

Pragmatic principles in anaphora resolution at the syntax-discourse interface: advanced English learners of Spanish in the CEDEL2 corpus



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Aim

- To use corpus methods like **fine-grained annotation** and **learner corpus** data
- ...to reveal what has gone unnoticed in **experimental** studies on L2 Spa acquisition...
- ...about the distribution of overt/null pronominal subjects [=**anaphora resolution**] ...
- ...and to propose a **new pragmatic principle** that can account for the observed data.

Pro-drop parameter (=Null subject parameter)

- In pro-drop languages like **Spanish** (and Italian, Greek, etc) both overt & null pronominal subjects are **syntactically** licensed :

(1) Él / Ø bebe cerveza
He/ *Ø drinks beer
'He drinks beer'

- ...But this apparently “free” syntactic alternation is constrained **discursively** at the syntax-discourse interface by information structure: **topic-continuity** and **topic-shift**.

Pronominal distribution at SYNTAX-DISCOURSE:

TOPIC-CONTINUITY

- Topic = known/old information to hearer from preceding context.
- Topic continuity is marked via **null pronoun** in native Spanish.

[Previous context: talking about the main character of a film]

En la película el protagonista tiene una familia y Ø trabaja en un programa de televisión. Un día Ø empieza a recibir videos anónimos...

[RSZ, Spa native, CEDEL2 corpus]

Theoretical literature on pronominal distribution in discourse:

Liceras et al. 2010, Alonso-Ovalle et al 2002, Lozano 2009a, 2009b, Luján 1999, Rigau 1986, Picallo 1994, Alonso-Ovalle & D'Introno 2000, Fenández-Soriano 1989, 1993, 1999, Montalbetti 1984, 1986, etc, etc.

Pronominal distribution at SYNTAX-DISCOURSE (2):

TOPIC-SHIFT

- Change of referent in discourse requires topic-shift → use of **overt pronoun** in native Spa.

[Previous context: talking about the main characters of the film “The illusionist”, a man and a woman]

La última película que he visto es la de “El Ilusionista” ... Los protagonistas son dos jóvenes que se conocen y se enamoran. Él es de clase baja, mientras que ella es de familia noble ...

[SPH, Spa native, CEDEL2 corpus]

- BUT also possible **full NP** in topic-shift contexts.

- This fact has gone unnoticed in the L2 literature
- Key question: when overt and when NP?? → WE WILL SEE LATER.**

Un día el príncipe y su prometida acuden a ver el espectáculo ... El príncipe sospecha de que su prometida le es infiel y Ø manda a uno de sus secuaces a perseguirla ...

Al final, el ilusionista y la chica preparan su huida ... El príncipe termina suicidándose y, al final, el ilusionista y la chica consiguen estar juntos

[SPH, Spa native, CEDEL2 corpus]

Previous L2 Spa findings (1)

- ① Learners acquire the **syntactic alternation** of overt/null pronouns from **early stages** of acquisition → native-like knowledge

Él/Ø bebe cerveza.

Liceras 1989, Phinney 1987, Lozano 2002a, etc etc.

- ② **BUT discursive constraints** are **persistently problematic until very advanced stages**.

- L2ers overproduce overt subjects in topic-continuity:

Pedro ... #él bebe cerveza ... #él bebe vino.

- L2ers rarely underproduce

Pedro ... María ... #Ø bebe cerveza ... #Ø bebe vino.

Perez-Leorux et al 1999, Perez-Leroux & Glass 1997, 1999, Al-Kasey & Perez-Leroux 1998, 2002b, 2002c, Montrul & Rodriguez-Loura 2006, Margaza & Bel 2006, Liceras et al. 2010, Rothman 2009

- What is the **cause** of learners' persistent discursive problems?

- **"INTERFACE HYPOTHESIS"** (Sorace 2011) L2ers have **deficits/problems** when the syntax interfaces with other modules like discourse.
 - BUT we will see this explanation is not enough.

Previous L2 Spa findings (2)

- Previous L2 studies: mostly
(quasi)experimental
 - Hence true pronominal distribution has been traditionally studied in **artificial contexts** (=comprehension) and NOT in naturalistic contexts with corpora (=production).
- **Large learner corpus data** rarely used to investigate anaphora resolution.

