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Variability in *ser/estar* Use Across Five Spanish Dialects: An Experimental Investigation

**Abstract:** The Spanish copulas *ser* and *estar*, translated into English with ‘be’, often alternate in copular clauses with non-verbal predicates, giving rise to distinct readings. It has been noted that the acceptability of certain copula–predicate collocations, such as *estar* with individual-level adjectives (e.g. *Pedro está inteligente* ‘Pedro is intelligent’ or *la carretera está ancha* ‘the road is wide’), may depend on the extra-linguistic context in which the sentence is uttered. These readings, moreover, are not equally acceptable across all dialects of Spanish. Here we probe into the contrast between the two copulas by systematically investigating the offline and online comprehension of *ser* and *estar* sentences with adjective, nominal, and locative predicates – in five dialects of Spanish: Argentinian, Chilean, Iberian, Mexican and Venezuelan Spanish. The experimental design relies on an intuition underlying semantic treatments of the copular contrast that *estar* carries a presupposition that the truth of its prejacent is “bounded” or “restricted” to a specific situation ([Clements 1988](#Clements1988), [Maienborn 2005](#Maienborn2005)), while *ser* is neutral in this regard. We hypothesize that manipulating the discourse context preceding *estar* sentences by (not) providing support for this presupposition will correlate with differences in acceptability of the resulting collocations that are standardly considered to be marginal in some Spanish dialects.

Results from acceptability questionnaire (comprehension) and forced-choice (production) tasks (a total of 233 speakers) bear out this prediction. These studies, conducted across five dialects of Spanish, quantitatively establish for the first time that (a) there is significant variation in the acceptability and use of *estar* sentences in neutral discourse contexts; (b) in all dialects, the presence of a presupposition-supporting discourse context leads to significant increase in acceptability and use of *estar*, and (c) there is significant variation within as well as among dialects with respect to whether and the degree to which a presupposition-supporting discourse context leads to increase in *estar*’s acceptability. We further strengthen our investigation with results from a self-paced reading task conducted for Iberian, Argentinian, and Mexican dialects (a total of 177 speakers). These show that the dialects differ with respect to whether they exhibit a difference in the measurable cost of processing *estar* sentences in neutral discourse contexts vs. those in presupposition-supporting contexts. Specifically, the dialect with high acceptability ratings for *estar* sentences in neutral contexts (Mexican) fails to show reading time differences while dialects with lower acceptability ratings for *estar* sentences in neutral contexts (Iberian and Argentinian) show significant differences in reading times. Taken together, these results strongly support the view that the observed across-dialect and within-dialect variability is driven by differential requirements on the presence of explicit contextual support for the use of *estar*. 

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*Citations*

[Clements 1988](#Clements1988)

1 Introduction

The copulas *ser* and *estar* effect an intricate division in the domain of copular clauses in Spanish, which has been studied through detailed description and analysis both in the Hispanic/Romance studies literature and in Linguistics. The key question for any analysis is: What semantic distinction between predications could be signaled by these copular differences that in languages like English remains covert? It has been suggested that notions like stage-levelness vs. individual-levelness, temporariness vs. permanence, or the difference between whether a given property obtains intrinsically vs. accidentally of an individual underlie the *ser*-estar contrast (Ramsey, 1894; Bello and Cuervo, 1941; Roca Pons, 1960; García de Diego, 1970; Diesing, 1992; Escandell-Vidal and Leonetti, 2002). While these distinctions are indeed implicated in determining some uses of the two copulas, they do not offer a unified understanding of their distribution or the interpretational effects associated with them.

Further complicating the puzzle of *ser/estar* is the fact that the distribution of two copulas has been reported to differ across dialects of Spanish. For instance, certain individual-level predicates like *talentosa* ‘talented’ or *inteligente* ‘intelligent’ have been found to be acceptable with *estar* in Mexican Spanish but are considered marked in Iberian Spanish (Cortés-Torres, 2004; Juárez-Cummings, 2014). Such across-dialect variability in copula use gives rise to at least two questions about the *ser/estar* distinction. First, what are the empirical differences in the patterns of acceptability across Spanish dialects? Second, what semantic or pragmatic properties associated with *ser/estar* could possibly lead to such variability in use?

This paper probes into the semantic contrast underlying *ser* and *estar* by investigating the variation in acceptability and use of the two copulas across five Spanish dialects: Ibérico (Spain), Altiplano (Mexico), Rioplatense (Argentina), Caraqueño (Venezuela), and Santiago (Chile). The starting point of this investigation is the hypothesis that *ser* and *estar* are presuppositional variants with *estar* as the stronger member of the pair. This hypothesis has given rise to a family of analyses that locate the distinction between *ser* and *estar* in certain contextual requirements (presuppositional content) associated with *estar* (see Sanchez-Alonso (2018) for a review). Building on one semantic analysis that explicitly characterizes the content of *estar*’s presupposition (Deo et al., under review), we study the effect of this presupposition-based contrast both within a given dialect of Spanish and across Spanish dialects. Underpinning the design of these studies are four questions about the nature of meaning and meaning variability in the *ser/estar* domain.

