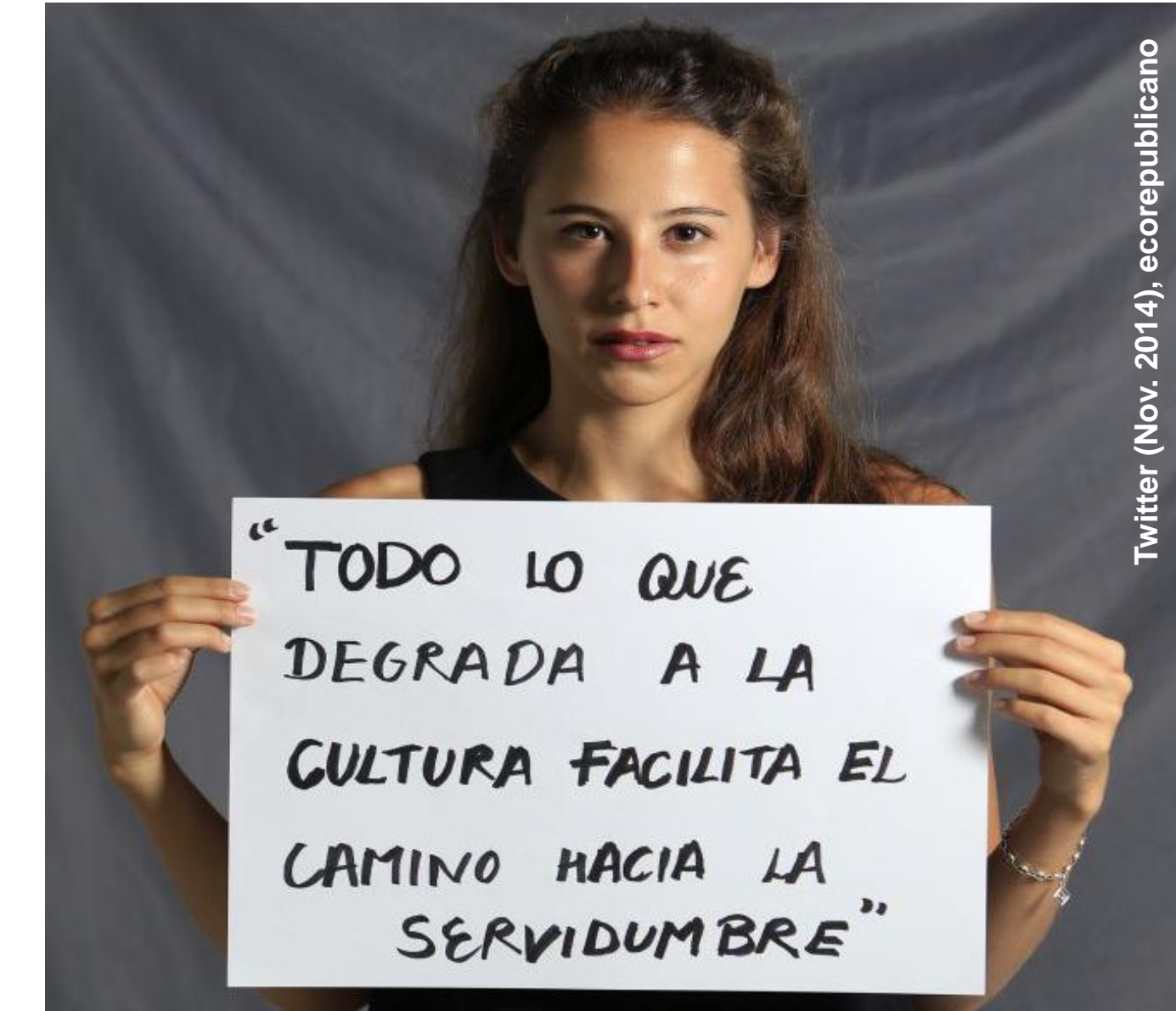


# The role of variation in the processing of differential object marking (DOM) in Spanish

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## 1. DOM: use and development

- **Animacy, definiteness** and **specificity** trigger the marking of direct objects with the preposition **a**
- Development of DOM in Iberian and American Spanish according to von Heusinger and Kaiser (2005, slightly modified):