L₂ CORPUS STUDY

Linguistic analysis based on the antecedent

OVERLOOKED IN
PREVIOUS L2 RESEARCH

TOPIC SHIFT

No gender diff

Pedro [+masc]
Antonio [+masc]

Gender diff

Pedro [+masc]
María [-masc]

TOPIC-
CONT.

Pedro [+masc]

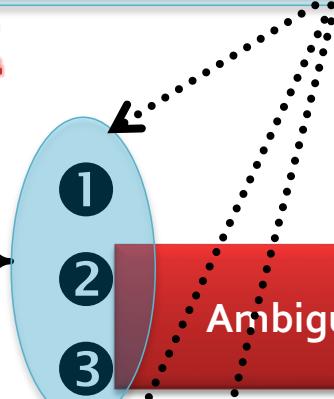
ANTECEDENT(S)

ANAPHOR

{ NP: Pedro
#overt: él
#null: Ø }

{ #NP: Pedro
overt: él
#null: Ø }

{ #NP: Pedro
#overt: él
null: Ø }



CEDEL2 [Corpus Escrito del Español L2]

(Lozano 2008, Lozano & Mendikoetxea, 2013)

↗ <http://wdb.ugr.es/~zanos/cdw/>

■ CEDEL2:

- L1 English – L2 Spanish
- c. 750.000 words, 2.400 participants
- All proficiency levels (beginner, intermediate, advanced)
- Also: comparable native Spanish subcorpus.

■ Data tagged:

- Only [+human] [3rd person] [sing] /[plu] syntactic subjects
 - i.e., human characters in discourse, with shift of referents in **description of a film** (unknown to the reader to avoid bias in overuse of Ø in Topic-Shift contexts due to reader's background knowledge of known stories like Little Red Riding Hood (cf. Montrul & R.Louro 2006).

■ Software: **UAM Corpus Tool** (O'Donnell 2009) → tagging & stats.