(1) a. Is it experimentally demonstrable that there is specific presuppositional content that distinguishes *estar* from *ser*?
   b. Is this content observable across the Spanish dialects?
   c. Does the presence/absence of a context that directly supports *estar*’s presupposition have differential effects in different dialects?
   d. Does the presence/absence of a context that directly supports the presupposition lead...
to different effects for distinguishable classes of predications within/across dialects?

Our studies allow us to answer each of these questions in the affirmative and thus contribute to larger issues that go beyond the specifics of the ser(estar) contrast. They contribute empirically and methodologically to the experimental study of presuppositional content. But more crucially, they reveal the possibility that identical manipulation of contextual support for what is putatively the same presuppositional content (associated with the “trigger” estar) can give rise to differential behavioral effects across dialects of the same language. Our finding that Spanish dialects vary with respect to the acceptability and use of estar suggests that we need a finer-grained understanding of the interaction between the discourse context and utterances containing presupposing expressions. Specifically, if it is the case that accommodation of the same presuppositional content in contexts that fail to support the presupposition (neutral discourse contexts) happens to differing extents in different speech communities (represented by the distinct dialects), then this suggests a difference in the status of the presuppositional content between the speech communities. This possibility has implications for a change that has been observed with respect to ser and estar in at least some dialects – the “encroachment” of estar into ser’s domain (Vaño-Cerdá, 1982; Gutiérrez, 1992; Batllori, 2003; Díaz-Campos and Geeslin, 2011; Batllori and Roca, 2012; Alfaraz, 2012).

The paper is organized as follows: §2 provides an overview of the distribution of non-verbal predicates with ser and estar in Spanish. In §3 we report the range of copula variation that has been previously observed across Spanish dialects. §4 presents the semantic analysis of ser and estar that is designed to provide a unifying account of the range of uses displayed by estar predications. Elements of this analysis (particularly the hypothesis that estar is distinguished from ser by the presence of the boundedness presupposition) are used in constructing our experimental design. §5 and §6 present three experimental studies testing our predictions across five Spanish dialects: Iberian, Argentinian, Venezuelan, Mexican, and Chilean. By manipulating support for the hypothesized presupposition in preceding linguistic context, we are able to test for the presence of the presupposition and its effect on the acceptability of different estar-based collocations. §7 concludes the paper with a discussion of the experimental results in the context of the boundedness presupposition analysis, its implementation during the process of comprehension, and its implications for our understanding of variation and change in presuppositional content.

2 The Use of ser and estar in Modern Spanish

The Spanish copular contrast has been investigated in much detail (see overviews in Arche (2006); Roby (2009); Camacho (2012); Fábregas (2012)). While there appear to be predicates where one or the other copula appears to be quasi-obligatory, there are several predicates which combine with both ser and estar. In particular, several adjectives, predicate nominals, and locative PPs appear with both copulas with differing semantic effects.

While most adjectives appear felicitously with both copulas, it has been claimed in the literature that some adjectives are obligatorily associated with either ser or estar and may not occur with the other copula. This purported categorical behavior is documented in the form of lists (Maenborn, 2005; Clements, 2006; Martin, 2010), among others.
reported in this paper.

2.1 Locative predicates

Although introductions to the *ser/estar* phenomenon often suggest that locative PPs primarily combine with *estar*, it is a well-known fact that *ser* may be used felicitously with locative predicates \(\text{(Ramsey} [1894], \text{Roldán} [1974b], \text{Camacho} [2012], \text{Gumiel-Molina et al.} [2015])\). A familiar observation is that event-denoting subjects often appear with *ser*. For example, the use of *ser* in (2) with the event-denoting subject *clase*, conveys that the assigned location for the class to meet is on the first floor – i.e. the course-meetings are scheduled to happen in a classroom on the first floor. The use of *estar*, on the other hand, conveys that the actual location at utterance time for the class is the first floor and leaves it open whether this location is assigned to it or not.

\[\text{(2) La clase es/está en la primera planta} \]

the class *ser/estar*.PRES.3SG on the first floor

The class is on the first floor.  \(\text{Gumiel-Molina et al.} [2015] 962, \text{ex. 6e)}\)

The choice of *ser* vs. *estar* effects yet another sort of contrast with locative predicates. \(\text{Roldán} [1974b]\) provides an illustration through her translation of (3-a) and (3-b). Native speakers agree with the judgement that a question like *Where is the exit door?* asked using *estar* conveys that the speaker is interested in the location of the exit door, while the same question, asked with *ser* conveys that the speaker is interested in finding the way out of the building.

\[\text{(3) a. ¿Donde es la salida?} \]

Where *ser*.PRES.3SG the exit-door?  Where is the way out?

\[\text{b. ¿Donde está la salida?} \]

Where *estar*.PRES.3SG the exit-door?  Where is the exit door? \(\text{Roldán} [1974b] 68, \text{ex. 2.5 & 2.6)}\)

In the next pair of examples, we see a similar contrast with assertions. (4-a) is construed as an answer to a question about the location of an actual bathroom at utterance time while (4-b) gives information about a designated or planned location for a future bathroom. While *ser* is acceptable (as is *estar*) in (4-b), *ser* may not be used in the context of (4-a).

\[\text{(4) a. Si lo necesitas, el baño de invitados está/es en el segundo piso.} \]

If CL need.PRES.2SG the bathroom of guests *estar/ser*.PRES.3SG on the second floor.

