

Are there pseudo-relatives in Catalan? Psycholinguistic insights into grammatical constraints

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Attachment preferences of an ambiguous relative clause (RC) exemplified in (1) vary cross-linguistically and have been linked to the availability of pseudo-relative (PR) interpretations (2) after perception verbs (Grillo & Costa, 2014). Romance languages such as Spanish, French, and Italian typically favor high attachment (HA), whereby the RC modifies the first noun phrase, consistent with the availability of an eventive alternative whose structure makes the low-attachment interpretation unavailable. In the present study, however, Catalan/Spanish–English trilinguals showed a low attachment (LA) preference in Catalan, patterning with English rather than Spanish. This unexpected result calls for clarification. First, to determine whether this pattern reflects a broader property of Catalan or a more recent shift, we compared younger speakers educated primarily in Catalan with an older bilingual group educated in Spanish under earlier sociopolitical conditions. Second, we extended the investigation to code-switched sentences to test whether matrix-verb effects associated with PR availability operate across languages. Specifically, if a Spanish perception verb triggers eventive parsing that favors HA, this bias should persist in Spanish-to-Catalan code-switching, whereas no comparable effect is expected in English-to-Catalan code-switching.

We report the results of two self-paced reading experiments. Experiment 1 used a 2×2 design crossing verb type (perception vs. non-perception) and RC structure (full vs. reduced) (3), while Experiment 2 crossed verb type with code-switch configuration (4). Participants included younger Catalan/Spanish-English trilinguals educated in Catalan (Catalan $n = 30$; Spanish $n = 21$; English $n = 30$) and older Catalan-Spanish bilinguals educated in Spanish ($n = 19^{**}$, with data collection ongoing and 15 additional participants expected shortly^{**}). Stimuli were presented word by word using Linger, followed by comprehension questions probing attachment resolution. Attachment preferences were analyzed with mixed-effects logistic regression, and processing times with linear mixed-effects models.

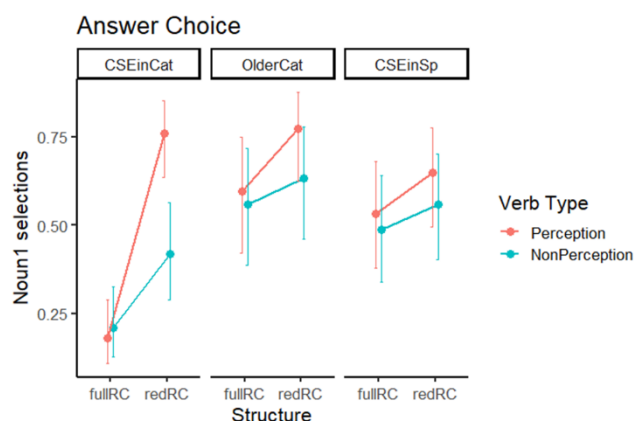
The results of the first experiment reveal a significant interaction between verb type, clause structure, and participant group. In the younger group, Catalan full RCs showed robust LA preference, whereas Spanish showed HA preference, consistent with the availability of PR interpretations in Spanish. This contrast suggests that Catalan full RCs do not permit the same ambiguity between restrictive RCs and pseudo-relatives. However, reduced RCs in Catalan showed increased HA after perception verbs, indicating ambiguity between reduced relatives and eventive small-clause complements. Older bilinguals showed HA preference in Catalan, suggesting a generational difference potentially reflecting stronger Spanish influence on Catalan parsing.

In the code-switching experiment, perception verbs favored HA only when the sentence began in Spanish, indicating that matrix-verb properties continue to guide parsing in mixed-language contexts when the triggering grammatical conditions are available. No effect of code-switch position was observed.

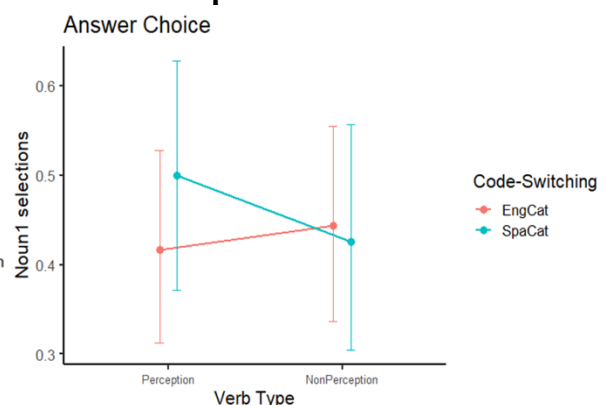
Overall, the findings suggest that modern Catalan differs from other Romance languages in the grammatical availability of pseudo-relatives in full RCs, while still permitting ambiguity in reduced structures. More broadly, the multilingual parser differentiates among available grammatical systems and applies language-specific parsing routines in accordance with the grammatical properties of the language currently being processed.

- (1) Maria saw the friend of the neighbor that was talking about football on the balcony
Who was talking about football?
a) friend (high attachment, HA) (b) neighbor (low attachment, LA)
- (2) a. Pseudo-relative clause (terminology of Grillo & Costa, 2014)
Juan **vio** [PR [DP al amigo del vecino] [CP que estaba hablando sobre el futbol en el balcón]]
Juan saw that the friend of the neighbor was talking on the balcony (the event of talking about football performed by the friend of the neighbor)
b. Restrictive relative clause
Juan **vio** [DP al amigo del vecino [RC que estaba hablando sobre el futbol en el balcón]]
Juan saw the friend of the neighbor that was talking on the balcony
- (3) **Experiment 1, design:**
La Maria **va veure** l'amic del veí **que estava parlant** de futbol per telèfon (*percV, full RC*)
Bill **saw** the friend of the neighbor **that was talking** about football on the patio
La Maria **va veure** l'amic del veí **parlant** de futbol per telèfon (*precV, reduced RC*)
Bill **saw** the friend of the neighbor **talking** about football on the patio
La Maria **va cridar** l'amic del veí **que estava parlant** de futbol per telèfon (*non-percV, full RC*)
Bill **called** the friend of the neighbor **that was talking** about football on the patio
La Maria **va cridar** l'amic del veí **parlant** de futbol per telèfon (*full RC*)
(despite reported marginality, a pretest confirmed that speakers accepted the intended LA reduced-RC reading)
Bill **called** the friend of the neighbor **talking** about football on the patio
- (4) **Experiment 2, design:**
Spanish-to-Catalan Code-Switching:
María vio al vecino del amigo que parlava de futbol al pati
María llamó al vecino del veí que parlava de futbol al pati
María vio al vecino del amigo que parlava de futbol al pati
María llamó al vecino del veí que parlava de futbol al pati
English-to-Catalan Code-Switching:
Bill saw the friend of the neighbor que parlava de futbol al pati
Bill arrested the friend del veí que parlava de futbol al pati
Bill saw the friend of the neighbor que parlava de futbol al pati
Bill arrested the friend del veí que parlava de futbol al pati

Main findings, Experiment 1



Experiment 2



References: Grillo, Nino, and João Costa. 2014. A novel argument for the universality of parsing principles. *Cognition* 133: 156–87.