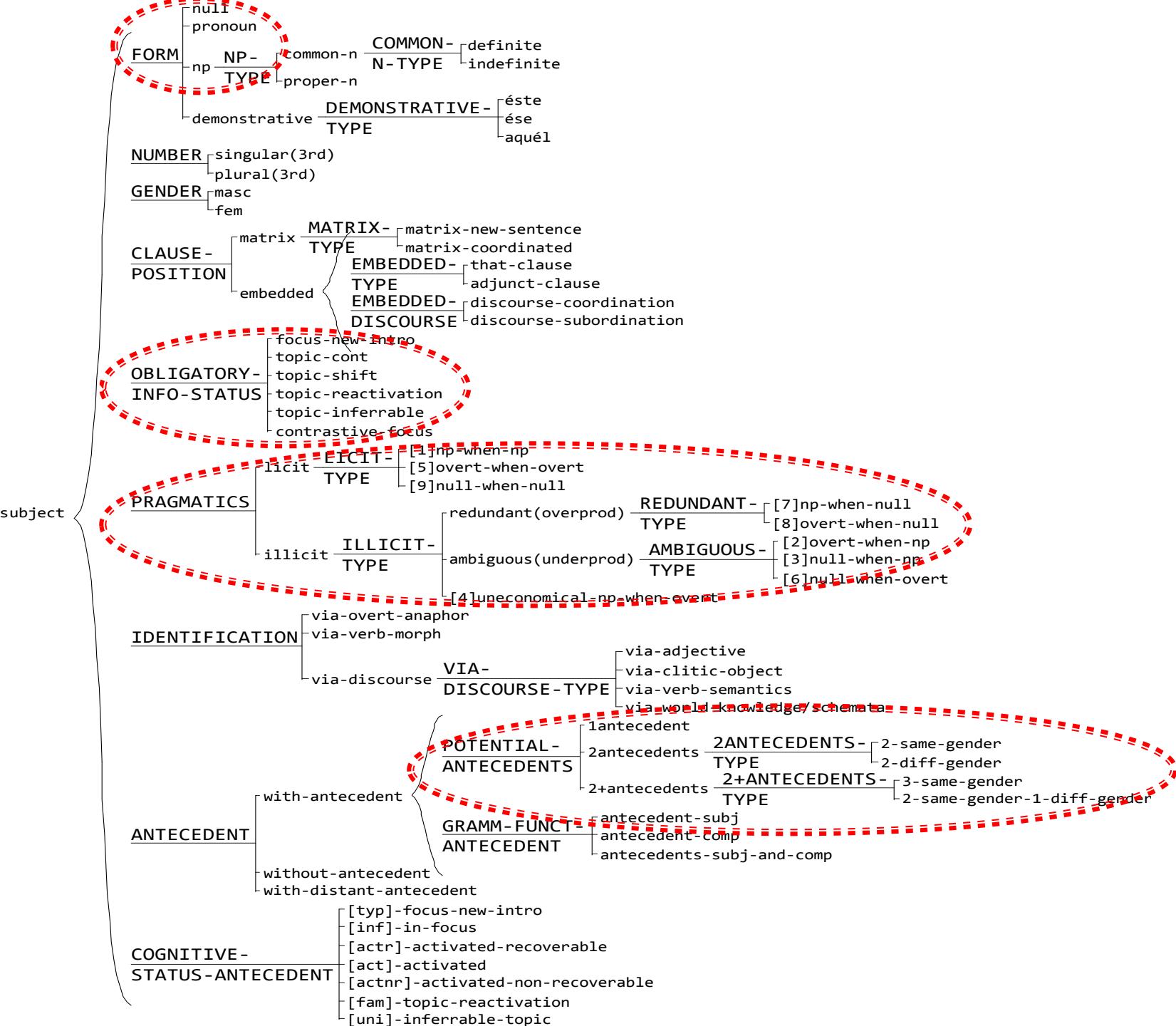
Participants' biodata

- learners (very advanced)
- native (control group)

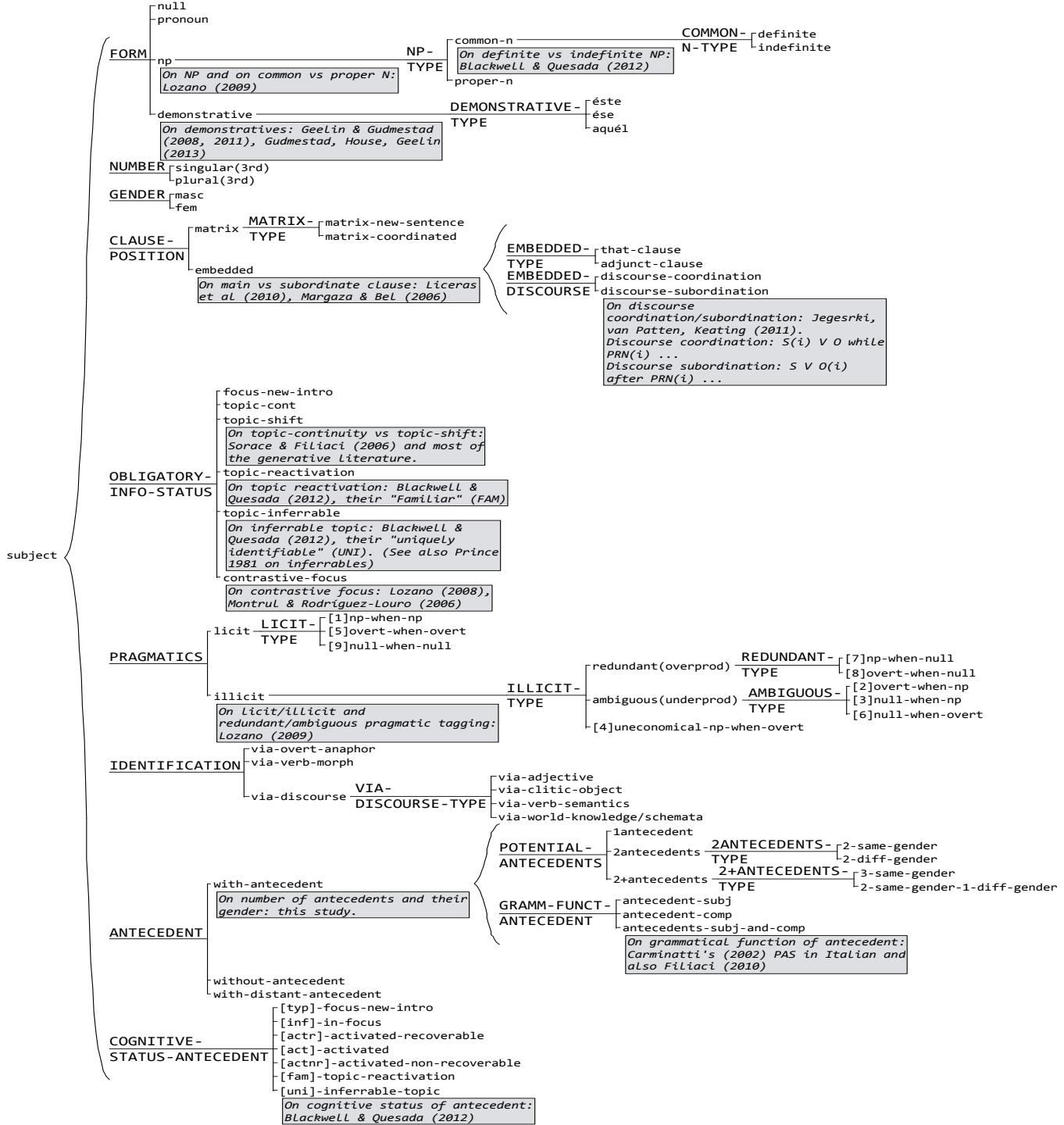
LEARNERS (N=10)					NATIVES (N=10)		
Filename	Age	Proficiency (0~43)	Self prof. (1~6)	Stay length (months)	Filename	Age	Variety (country)
93_30_10_3_JM	30	40	4.5	9	24_3_AAV	24	Spain
93_20_4.5_3_KB	20	40	5.25	4.25	33_3_CMM	33	Spain
95_28_15_3_KDH	28	41	5	2.5	21_3_CPV	21	Spain
95_43_12_3_ML	43	41	5	35	51_3_GDC	51	Spain
95_58_3_3_SAR	58	41	5.25	12	25_3_MCC	25	Argentina
98_49_10_3_GWB	49	42	6	27	32_3_MDD	32	Spain
98_20_8_3_JEL	20	42	5.5	7	58_3_MI	58	Mexico
98_48_11_3_OPE	48	42	5	16	45_3_RP	45	Spain
98_47_29_3_TLS	47	42	6	10	26_3_RSZ	26	Argentina
100_28_8_3_KEM	28	43	5.5	10	30_3_SPH	30	Spain
AVERAGE	37.1	41.4	5.3	13.3			34.5