If you need to use it, the guest bathroom here is on the second floor.

\[\text{b. En el mapa de la casa que envió el arquitecto, el baño de...} \]

In the map of the house that send.PAST.3SG the architect the bathroom of...  \(6\)
invitados es/está    en el  segundo piso.
guests   ser/estar.PRES.3SG on the second   floor.
In the house plans the architect sent us, the guest bathroom is on the second floor.

2.2 Nominal predicates

A central puzzle in the Spanish copula distribution has to do with why *ser* is virtually obligatory with nominal predicates, as in (5) (Bello and Cuervo 1941; Luján, 1981; Roby, 2009; Arche, 2012). Although the property of being an architect or a cobbler is not entirely permanent (i.e. it may not hold of an entity throughout their life), the preferred copula is *ser*.

(5)  
Julia es/?está     arquitecta/zapatera.
Julia ser/estar.PRES.3SG architect.FEM/cobbler.FEM
Julia is an architect.

However, we find that *estar* is sometimes (but not necessarily) used with nominal predicates if the property denoted by the nominal is understood to hold very temporarily or in a non-intrinsic way of the subject referent. In such cases, *estar* does not directly combine with a nominal predicate (an NP or DP) but with a prepositional phrase containing the nominal element. The examples in (6) and (7) illustrate this use.

(6)  
   a. Context: Julia majored in Biology with honors, but due to the economic crisis, she has been unable to find a job as a biologist. I ask a friend about what she is doing these days. My friend says:
   b. Me han dicho que está de camarera en un restaurante.
      CL-IO have.PRES.3PL told     estar.PRES.3SG of waitress.FEM in a restaurant
      en Madrid.
      in Madrid.
      I have been told she is waitressing in a restaurant in Madrid.

(7)  
   a. Context: My cousin, for now, has a six-month job.
   b. Le pagan bien porque está de fontanero en el Palacio Municipal de Congresos.
      CL pay.PRES.3PL well because estar.PRES.3SG of plumber in the Palace Municipal of Congress.
      He is well paid because he is (currently) a plumber at the Congress Palace.

The effect of *estar* on nominal predicates is primarily a temporal one: its use conveys that the property associated with the nominal predicate holds temporarily and is not characteristic of the subject referent. The use of *ser* (the assumed default copula with nominal predicates) conveys the neutral proposition that the subject referent can be classified as having the property denoted by the nominal predicate.

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3The prepositions that head such phrases with the semantic effect described are *de* ‘of’ and *como* ‘as’, *para* ‘for’ *hasta* ‘until’ etc. may also occur as the heads of temporal adverbial PPs (e.g. *hasta las ocho de la noche* ‘until 8:00 PM’ or *hasta mañana* ‘until tomorrow’) and felicitously combine with *estar*.  

2.3 Adjective predicates

2.3.1 Temporariness readings with *estar*

For several adjectives, the choice between *ser* and *estar* correlates with the way that the adjective is interpreted in terms of the temporal extent of the property it denotes. The use of *estar* can give rise to an inference of temporariness – the property described by the adjective is understood to hold only temporarily of the subject referent, limited to the observed situation. The use of *ser* with the same adjectives, in contrast, conveys that the property holds more stably in a broader range of situations. This is illustrated in (8-a-b).

(8) a. *Juan es* guapo/avispado.
   Juan ser.PRES.3SG handsome/quick-witted
   Juan is handsome/quick-witted.

   b. *Juan está* guapo/avispado.
   Juan estar.PRES.3SG handsome/quick-witted
   Juan is appearing handsome/quick-witted (right now).

There are also adjectives where the choice between *ser* and *estar* correlates with a difference in the qualitative interpretation of the adjective property. That is, not only does the use of *estar* signal that the property denoted by the adjective holds temporarily of the subject referent, but the property itself is understood to be qualitatively different when expressed by the same adjective, but occurring with *ser* vs. with *estar*. For instance, in (9-a) the adjective *sucio* describes mental perversion or moral corruption (persisting over time) while in (9-b) it describes lack of physical cleanliness (a temporary property). Similarly in (10-a) and (10-b): *callado* may refer to the property of being taciturn or of being silent at reference time.

(9) a. *El reportero es* sucio
   The reporter ser.PRES.3SG dirty
   The reporter is dirty-minded (thinks in a perverted way) OR is corrupt.

   b. *El reportero está* sucio
   The reporter estar.PRES.3SG dirty
   The reporter is silent (and needs a shower).

