

## A Direct Comparison of RC and PP Attachment Preferences

**Introduction.** A major area of research in psycholinguistics addresses how syntactic ambiguity resolution preferences differ across individuals. Consider the sentence: “The friend (N1, high) of the moviestar (N2, low) who was sitting on the balcony (Relative Clause: RC) was under investigation”. Although the RC can be attached to N1 or N2, studies suggest the preference varies cross-linguistically [1, 2]. Individual differences within the same language group have also been observed; for instance, participants with lower working memory (WM) spans tend to prefer high attachment of RCs, even when their first language typically favors low attachment [3]. This counterintuitive preference for a more distant site has been replicated in multiple studies [4]. Most research has focused on RC ambiguities, but in an unpublished study, we extended these findings to prepositional phrase (PP) ambiguities. While RC preferences aligned with WM span, PP attachment showed a different pattern: participants—regardless of first language (Mandarin, English, or Spanish)—consistently preferred high attachment, with no significant relationship to WM span. This suggests that RC and PP ambiguities, though structurally similar, differ in attachment preferences. To build on this, we addressed a limitation in earlier research: RCs and PPs were not carefully matched for factors like word length, context, or meaning, potentially influencing the observed differences. In our new study, we controlled for these variables to clarify whether the distinctions in preferences stem from structural differences or extraneous factors. The results of this study are presented here.

**Method. Study 1:** 121 Spanish-English bilinguals and 134 English monolinguals completed two WM tasks (reading and spatial span), an offline attachment task consisting of 20 experimental items and 80 fillers (each presented one at a time) and the LEAP-Q, to assess language proficiency and other demographics. This study directly replicated the design of previous studies [3,4]. In the attachment task, participants read sentences containing either an RC or a PP (see Figure 1 for example stimuli). The RC and PP were carefully matched for word length, context, and meaning, the only difference being whether the phrase began with a relative pronoun (who) or a preposition (with). Apart from this, the sentences were identical. Participants read one version of each list and made a judgment.

**Results.** Consistent with previous findings, the Spanish sample preferred high attachment for RCs ( $M = .64$ ,  $SD = .23$ ), while the English sample preferred low attachment ( $M = .32$ ,  $SD = .12$ ; see Figure 2). For PPs, however, both the Spanish and English samples showed a preference for high attachment (Spanish:  $M = .61$ ;  $SD = .18$ ; English:  $M = .RC$ ,  $SD = .17$ ; see Figure 2). Additionally, in line with previous research, logistic regression analyses revealed that across both samples, participants with lower spans preferred to attach RCs high more often than did those with higher spans (Spanish:  $\beta = -0.73$ ,  $p = 0.042$ ; English:  $\beta = -0.78$ ,  $p = 0.035$ ). However, the same was not shown for the PPs. There was no significant relationship between PP attachment and WM (Spanish:  $\beta = 0.33$ ,  $p = .678$ , English:  $\beta = 0.21$ ,  $p = .723$ ; Spanish:  $\beta = 0.33$ ,  $p = .678$ ). **Discussion.** This multi-group, large N investigation of attachment preferences reveals that although RC and PP modifiers are superficially similar, their behavior with respect to attachment preferences are very different: RC attachments vary cross-linguistically and correlate with WM span, but PPs favor high attachment regardless of language or individual differences in WM. We interpret these results in line with a modified version of the Construal hypothesis [6], in which the distinction is not between primary and non-primary phrases but between phrases and clauses. In future studies, we plan to investigate how the inflectional and verbal content in relative clauses influences attachment variation. Additionally, we aim to conduct reading time studies to gain deeper insights into how people process these types of sentences.

References

[1] Cuetos & Mitchell, 1988. Cognition.  
[2] Brysbaert & Mitchell, 1996. Quarterly Journal of Experimental Psychology.  
[3] Swets et al., 2007, J Exp Psychol Gen.  
[4] Cotter & Ferreira, 2024. Memory & Cognition.  
[5] Frazier & Clifton, 1995. MIT Press.

Figure 1: Example stimuli

Example	PP Sentence	RC Sentence
Spanish Example	El amigo (N1, alto) del cineasta (N2, bajo) con el brazo roto (PP) estaba bajo investigación.	El amigo (N1, alto) de la estrella de cine (N2, bajo) [que rompió el brazo] (RC) estaba bajo investigación.
English Example	The friend (N1, high) of the moviestar (N2, low) with the broken arm (PP) was under investigation.	The friend (N1, high) of the moviestar (N2, low) [who broke his arm] (RC) was under investigation.

Figure 2: Overall high attachment of RC vs PPs per sample. The percentage represents a given sample's tendency to prefer high attachment of RCs.