Fine-grained tagset (only relevant tag nodes for current study)



Fine-grained tagset (with theoretical/empirical sources shown in grey)



Corpus sample details

Corpus	# texts	# words	# tagged subjects	Tags/words ratio	# terminal tags
Advanced L2ers	10	5,172	330	6.38%	5,874
Spanish natives	10	3,206	168	5.24%	2,976
TOTAL	20	8,378	498		8,850



Novelty of this study

- Fine-grained, theoretically motivated tagset (only possible via manual tagging).
- Tagging of both the **anaphor** and also the **antecedent** (← overlooked in previous studies).
 - In particular, 2 key properties of **antecedents**:
 - No. of potential (=competing) antecedents (2+)
 - Gender of antecedents

Hypotheses

- 1) **Syntax-discourse interface deficits** are persistently problematic in **very advanced L₂ers** even after long exposure to L₂ → supports **Interface Hypo** (Sorace 2011).
- 2) BUT not all deficits are equally problematic.
 - In particular, L₂ers' deficits are better accounted for 2 basic **pragmatic principles**
 - **Redundancy**
 - **Ambiguity**
 - ...rather than by over-/under-production of pronominal subjects (as previously reported in L₂ literature).
- 3) Specifically, L₂ers: **redundant > ambiguous**
 - As also found in L₁ Spanish development → perhaps general tendency in language acquisition (?)
 - (Shin & Smith-Cairns 2009, 2011)