	Strong Pro >	PN >	Definite >		Indefinite	
			+ spec	- spec	+ spec >	-spec
human	+	+	+	+	+	±
animate	+	+	+	+	±	±
inanimate	∅	±	-	±	-	-

- DOM seems to spread (cf. also Company Company 2002)
- considerable variation "at the margins"

## 2. Processing of DOM

Nieuwland et al. expect a P600 for (1) and (2) (case reanalysis); and an N400 for (1) (conflict in  $\theta$ -role assignment), but results differ:

### EEG-experiment in Nieuwland et al. (2013)

- (1) El papa besó al (\*el) obispo → Res.: N400  
the pope kissed DOM+the (the) bishop
- (2) El papa besó el (\*al) suelo → Res.: P600  
the pope kissed the (DOM+the) floor

### Not tested / discussed: variation

- (3) El papa besó la / a la imagen (del santo)  
the pope kissed the DOM the picture (of+the saint)
- (4) El organizador contrató la / a la orquesta  
the organizer contracted the DOM the orchestra
- (5) El reportero fotografió el / al accidente  
the reporter photographed the DOM+the accident

- Nieuwland et al.: N400 and P600 cannot be easily assigned to "syntax" and "semantics" (in line with previous studies)
- (1) as a "mirror effect" of the unexpected "semantic" P600 effects in the literature, P600 in (2) still taken to be "syntactic"

### Alternative view:

- (3) - (5) show possibility of re-interpretation ("inanim." > "anim.")
- No re-interpretation in (1), just noticing of "error"
- Re-interpretation is triggered in (2), but fails
- Failed re-interpretation: additive effects in acceptability judgments

## 3. The acceptability study

### 3.1 Design of the study

Conditions	animated	variation	Inanimated
with DOM	1 😊	2 ???	3 😞 (😞)
without DOM	4 😞	5 ???	6 😊

- 6 conditions, manipulation of the object NP
- Latin square design, 6 lists, training phase with 8 items
- 30 items, 30 fillers (= 60 tested sentences)
- Fillers: 20 existential sentences (varying acceptability); 10 transitive sentences (different plausibility)
- Sentences randomized and presented one by one
- Acceptability scale with 7 steps: 1 (😞) – 7 (😊)

### 3.2 Stimulus materials

Animated subject NP	Trans. verb (Perf. Comp.)	DOM	Object NP	AdvP
La muchacha the girl	ha encontrado found	a / ∅	la amiga the friend	en el patio de la escuela. in the schoolyard
La muchacha	ha encontrado	a / ∅	la gata the cat	en el patio de la escuela.
La muchacha	ha encontrado	a / ∅	la pelota the ball	en el patio de la escuela.
El maestro the teacher	ha visto saw	a / ∅	el alumno the pupil	en los columpios del parque. at the swings of+the park
El maestro	ha visto	a / ∅	el perro the dog	en los columpios del parque.
El maestro	ha visto	a / ∅	el abrigo the coat	en los columpios del parque.

