the **domain variable** C , which is an anaphor and looks back in the discourse for a salient property, in this case the set of people who came to the party last night. *Every syntactician* draws values from the intersection of *syntacticians* with C .

- In Spanish, in turn, it is not possible to use [*todo* + N_{singular}] in such contexts:

- (19) Muchos lingüistas vinieron a la fiesta. #*Todo* sintactista comió pizza.

- The only possible interpretation is that the entire set of syntacticians ate pizza, and not only those salient in the context (i.e., those who went to the party).

- Claim: The universal quantifier *todo* 'every' in Spanish doesn't include C on its denotation, hence, it cannot restrict its domain of evaluation.

- This explains the generic reading of the [*todo* + N_{singular}] configuration:

- (20) a. *Todo* sintactista comió pizza
b. $\forall x$, if x is a syntactician, x ate pizza.

2.2 *Todos* is not a universal quantifier.

- A predicate such as *chica(s)* ('girl(s)') denote a set of entities: those entities who are girls. If the girls are Ana (a), Betty (b), and Caro (c), the extension of *chicas* is as follows:

- (21) a. $\llbracket \text{chica}(s) \rrbracket = \{a, b, c\}$
b. $\llbracket \text{chico}(s) \rrbracket = \{s, t\}$

- The *Universe of Pluralities* consists of all plural entities, where plural entities are to be understood as atomic entities (e.g., Ana, Betty, Caro, etc.) and sums of atomic entities (e.g., Ana+Betty, Betty+Caro, Ana+Betty+Caro, etc.):

- (22) Universe of Pluralities = $\{a, b, c, s, t, a+b, a+c, a+s, b+c, a+b+c, b+c+t, b+c+s, \dots\}$

- Plural determiners introduce a context-dependent domain selection variable (see Higginbotham 1981, Schwarzschild 1996, a.o.). This variable selects those plural entities, from the Universe of Pluralities, that are relevant in a given context (i.e., relevant pluralities):

- (23) a. $\llbracket \text{Relevant pluralities in Context 1} \rrbracket = \{a, b, c, s+t\}$
 b. $\llbracket \text{Relevant pluralities in Context 2} \rrbracket = \{a, c, b+s+t\}$

- A sentence with a plural determiner is interpreted as follows:

- (24) a. Las chicas cantan.
 b. For all x such that x belongs to the set of girls, and x belongs to the set of relevant pluralities, x sings.

- The maximal and non-maximal interpretations depend on the selection variable (e.g., (23a) vs. (23b)) provided by the context:

- (25) a. Context 1 (i.e., 23a):
 For all x such that x is a girl, and x belongs to the set $\{a, b, c, s+t\}$, x sings
 ➡ True if a, b and c sing \rightarrow Maximal interpretation
 b. Context 2 (i.e., 23b):
 For all x such that x is a girl, and x belongs to the set $\{a, c, b+s+t\}$, x sing
 ➡ True if a and c sing \rightarrow Non-maximal interpretation

- Following Brisson's (2003) analysis for *all*, we claim that *todos* imposes a restriction over the selection variable in such a way that every member of the set denoted by the NP must be in the set of relevant pluralities.
 - This implies that, for the sentences *Todas las chicas cantan*, Context 2 is no longer available, given that b , which is in the set of girls, is not in the set of relevant pluralities ($b+s+t$ is, but not b alone).
 - Therefore, only maximal interpretations are allowed.

3 Conclusions

- We analyzed the syntax and semantics of universal *todo(s)* in Spanish:
 - what they can be combined with
 - their (un)availability of floating
 - (lack of) contextual restrictions
 - collective and distributive readings

- We concluded that they are different type of elements:
 - *todo* is an unrestricted universal quantifier, and
 - *todos* is an operator that rules out non-maximality.
- We showed that the available descriptive literature is fairly inadequate. An in-depth analysis of universal *todo(s)* in Spanish allowed us to provide a more nuanced view on the nature of quantification more generally, discussing whether previous claims in other languages can be extended to Spanish, and emphasizing the value of cross-linguistic research in semantics.

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