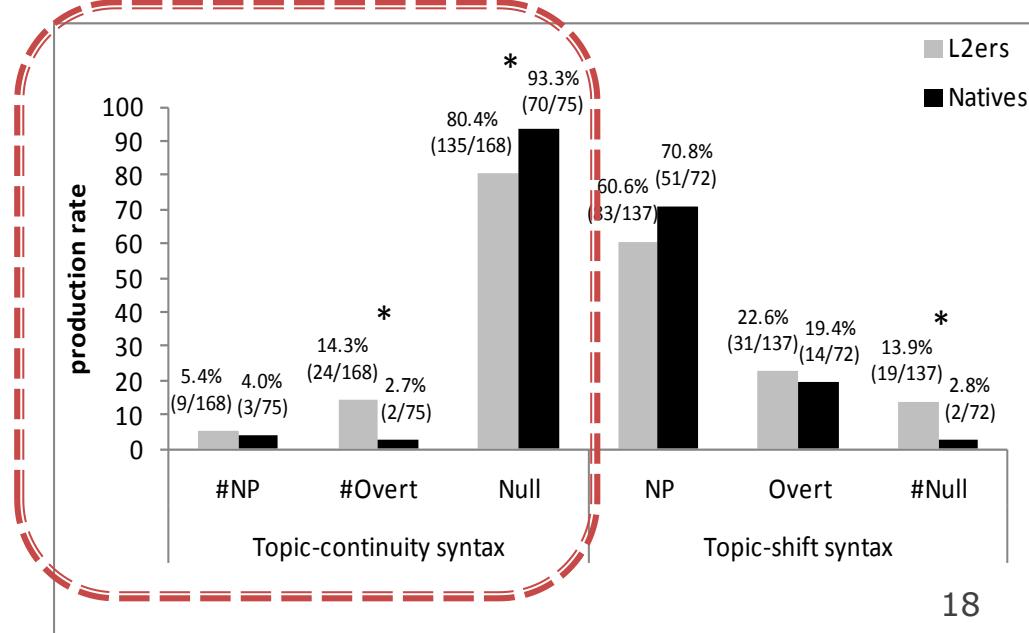
RESULTS

DATA ANALYSIS with in-built statistical software in UAM-Corpus Tools

- analysis of frequencies
- χ^2 tests to check for significant differences

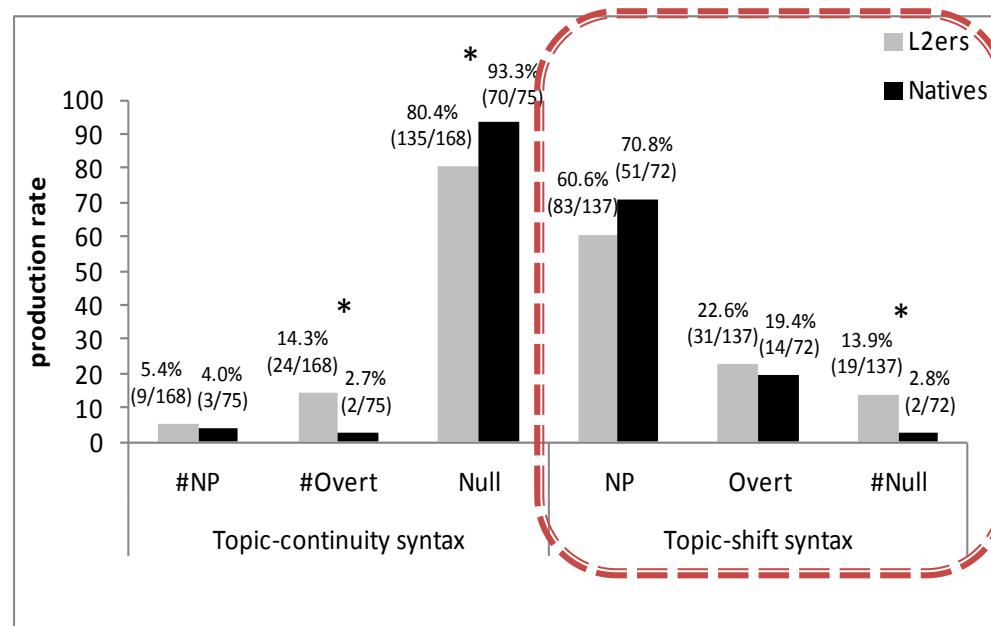
Syntax of TOPIC CONTINUITY

- **NATIVES** produce mostly null subject (expected), and just a few residual overt and NPs (unexpected...according to the literature!)
- **LEARNERS** produce:
 - null, as expected (80%)..... Pedro ... Ø
 - but also redundant overt as previously reported(14%)..... Pedro ... #él
 - and, crucially, some redundant NP , previously unattested in L2 (5%).... Pedro ... #Pedro
- Learners≠natives (sig), despite their advanced level and long exposure to L2 Spa.