(10) a. *Mi hermano es* callado
    My brother ser.PRES.3SG close-mouthed
    My brother is close-mouthed (or taciturn).

   b. *Mi hermano está* callado
    My brother estar.PRES.3SG close-mouthed
    My brother is silent (he isn’t talking).

Ramsey (1894: 310)

2.3.2 Unexpectedness readings with *estar*

Sometimes, the use of *estar* with a gradable adjective may give rise to an understanding that the extent of occurrence of some property in the subject referent is unexpectedly high given the context.
Depending on the context, this usage signals the presence of surprise (including disappointment) in an agent with respect to aspects of the asserted predication. For instance, in (11), the snowflake is described as extraordinary in comparison to the other snowflakes the speaker has just seen. The use of estar in this context is related to the expectations that the speaker has built from their immediately prior observations.

(11) a. **Context:** There is an exhibit of blown-up photographs of three snowflakes at the Science Museum. A visitor examines them in order, and at each one, says:

   b. *Este copo de nieve es* interesante, *este es* común, pero

   This snowflake ser.PRES.3SG interesting, this ser.PRES.3SG ok but

   *ESTE, este está* extraordinario.

   This, this estar.PRES.3SG extraordinary.MAS

   This snowflake is interesting, this one is okay, but THIS ONE, this one is extraordinary.

Yet another example is in (12) below. In this context, the use of estar conveys that there is a contrast between the expected degree of beauty of the Sistine Chapel and its actual degree of beauty. The chapel’s actual beauty is understood to exceed the contextual standard for beauty to an unexpected degree.

(12) a. **Context:** A tourist visits the Sistine Chapel, after a long time since her last visit and she has forgotten how beautiful it is. She says:

   b. *Qué hermosa está* la capilla Sixtina.

   How beautiful estar.PRES.3SG the Sistine Chapel

   How beautiful is the Sistine Chapel!

   (It is even more beautiful than the speaker expected)

Adapted from Crespo (1946: 49)

In both examples above, the use of ser instead of estar would convey the neutral proposition that the subject-referent has the property denoted by the adjective to a degree that exceeds the contextual standard.

2.3.3 Relational uses of estar with gradable adjectives

Yet another contextually licensed use of estar concerns the relational uses of gradable adjectives. In such uses, the property denoted by the adjective is interpreted as obtaining in the nominal denotation to a degree that depends on a relation between the nominal denotation and some other entity salient in the discourse context. For instance, the use of adjectives like big, loose, tall, may be sometimes sensitive to how the object to be described by the gradable adjective is related to a specific entity in the context. In (13), the jacket’s fit on Lucía is what determines whether it exceeds the contextual standard for tightness. In (14) the size of the opening is what determines that the curtain exceeds the standard for length.

(13) a. **Context:** Lucía bought a beautiful jacket through Amazon, but it does not fit her, so she needs to return it.
b. _La chaqueta le está ajustada en los hombros._
The jacket CL-IO estar.PRES.3G tight.FEM on the shoulder.PL
The jacket is tight on the shoulders (for Lucía).

(14) a. **Context:** I have a low shower opening for which I am trying to find a shower curtain.
I go and buy the shortest shower curtain I can find, believing that it will fit. Once home, I check the fit and find that the curtain is too big for my opening.

b. _la cortina está larga_
the curtain estar.PRES.3G large
The curtain is long (for the opening).

In such uses of _estar_, the basis for computing the standard for interpreting the gradable predicate comes directly from properties of the larger situation rather than a comparison class or a larger set of similar entities.

### 2.3.4 Contrasting opinion readings

In some contexts, the use of _estar_ signals that the speaker takes the attribution of the property to the subject referent to be a matter of their personal opinion in contrast to that of other agents salient in the context. For example, in (15-a), the speaker conveys that Gucci purses are expensive, relative to their personal circumstances and opinion regarding how much to spend on an accessory. In (15-b), the speaker makes a more general claim about the price and attractiveness of the purses.

(15) a. _No sé cómo la gente puede comprarse bolsos Gucci, a mí me parece que están caros._
I don’t know how people can afford to buy Gucci purses, to me, they are expensive.

b. _Los bolsos Gucci son caros y poco atractivos._
The purses Gucci ser.PRES.3PL expensive and little attractive
Gucci purses are expensive and unattractive.

Such contrasting opinion readings often appear with predicates of personal taste such as _delicioso_ ‘delicious’ or _entretenida_ ‘entertaining’, where the use of _estar_ has an evaluative subjective effect. That is, it conveys that the extension of the predicate is dependent on speaker opinion rather than deriving purely from objective facts. Consider the examples in (16) and (17).

(16) _A nadie en mi familia le gustan las ensaimadas, pero yo creo que están deliciosas._
Nobody in my family CL.IO like.PRES.3PL the ensaimadas, but I think they delicious.

(17) _Esta película está entretenida, pero mis amigos no piensan lo._
That movie estar.PRES.3G entertaining but my friend NEG think.PRES.3PL CL.DO
mismo.

same

That movie is entertaining (according to me), but my friends do not think so.

