Processing Spanish *ser* and *estar*: Discourse and Gender-Based Differences

Background: Spanish copulas *ser* and *estar* (translated as English "be") have distinct distributional patterns [1,2,3,4,5]. Locative predicates typically appear with *estar*, while nominal predicates typically appear with *ser*. Adjectival predicates sometimes, but not always, may combine with either copula, and this gives rise to differing interpretations. Crucially for our purposes, individual- level adjectival predicates (ILs) such as (1a) and (1b) are typically unacceptable with *estar* without a supporting context and they will be the focus of the present study.

(1) a. *La carretera* **es/?está** *ancha*.   'The road **ser/?estar** wide.'

　　b. *Las escaleras* **son/?están** *peligrosas*.   'The stairs **ser/?estar** dangerous.'

According to Maienborn [4], *ser* and *estar* have the same truth-conditional component, but differ in their presuppositional component. *Estar* carries the presupposition that the embedded proposition is restricted to a <u>specific</u> discourse situation, whereas *ser* remains neutral on this issue. *Estar* licensing contexts are thus those in which the discourse situation described by *estar* can be contrasted against *alternative discourse situations*. For example, the acceptability of *estar* in (1a) improves when it is presented in a context such as (2), which contrasts the discourse situation with alternative situations (distinct parts of the Panamerican road) in which the property of being *wide* may not apply.

(2) **Context:** A journalist is reporting on the Panamerican road. She is now near Lima.

　　La carretera **está** *ancha*.   'The road **estar** wide.'
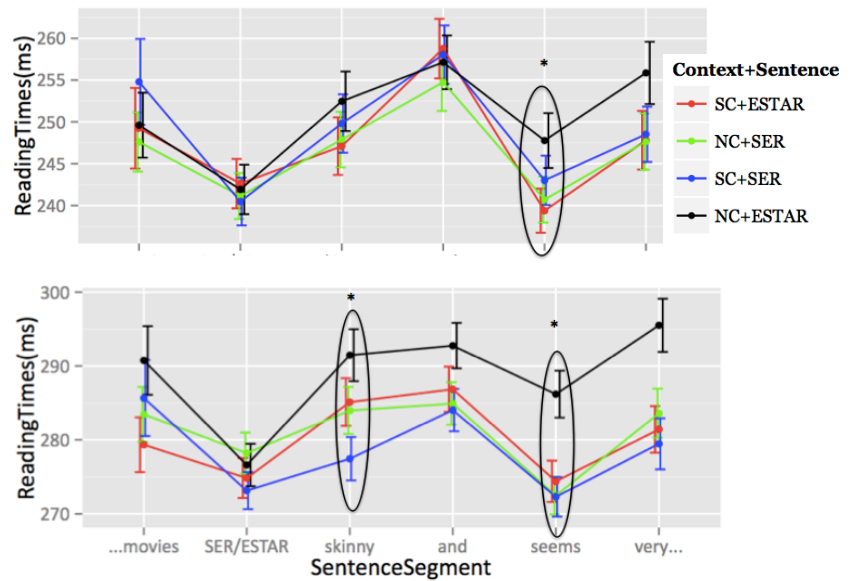
Predictions: On Maienborn's analysis, the felicity of [*estar*+ILs] crucially depends on the contextual conditions and the accessibility of contrasting alternatives. The acceptability of [*estar*+ILs] is expected to increase if the context supports a link to a particular discourse situation in contrast to alternative situations (**SUPPORTING CONTEXT, 'SC'**). A context that is neutral with respect to the existence of contrasting alternative situations (**NEUTRAL CONTEXT, 'NC'**) will decrease the acceptability of [*estar*+ILs]. These predictions were tested in two studies: **Study 1** explores whether native speakers' acceptability judgments and copula choice are influenced by context modulation, and **Study 2** investigates the online processing of the copulas using a self-paced reading paradigm.

Materials (2x2 Design) (sentences are presented in English for brevity):

Two contexts	+	Sentence with *ser* or *estar*
SC: Pedro went on a diet for six months.		I saw him yesterday at the movies. (He)
NC: I have met Lucia's husband.		**SER/ESTAR** <u>skinny</u> and seems very happy.

Study 1: Questionnaire (*n*=40, 150sents). Speakers of Iberian Spanish were presented with pairs of sentences. Each pair consisted of a context sentence, followed by a test sentence with *ser* or *estar*. Since the goal of the study was to detect the effect of context on the acceptability of *estar* sentences, only ILs were included in the stimuli. Half of the sentences were presented in an acceptability rating task, and the other half in a fill-in-the-blank task, in which participants had to complete the sentence with one of the two copulas.

Results. <u>Scoring task</u>. Acceptability scores were significantly higher for [SC+ESTAR] in comparison to [NC+ESTAR] (*p*<.001). In addition, [NC+SER] sentences were rated higher than [SC+SER] (*p*<.001), indicating a preference for *estar* when SC contexts were provided.

<u>Fill-in-the-blank task</u>. *Estar* was the preferred choice when participants were presented with SC contexts (mean: 57%) and *ser* was the preferred choice with NC (mean: 89%).

Study 2: Self-paced reading (SPR) (*n*=61, 180sents). Speakers of

Fig1, Study 2. Reading Times for Men (top) and Women (bottom).

Iberian Spanish were presented with pairs of sentences following the design in Study 1. Sentences were presented word by word using the moving-window technique. Reading times (RTs) were recorded for each displayed segment. The crucial segments were: the copula, the adjective, one word after the adjective and two words after the adjective.

Results. RTs were significantly higher for *estar* sentences when preceded by NC contexts (*p*=.0013). No significant interactions were found for *ser*. <u>Gender differences</u> (Fig.1). There was an interaction between context-type and gender; women were faster than men at processing sentences preceded by SC contexts in comparison to NC contexts (*p*=.02).

Conclusion. The studies showed that 1) *estar* sentences are significantly more acceptable (acceptability task), more likely to be produced (fill-in-the-blank task), and less costly to process (SPR study) when they are preceded by SC contexts in comparison to NC contexts. 2) There is no such effect of context modulation on *ser* in the SPR study. These differences can be due to the accommodation of *estar*'s presupposition that the embedded proposition is linked to a particular discourse situation. This finding underscores the centrality of context in determining the acceptability of [*estar*+ILs]. We do observe some effect of context modulation on *ser* in the offline tasks, which we take to require further interpretation in terms of the division of pragmatic labor between the two copulas. We also found that 3) women and men are differentially attuned to the contextual requirements of the two copulas. We relate this latter finding to differences in accessing of contextual information. This "non-linguistic" ability has been independently associated to distinct styles of cognitive-processing: preferential attunement to "global context" (women) and "local context" (men) [6,7].

References: 1.Clements, 1998, 2006; 2.Escandell-Vidal and Leonetti, 2002; 3.Luján,1981; 4.Maienborn, 2005; 5.Roby, 2009; 6.Kramer et al., 1996; 7.Yu, 2009.