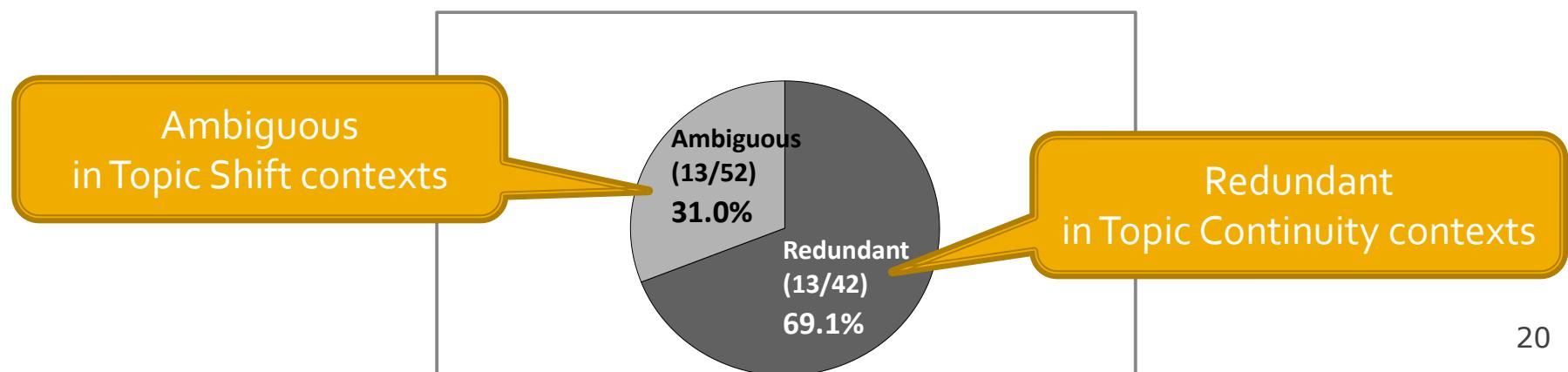
Syntax of TOPIC SHIFT

- In top-shift, we find the opposite pattern than before:
- LEARNERS:**
 - many **overt** (23%), as expected and similarly to natives (19%)..... Pedro María ... él
 - but they clearly prefer **NP** (61%), previously unattested..... Pedro María ... #Pedro
natives also do so (71%)
 - Also some ambiguous **null** pronouns (14%)..... Pedro María ... #Ø
- So, fine-grained annotation reveals that in topic shift both natives and L2ers prefer an **NP** in natural discourse
→ we will discuss later why.
- Learners=natives with **overt and NP**, so learners are native-like in Top-Shift.



Pragmatic infelicity of anaphor

- **Natives:** just some occasional infelicity (only 4 tokens out of 168=2.4%)
- **Learners:** 42/330=13% infelicitous, out of these:
 - In less than $\frac{1}{3}$ of the time, they are **ambiguous** in **topic-shift** contexts, by not producing informative anaphors when required:
 - Null-when-overt (54%) Pedro María ... #Ø
 - Null-when-NP (38%) Pedro Antonio ... #Ø
 - Overt-when-NP (8%) Pedro Antonio ... #él
 - In over $\frac{2}{3}$ of the time, in **topic-continuity** contexts, they produce **redundant** material:
 - Overt-when-null (93%) Pedro ... #él
 - Some NP-when-null (6.9%) Pedro ... #Pedro