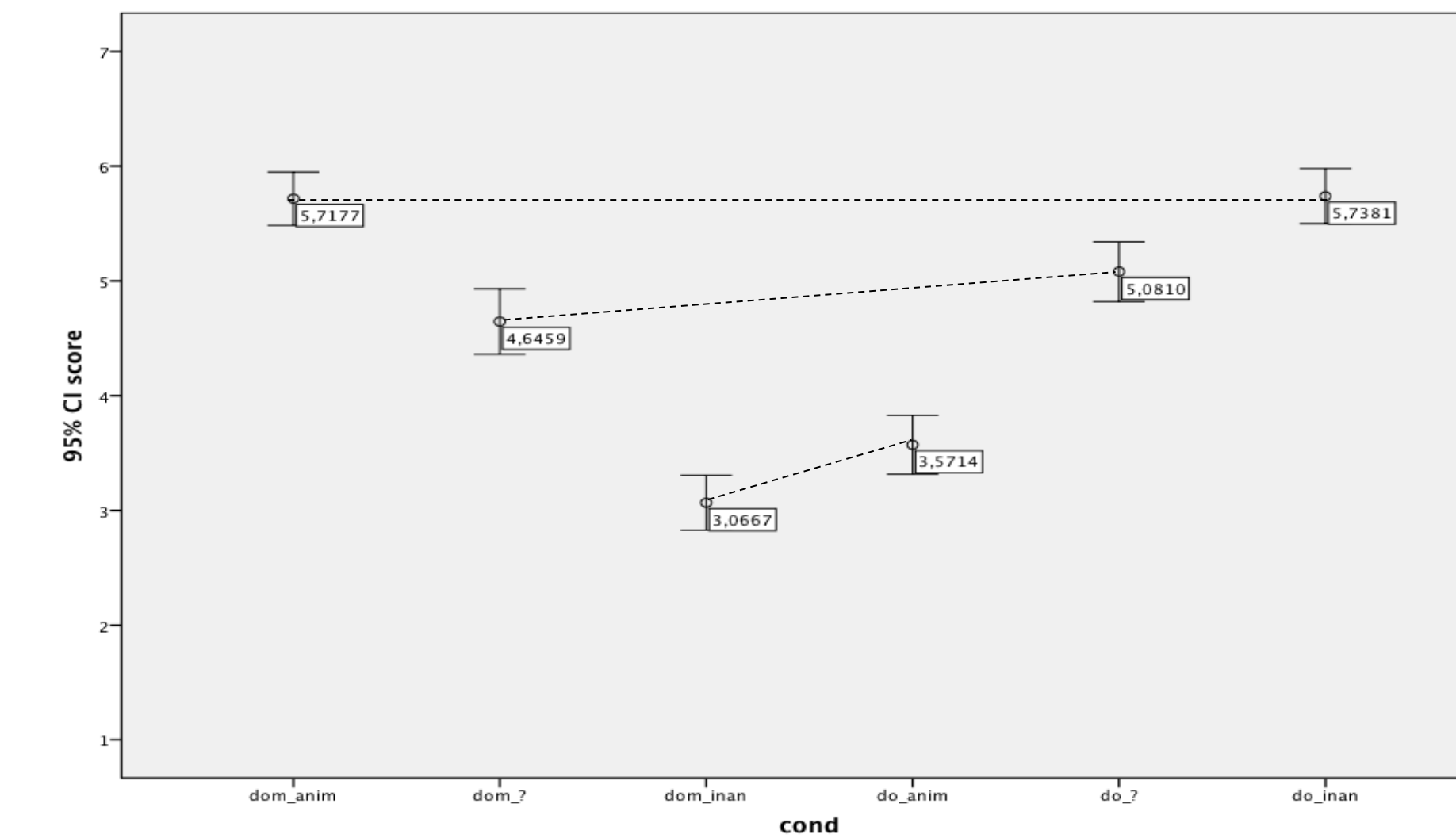
- Frequency class of object NPs: 7-17 (N=[0.5 - log<sub>2</sub>(F(x)/F(max))])
- Most of the 60 object Ns have 2-4 syllables, 3 have 5, 1 has 1
- The choice of the 20 "variable" nouns was also based on the intuition of two native speakers

### 3.3 Execution

- Via the internet, using OnExp
- Instructions with examples ("good/average/bad")
- Participants: 66 native speakers of Spanish; age: 19-60 (M: 32,7; SD 10,78); sex: 29m, 37f; origin: Spain (46), Latin America (17), Germany (3); linguistics course: 18 yes, 48 no

## 4. Results

- "clear cases" correspond to predictions
- **contrast between clearly ungrammatical conditions!**
- none of the conditions is judged very low
- no binary contrast but rather five steps



- ANOVAs (by subject as well as by item) with obj. marking vs. anim. as factors: main effect and interaction are sign. (p < 0.02)
- **3 vs. 4 can be explained with failed re-interpretation**
- More difficult to explain difference between 2 and 5: If DOM is spreading in this domain, why is the tendency in judgment not the other way round? **Problem:** "variable" group of nouns is very heterogeneous, needs a closer look