Clements (2006) offers a similar example of estar being used to describe a subjective sensorial experience. According to him, estar is contextually licensed in this case because it describes the speaker’s experience-based assessment and subjective evaluation of the taste of the mandarins.

(18) a. Context: I have just come back from the market.

b. ¡He comprado unas mandarinas que están riquísimas!

I have bought some mandarins that are very tasty.

Adapted from Clements (2006: 188, ex. 8.48)

These and similar examples show that the use of estar has an evaluative subjective effect, i.e. it conveys that speaker opinion has a central role in determining the truth of the predication. In fact, speakers report a clear felt difference between the two copulas in such cases. The use of ser tends to convey that the entity is judged to have the relevant property in general while the use of estar restricts the judgement to the speaker in contrast with other individuals.

2.4 Summary

This section provided a partial view of the ser-estar phenomenon in terms of the effects that copula choice has on the interpretation of the predication. These contrastive effects with locative, nominal, and adjectival predicates are well-known and most of them have also been well-described in the literature (Ramsey, 1894; Crespo, 1946; Roldán, 1974b; Clements, 1988; Fernández Leborsans, 1999; Arche, 2006; Roby, 2009; Marín, 2010; Camacho, 2012; Gumiel-Molina et al., 2015; Camacho, 2012; Fábregas, 2012). What is crucial is that the distribution of estar and ser cannot be captured simply by appealing to temporariness and/or stage-levelness, because the effects also seem to involve schedules or assignments (with locative predicates), speaker beliefs (unexpectedness effects) and speaker opinion (subjectivity effects).

A recurring intuition in the previous literature is that the use of estar signals that the copular clause is true at a restricted or specific situation in contrast to other situations (Roldán, 1974b; Clements, 1988; Maienborn, 2005; Arche, 2006; Camacho, 2012; Sanchez-Alonso et al., 2016), while the use of ser is neutral in this regard. This hypothesis has given rise to a family of analyses that locate the distinction between ser and estar in certain contextual requirements (presuppositional content) associated with estar such as Clements (2006, 1988); Maienborn (2005); Roldán (1974b) among others. This paper aims to test the presence and the strength of this presuppositional component across five dialects of Spanish. In §4, we build on one semantic analysis that explicitly characterizes the content of estar’s presupposition – Sanchez-Alonso et al. (2016); Deo et al. under review. We use this analysis to systematically investigate the effect of this presupposition-based contrast both within a given dialect of Spanish and across Spanish dialects. Before we present this analysis, however, we turn to report on available information about variation in ser-estar use in Spanish dialects.
3 Reported Variation in *estar* Use Across Spanish Dialects

The literature on copular use in Spanish mentions much variation in the use of *estar* both across and within Spanish dialects, particularly in the domain of individual-level adjectives, which are standardly taken to be *ser*-preferring. The observations can be classified as being of three types: overall frequency of *estar*; differential requirements on contextual support in licensing the use of *estar* with certain predicates; and predicate-specific, idiosyncratic constraints on the availability of *estar*.

First, scholars have noted the greater prevalence of *estar* in some Latin American Spanish dialects in contrast to Iberian Spanish (Cortés-Torres, 2004; Malaver, 2009; Brown and Cortés-Torres, 2012; Juárez-Cummings, 2014). Moreover, variability in use is found even among the Latin American dialects. Mexican and Venezuelan dialects, for example, are said to differ with respect to the frequency of the overall use of *estar* relative to *ser* with the Mexican dialect showing greater frequency and diversity in uses (Díaz-Campos and Geeslin, 2011; Juárez-Cummings, 2014). And in general, Central American and Northern South American dialects (Mexican, Guatemalan, and Venezuelan respectively) show a more frequent and diverse use of *estar* in comparison to Iberian Spanish or Southern American Spanishes, such as Uruguayan (Malaver, 2009) or Argentinian (Delbecque, 2000).

Second, it is reported that uses of *estar* with several individual-level adjectives that are common in some Northern Latin American dialects may be used in other dialects only if explicit contextual support is provided to license the use. For example, Juárez-Cummings (2014) and Cortés-Torres (2004) report, using corpus methods, that the use of *estar* in combination with adjectives such as *cauto* ‘cautious’ *cruel* ‘cruel’ and *descortés* ‘impolite’ is frequently found in the Mexican dialect. Such uses as in (19), in contrast, are reported to be “less natural’ in Iberian Spanish unless explicit context is provided that supports the reading that the property attribution is of a temporary nature (Gumiel-Molina et al., 2015).

(19) a. **Últimamente los niños de esta clase están muy crueles.**
   Recently the children of this class *estar*PRES.3PL very cruel
   Recently, the children in this class *have been acting* in a very cruel way.

   b. **En mi opinión, en la fiesta, Juan estuvo muy descortés.**
   In my opinion in the party Juan *estar*PAST.3SG very impolite
   ‘In my opinion, in the party, Juan *was* very impolite.’