Recap

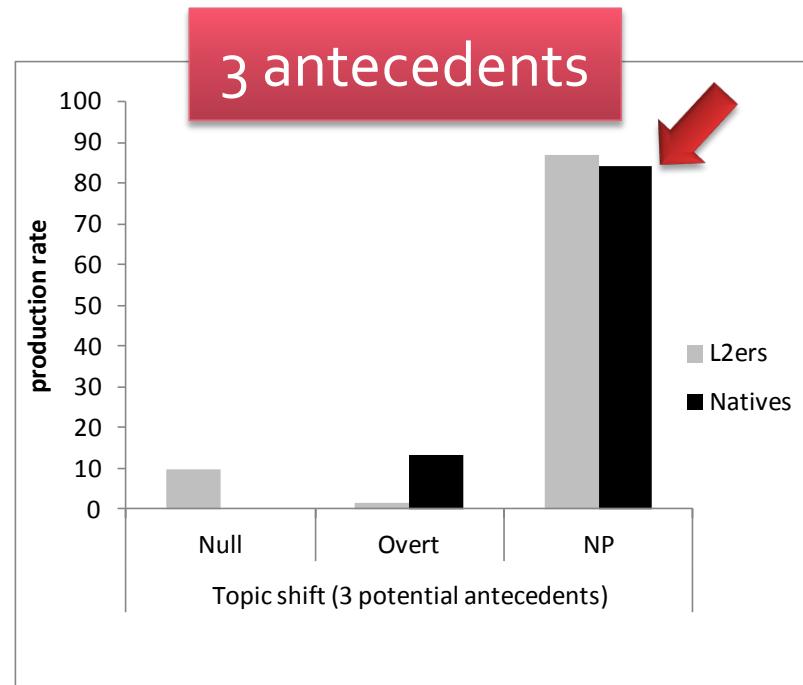
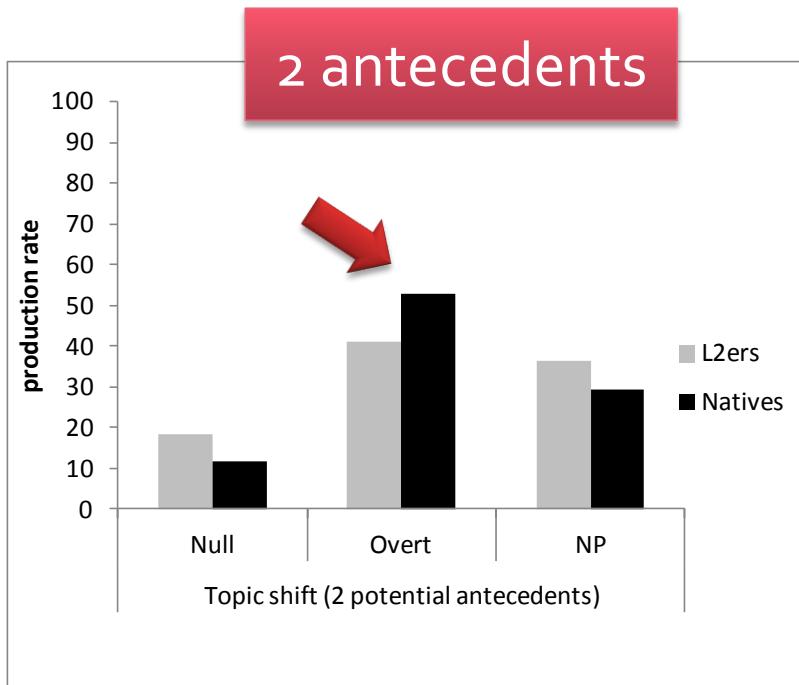
- In **topic-cont** L₂ers are frequently **redundant**: many **overt** pronouns and occasional full **NPs** (unattested in L₂ lit)
- In **topic-shift** L₂ers are sporadically **ambiguous**
- So, L₂ers are more redundant than ambiguous → we'll see why.

Topic-shift: NP or overt?

- In topic-shift contexts,
 - we have observed a **high production of NPs**
 - but traditional studies report high uses of overt pronouns.
- So, what forces production of NP instead of overt?
- Let's consider **two crucial factors** which have been overlooked in the literature:
 - **No.** of potential antecedents: 2 or 3
 - **Gender** of those antecedents