## Noun classes (a posteriori comparison)

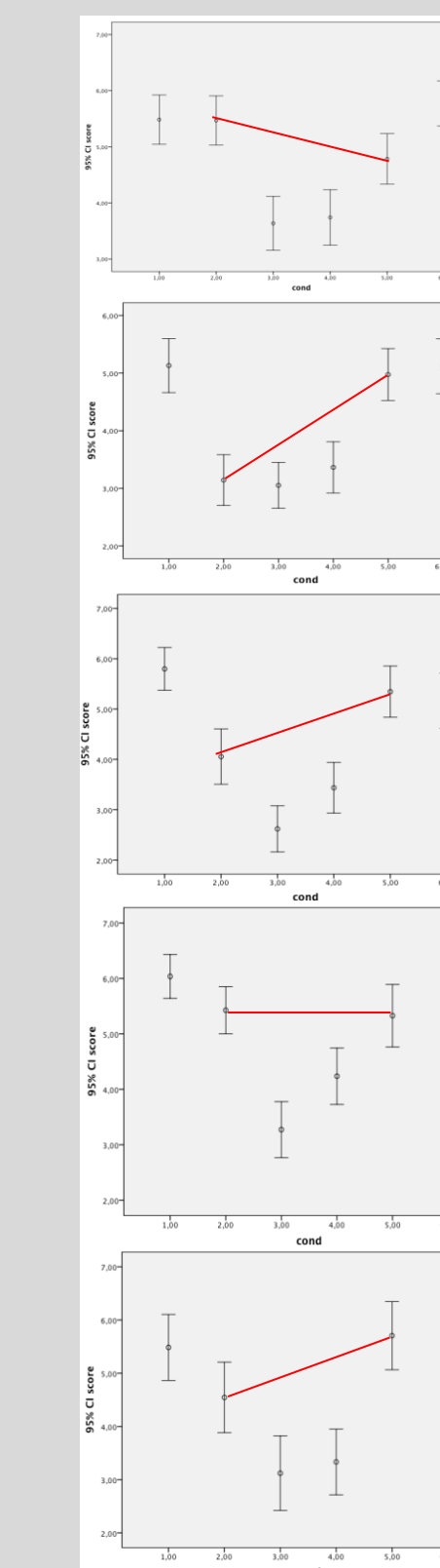
A: **animals**: cond. 2 (=1) > 5; 6 items "animated", according to literature

B: **abstract**: cond. 2 (=3,4) < 5 (=6); 7 items: *idea, crisis, accident, ...* → inanimated

C: **objects**: cond. 2 < 5 (=6); 5 items: *computer, limousine, coffin, ...* → inanimated?

D: **relation to humans**: con. 2 = 5; 5 items: *doll, body, marionette, ...* → "transition"

E: **institutions**: con. 2 < 5 (=1); 4 items: *justice, press, police, ...* → inanimate? (similar to **anim. collectives** (only 3 items))



## 5. Discussion

### 5.1 Processing

"We have proposed that competition for the Actor role correlates with N400 modulations, thus accounting for the fact that argument-induced conflicts tend to engender N400 effects. By contrast, late positivities mark irresolvable sentence-level interpretation conflicts independently of conflict strength. We therefore assume that they reflect categorization processes by means of which a sentence is classified as ill-formed." (Frenzel, Schlesewsky & Bornkessel-Schlesewsky 2011)

- Nieuwland et al. (2013) follow the literature in their explication of the presence or absence of the N400
- For the P600 they offer some possible explanations, however, without making use of the idea of the "irresolvable interpretation conflict", for them 3 and 4 are equally "irresolvable"
- In the re-interpretation scenario, condition 3 appears to be clearly more "irresolvable" than 4
- The last sentence of the quote above should be reconsidered, since condition 4 is not well-formed, however, also not a case of some "irresolvable sentence-level interpretation conflict"

### 5.2 Noun classes

- "intermediate" conditions can be reduced to two groups of different behavior: **A** vs. **BCE** (maybe plus rest D)
- in **BCE**, differences in cond. 2 can be explained straightforwardly with the degree of the availability of re-interpretations
- Gradual behavior of **BCE** in cond. 2 combined with high acceptability fits very well together with the "spreading scenario"

## Future work

- Homogenize "variable" items
- Pay closer attention to context effects (and control for them)
- Investigate on-line behavior of variable items
- Pay closer attention (and compare) to (other) re-interpretation scenarios

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OnExp – The software that creates online questionnaires in minutes. [<http://onexp.textstrukturen.uni-goettingen.de/>]