   Gumiel-Molina et al. (2015) 964, ex. 13.a & 13.c)

Although, to our knowledge, there was no direct examination of whether the corpus examples for the Mexican dialect were preceded by supporting contextual information, it is considered uncontroversial (anecdotally) that Mexican Spanish speakers often use *estar* with individual-level adjectives in the absence of clear contextual support for its use. Additionally, Escandell-Vidal and Leonetti (2002) provide examples of *estar* sentences, such as those in (20) and (21) that would be expected to be unacceptable across all dialects unless augmented with appropriate contextual support.

(20) a. **Context:** A host offers a dinner consisting of food from different countries and a
guest comments on this variety by saying:

b. ¡Estás internacional hoy!  
estar.PRES.2SG international today  
You are international today!

(21) a. **Context:** Juan approaches wearing a bowler and walking with a cane in his hand:

b. ¡Vaya! ¡Estás muy británico!  
wow. estar.PRES.2SG very British!

‘Wow! You are/look like you are acting British’

[Escandell-Vidal and Leonetti (2002): 11, ex. 16 & 17.a]

The sentences in (20-b) and (21-b) serve to describe specific observed behaviors that justify attributing the property denoted by the adjective to the subject referent. The use of estar signals that the speaker takes the incidence of these properties in the subject referent to be novel or unexpected – and perhaps temporary. Thus, (20-b) is felicitous when the comprehender assumes that the guest finds the contents of the menu unexpectedly diverse. (21-b) becomes acceptable if the context provides that seeing Juan wearing a bowler and walking with a cane in his hand – exhibiting stereotypical features of a British gentleman – is unexpected.

The third kind of evidence about the differential distribution of estar across Spanish dialects comes from studies of specific classes of adjectives. For example, De Jonge (1993) and Malaver (2009) report that in some Latin American dialects, such as Mexican and Venezuelan Spanish, estar felicitously combines with adjectival predicates that refer to age (e.g., viejo ‘old’, pequeño ‘small’, chico ‘little’). Consider the following example:

(22) **Juan es/está viejo.**  
Juan ser/estar.PRES.3SG old.  
Juan is/looks old.

[De Jonge (1993): 100, ex. i & ii]

Malaver (2009), a corpus study of Iberian, Mexican, and Venezuelan Spanish, finds that while adjectives that refer to age may appear in the Iberian dialect with estar, this usage is far less frequent regardless of contextual support. The copula of choice in Iberian Spanish in such cases is ser. There is thus, for a class of predicates, an asymmetry such that they appear with ser much more frequently in the Iberian dialect and with estar in the Mexican and Venezuelan dialects. The use of estar with age-referring adjectives, in any dialect it occurs in, serves to express the same semantic contrast, conveying that Juan looks younger/older than might have been expected in the discourse context.

To our knowledge, this exhausts the extent of information available regarding variability in the use of ser and estar across dialects of Spanish. While telling, these observations offer limited (and sometimes only impressionistic) evidence that the status of estar may vary across Spanish dialects. To date, there appears to have been no systematic experimental investigation of (a) whether the acceptability of estar depends on contextual support; and (b) whether the acceptability and/or use of the two copulas vary across dialects of Spanish. The three experimental studies conducted here
strengthen our understanding of the potentially variable meaning and use of the two copulas by answering these questions. Before moving to the studies, the next section briefly describes the analysis of the ser/estar and characterization of estar’s presuppositional content that underpins these studies.

4 The semantic contrast underlying the ser/estar alternation

As summarized in §2.4, the felicitous use of ser and estar, at least in some cases, involves contextual considerations such as schedules or assignments (e.g. ser with locative predicates), speaker beliefs (unexpectedness effects with estar) and speaker opinion (subjectivity effects with estar). Moreover, estar predications seem to signal the presence of a contrast between the situation at which the predication is true and other situations. Several analyses that have aimed at relating these two observations converge on the idea that the constraints imposed by estar are better characterized in terms of a presuppositional component (Roldán, 1974b; Clements, 1988, 2006; Maienborn, 2005).

We present here in brief part of a recent analysis presented in Deo et al. (under review) – the boundedness-presupposition analysis – which seeks to explicate the role of contextual considerations in determining felicitous estar use. We factor out of the description those elements of the analysis that, while relevant to capturing the full range of uses and readings associated with ser–estar, are not critical to experimentally demonstrating the presence of a specific kind of presuppositional contrast between the two copulas – the central goal here. The analysis offers a precise characterization of the requirements that the context must meet with respect to properties of the circumstance at which the estar sentence is evaluated.