No. of potential antecedents

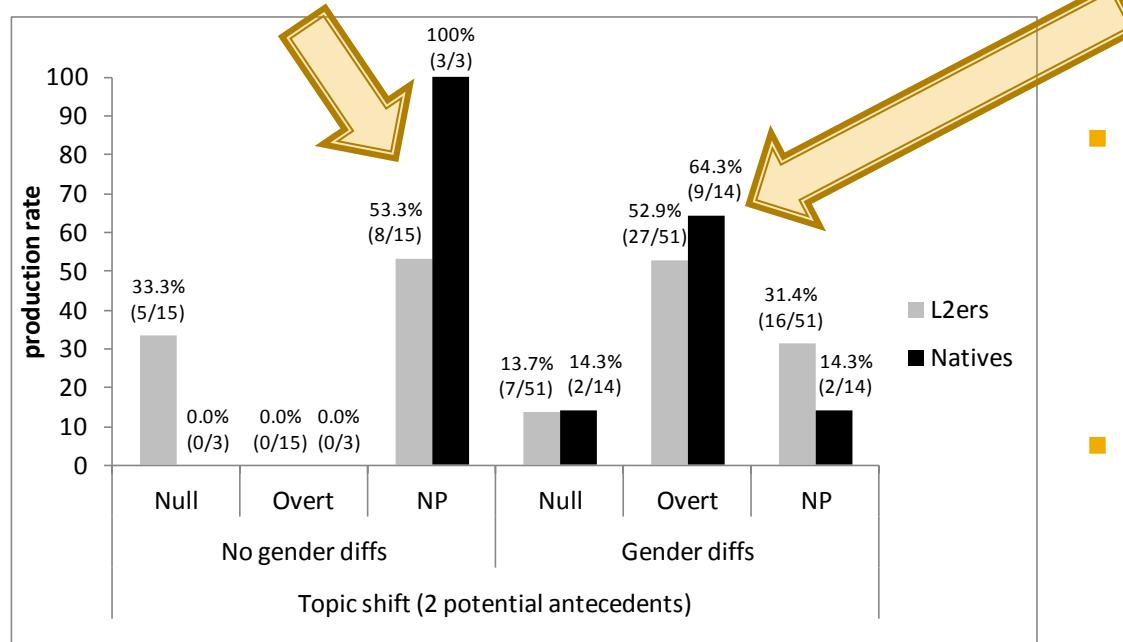
- 2 antecedents: overt > NP
- 3 antecedents: NP >> overt
- So, choice of anaphor (NP vs overt) depends on the no. of potential antecedents (← previously unreported)



Gender of the antecedent

- Let's consider clear-cut topic-shift contexts : **2 antecedents only**.
- When **no gender diff** in antecedents (Pedro/Antonio), everybody prefers **NP>overt** anaphor to avoid ambiguity.

- Pedro Antonio ... Pedro



- When **gender diff** in antecedents (Pedro/María), everybody prefers **overt>NP** anaphor so as to be economical.
- Pedro María ... él
- So, choice of NP vs overt also **depends on gender diffs between antecedents → unexplored in L2 lit.**
- And learners are sensitive to this!

DISCUSSION AND CONCLUSIONS

Data discussion

- L2ers show **pragmatic deficits**:
 - They prefer being redundant > ambiguous.
 - i.e., overinformative > underinformative. WHY??
- L2ers are more aware of **topic-shift** constraints because violation of these → **communicative breakdown (ambiguity)**.
- L2ers are more relaxed with [**top-continuity**] constraints because violation of these → **NOT communicative breakdown**, but simply **redundancy**.

Conclusion

- Question is: Better to be redundant than ambiguous in SLA ?? Also reported for ...
 - **Spa children**, who learn first to avoid ambiguity (overt in top-shift) than to be redundant (overt in top-cont) (Shin & Smith-Cairns 2010, 2012)
 - **Adult natives** of other langs (eg., English) (Engelhardt et al 2006)
- L2ers violate Grice's **Maxim of Quantity** ("Don't say more than is required").
 - Based on neo-gricean approaches to AR in native Spanish (Blackwell 1998, Geluykens 2013):
 - Natives **occasionally violate Informativeness/Economy Principle** ("Produce minimal anaphoric forms to achieve your communicative ends")
 - Natives **rarely violate Manner/Clarity Principle** ("Do not use complex anaphoric forms without reason")
 - AND L2 LEARNERS ARE NO EXCEPTION TO THIS!
- **Pragmatic Principles Violation Hypothesis (PPVH)**
 - Mild pragmatic violations (**redundancy**) are typical even in advanced L2 grammars
 - Strong pragmatic violations (**ambiguity**) are occasional

Violation strength:	STRONG	MILD
Principle violated:	Manner/Clarity	Informativeness/Economy
Violation type:	Ambiguity	Redundant ₁ _{anteced} Redundant ₂ _{anteced}

Final conclusion: LCR and SLA

- Fine-grained, theoretically-motivated annotation ...
- coupled with powerful tagging analysis software & statistical package (UAM Corpus Tool) ...
- reveals findings that have gone previously unnoticed in experimental (and corpus) studies.

THANK YOU - GRACIAS

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