

Relative clause attachment in German, English, Spanish and French: Effects of position and length



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Abstract

German, English, Spanish, and French versions of short (ia) and long (ib) relative clauses were tested in written questionnaire studies. The noun phrases containing the clauses appeared in either object position (as in i) or in subject/topic position, and the relative clauses ambiguously modified the first or the second noun of the noun phrase.

- (i). a. *The doctor met the son of the colonel who died.*
b. *The doctor met the son of the colonel who tragically died of a stroke.*

In the first experiment, German, English and Spanish were tested. In all three languages, more high attachment (first noun modification) interpretations were observed for long relative clauses than for short ones, perhaps reflecting differences in implicit prosodic phrasing provided by participants when they read the questionnaire. Across languages, more high attachment was observed in object position than in subject/topic position, but this effect was larger for German and Spanish than for English. In addition, although more low attachment than high attachment was observed in every case except German object position, German showed more high attachment than Spanish or English. A second questionnaire indicated that the preference for high attachment in German object position relative clauses cannot be attributed to readers taking these relative clauses to be extraposed. In a third questionnaire in French, we found a generally higher preference for high attachments as in German, but no position effect, as observed in English. We provide an account of these data, which does not require any special theory of relative clause attachment or parameterization for languages. It requires only general processing principles together with independently required grammatical differences among the languages studied involving the focus properties of object vs. non-object position and the availability in Spanish and German, but not English and French, of separate positions for topical vs. nontopical subjects.

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1. Introduction

1.1. RC attachment across languages

Cuetos and Mitchell (1988) studied the processing of ambiguous relative clause (RC) attachment sentences like (1) in Spanish and English.

(1) *The journalist interviewed the son of the colonel who was standing on the balcony.*

They argued that Spanish readers prefer to interpret the relative clause *who was standing on the balcony* as modifying the head noun, *son*, of the noun phrase (NP) that contained it rather than modifying the second noun in the NP, *colonel*, while English readers prefer to interpret it as modifying the second noun. They took this observation as evidence against the cross-language universality of parsing principles such as late closure (Frazier, 1978, 1990) or recency (Gibson, 1991), which would seem to favor modification of the second noun (but cf. Frazier and Clifton, 1996). Since their pioneering study, a great number of studies have examined RC attachment ambiguities in a wide array of languages (e.g., Brysbaert and Mitchell, 1996; Carreiras and Clifton, 1993, 1999; Cuetos and Mitchell, 1988; De Vincenzi and Job, 1993; Gibson et al., 1996; Gilboy et al., 1995; Hemforth et al., 2000a,b; Hemforth et al., 2000; Mitchell et al., 1995; Mitchell and Brysbaert, 1998; Zagar et al., 1997). In addition to RC attachment studies focused on cross-language differences, various studies have examined the role of individual differences in working memory capacity in determining RC attachment (Swets et al., 2007; Traxler, 2007, 2009), or investigated the priming of RC attachment (Desmet and Declerc, 2006; Scheepers, 2003; Scheepers et al., 2011).

Most research on sentence comprehension has searched for language-universal processes. The research on RC interpretation has focused instead on differences between languages, especially, the possibility that a preference to relate new material to recently perceived material (e.g., late closure; Frazier, 1978) is not universal across languages. Though the literature on RC attachment has addressed a great many interesting issues, firm answers have not been easy to establish. The literature is sufficiently rich and varied that one may find support for whatever position one favors, especially with respect to the basic question of whether cross-language differences exist and, if so, what underlies them.

Answers to these basic questions have not been firmly established, we think, because there have been few studies where the materials are held constant across languages (e.g., Gilboy et al., 1995; Cuetos and Mitchell, 1988; Carreiras and Clifton, 1993, 1999, for the Spanish–English comparison). The need to hold the materials constant across languages is particularly acute because it is known that there is a great deal of RC attachment variation within languages, e.g., ranging between roughly 10% and 80% low attachment of RCs in Spanish in Gilboy et al. (1995) and ranging from roughly 20% to 70% low attachment in English for translation equivalents of the same materials, with the amount of low attachment depending on the type of head noun and the type of preposition in the head nominal. The goal of the present paper is to directly compare languages that have been claimed to differ on RC attachment, using materials that are comparable across languages (Spanish, English, German in Experiment 1; German with or without extraposition in Experiment 2, French in Experiment 3), and using items in the range where cross-language variation would be expected to emerge if indeed it exists.

The present work addresses cross-language differences in the final interpretation of RCs and explicitly challenges the suggestion that there are fundamental differences among languages in how RCs are comprehended. It suggests that the differences that have been observed are actually reflections of deeper factors that are common to all languages that have been studied. We discuss both these points before reporting the experiments.¹

1.2. The bases of interpretation preferences

English has been claimed to show a low attachment (recency, late closure) preference for interpreting RCs. Spanish, Dutch and German (and to a possibly even greater extent, French) have been claimed to show a high attachment

¹ The present studies are off-line judgment studies, like most studies of relative clause attachment. There are rather few on-line studies, and most confirm the off-line data (e.g., Carreiras and Clifton, 1993, 1999; Carreiras et al., 2004). The initial report of a preference for high attachments of RCs in Spanish (Cuetos and Mitchell, 1988) contained three on-line self-paced reading studies, but these studies did not directly compare high vs. low attachments (see also Traxler et al., 1998). Rather, they compared ambiguous and unambiguous attachments, finding that ambiguous attachments were faster. Later research, however, has shown faster reading of RC sentences that are disambiguated in favor of the off-line preference for the language in which the study was conducted (including, for Spanish and English, Carreiras and Clifton, 1993, 1999, and at least suggestively, Thornton et al., 1999; for German, Konieczny and Hemforth, 2000; Hemforth et al., 2000a, 2000b; for Dutch et al., 1996, and Desmet et al., 2002a; for French et al., 1997). One arguable exception appears in De Vincenzi and Job (1993, 1995), who found an early reading time penalty in Italian for RC sentences that were disambiguated toward high attachment, followed by a later penalty for low attachment sentences, but in general, off-line data do seem to reflect initial parsing preferences as reflected in on-line data.

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