In a nutshell, the truth-conditional contribution of both copulas is identical – both ser and estar assert that the prejacent (corresponding to the embedded uninflected sentence radical in the scope of either copula) is true at the circumstance of evaluation. The difference between the two copulas lies in the presuppositional content associated with estar. The use of estar presupposes that the prejacent is boundedly true at the considered circumstance of evaluation i (where i is modeled as a tuple of five parameters – worlds, times, contextual standards, locations, agents). This means, for

4 Other proposals have focused on different aspects of the ser/estar contrast. Luján (1981) and Roby (2009), for example, argue that estar requires that the predication be temporary or that there be at least a time boundary that is known by the speakers. This restriction is encoded in the lexical entry of estar (Marín, 2010; Fernández Leborans, 1999; or Roy (2013), among others, put forth proposals that are based on an aspectual distinction. Crespo (1946); Falk (1979); Franco and Steinmetz (1983); Gumiel-Molina et al. (2015) have focused instead on the comparison class or contextual standards used for comparison in copula predications. Due to limitations of space, we do not present a comprehensive survey of these analyses or how they relate to the boundedness presupposition analysis. The reader is referred to Gumiel-Molina et al. (2015) and Sanchez-Alonso (2018), for overviews of previous literature. Our focus here is instead on those analyses that have taken into consideration the properties of the context in which estar predications appear, which have greater explanatory power with respect to the variation pattern examined here.

5 By circumstance of evaluation we mean the composite set of contextual parameters that are taken to be relevant to determining the truth of an utterance (Kaplan, 1989). The idea originates as the “evaluation index” in Montague’s intensional system – which involves the intensionalization of denotations of expressions by relativizing them to possible worlds and times. The move to relativize truth to parameters other than worlds and times, including judges, standards of taste, and perspectives, allows for the inclusion of more subjective considerations in determining the truth of sentences that may require them. For example, the truth of sentences containing predicates of personal taste like This cake is tasty depends not only on the world and time at which it is evaluated but also on the individual whose
the purposes of this paper, that an *estar* sentence is only felicitous in a context in which there are accessible circumstances $i'$ distinct from $i$ at which the prejacent is taken to be false. Intuitively, the **boundedness** requirement puts a boundary with respect to the circumstances at which the prejacent may be true and signals the presence of accessible circumstances which are “beyond” this boundary – at which the prejacent is false.

4.1 The formal implementation

The familiar Kaplanian theory of how the content and truth-value of a sentence depends on the context of its use works as follows: A sentence $S$ expresses some (variable or invariant) content determined by some context of use. The content of a sentence is a proposition – a function from circumstances of evaluation to truth-values. The semantic theory tells us under what conditions any proposition is true at a given circumstance of evaluation. A circumstance of evaluation consists of those contextual parameters that are relevant for determining the truth of *estar* propositions. By sufficiently enriching the set of parameters that constitute the circumstance of evaluation, we can finely model the effect of changes in such circumstances on truth values. The analysis identifies at least five such parameters: worlds ($w$), times ($t$), locations ($l$), agents ($a$) and contextual standards ($d_c$). A circumstance of evaluation is modeled as a tuple $⟨t, w, l, a, d_c⟩$. What this means is that in evaluating whether a sentence is true or not, we may need to consider the time, the world, the location, the subjective opinions of some agent, and the contextual standard for gradable predicates relative to which the sentence may be judged true or false.

The content of any sentence $S$ (including the semantic value of indexical expressions occurring in $S$) is determined by the context of use $c$. In addition, the context of use $c$ also serves to determine the circumstances of evaluation at which the truth of the sentence is evaluated. That is, just as much as the discourse context directly fixes the value of indexical expressions like $I$, experience is being reported [Lasersohn, 2005, Stephenson, 2007]. It is such an enriched notion of a circumstance that we will be making use of. Such an index/circumstance (which may often, but not always, be identical to that of the context of utterance), contains information about both objective facts (encoded by world, time, location parameters) and decisions about language use that are subjective and potentially resolvable in multiple ways as discourse evolves (encoded by interpretational parameters such as judges and contextual standards).

See also Sanchez-Alonso et al. [2016] and Sanchez-Alonso [2018] for previous versions of the analysis.

We assume an ontology that includes a non-null set of temporal intervals $I$ (type $ι$), with points as a special case; a non-empty set of worlds $W$ (type $s$); the domain of spatial regions $L$ (type $r$), ordered by the contiguity $⊂⊂_r$, overlap $◦_r$, and subset relations $⊆_r$; the domain of ordinary objects $D$ (type $e$); and a “delineation function” $d_c$, which relative to a given context of use $c$ maps gradable predicates $P_g$ to the degree that constitutes the contextual standard for $P_g$ in $c$. That is, $d_c$ is a function from contexts to delineations, as defined in (23). The set of all possible delineations is noted $D$.

$$\forall P_g : \mathbb{max}(d) [\forall x \in D \left([\text{pos}(P_g)(x)]^c = 1 \rightarrow (P_g)(x) \geq d]\right]$$

Kaplan [1989] distinguishes between his “contents” and the more familiar term “propositions” because his contents are assigned truth-values relative to worlds, times, and locations, rather than just worlds. However, we believe (and will assume) that Kaplanian contents are equivalent to propositions in any framework that treats propositions as functions from indices to truth-values, where the content of an index can be enriched beyond the world parameter.

This fact is explicitly articulated in MacFarlane [2014], who distinguishes between two kinds of context-sensitivity. In his words: “There are two distinct ways in which an expression can be context-sensitive. Its extension can depend on a feature of the context because that feature plays a content-determining role or because that feature plays a circumstance-determining role” (MacFarlane [2014: 79).
now, or here, it constrains the values of tense-markers, temporal and locative adverbials, gradable predicates, etc. by constraining what circumstances of evaluation are relevant for truth-assessment. As a concrete example, take a sentence like:

(24)  
\begin{align*}
\text{Yo estaba} & \quad \text{furioso.} \\
\text{I was furious.}
\end{align*}

Uttered at a discourse context \(c\), the truth of this sentence will depend on both the content of specific expressions and the circumstances (i.e. the time, the location, the contextual standards, subjective agents etc.) relative to which it is evaluated, both of which are constrained by \(c\). While the value of the first person pronoun is fixed directly to be the speaker in the context, the value of the past tense form \(estaba\) is not directly fixed to the time of utterance. However, the context does provide us with possible values of the time parameter of those circumstances of evaluation relative to which (24)’s truth may be assessed. These are the possible reference/topic times that are anaphoric on the prior discourse context. \(c\) also constrains possible values for the contextual standard relevant for interpreting \textit{furioso}. Thus, truth-value assessment of the content of a sentence indirectly depends on the discourse context due to the role of this context in constraining relevant circumstances of evaluation.

This connection between circumstances of evaluation and the context in which a sentence is uttered is formally modeled by introducing a function \(\text{Circ}\) that assigns to each context \(c\) a set of circumstances of evaluation \(i'\) such that each \(i' \in \text{Circ}(c)\) is relevant to assessing the truth of \(S\) at \(c\).

At any point in a conversation, interlocutors will have a shared understanding of the temporal and spatial entities as well as possible values for contextual standards and attitude holders that are relevant to interpreting the unfolding discourse. They will also have shared common beliefs about what the facts are, which corresponds to a set of possible worlds (the context set), and the topic of the conversation (the current question under discussion (CQ)). It is these shared assumptions about facts and discourse goals that determine the possible values of the time, world, location, agent, and contextual standard parameters of elements of \(\text{Circ}(c)\). In effect, \(\text{Circ}\) generates a set of contextually relevant alternative circumstances at which the truth of a single proposition can be evaluated. This is the circumstantial counterpart of a function like \(~ (\text{Rooth, 1985, 1992})\), which generates alternatives whose semantic value is determined relative to a single circumstance of evaluation (typically a world). In existing frameworks of the structure of discourse \((\text{Roberts, 1996; Beaver and Clark, 2008})\), the notion of propositional alternatives pertains to the lexically determined semantic content of propositions. The alternative set relative to a given proposition is constructed by varying the values for some focused element in the lexical material realizing that proposition. In the approach taken here, the set of alternative propositions have invariant lexical content and only differ with respect to the circumstances (drawn from \(\text{Circ}(c)\)) that they are asserted to be true of. Put briefly, the contrast between standard alternative-based approaches and our approach is as follows: In the former, \textit{minimally varying} lexical content is evaluated relative to \textit{identical} circumstances of evaluation. In the latter, \textit{identical} lexical content is evaluated relative to \textit{minimally varying} circumstances of evaluation.

\(\text{Circ}(c)\) explicates how a constrained set of alternative circumstances of evaluation are accessed from the context. In any given context, the interlocutors will be interested in only one particular
parameter relative to which two circumstances differ. For instance, they may consider whether a sentence is true/false relative to different contextual thresholds, or different worlds, or different times, or subjective agents. Given this, we will assume that only circumstances that are identical with respect to the value of all parameters except the contextually relevant one (notated $p_c$) are comparable wrt to whether they are distinct. For any two circumstances $i, i'$, $i \neq p_c(i')$ iff $p_c(i) \neq p_c(i')$ and for all other parameters $p$, $p(i) = p(i')$.

4.1.1 Lexical entries

A unified treatment for the meanings of *ser* and *estar* becomes simple once circumstances of evaluation have been deconstructed into their constituent parameters and we have the means to access a constrained set of alternative circumstances of evaluation from the discourse context and compare them. Both *ser* and *estar* combine with a property denoting expression $P$ and an individual denoting argument $x$ and assert that the prejacent $P(x)$ is true at the circumstance of evaluation $i$. The two copulas differ with respect to their presuppositions: *estar* conveys that its prejacent is true in a bounded way, where bounded truth is defined in (25).

(25) A content/proposition of the form $P(x)$ that is true at circumstance $i \in \text{Circ}(c)$ is **boundedly true** at $c$ iff:
$$\exists i' \in \text{Circ}(c) : i' \neq p_c i \land P(x)(i') = 0$$

We will call a context in which (25) is met a **Bounded Context** with respect to $P(x)$ and $i$ and notate it as $\text{Bound}(P(x), c, i)$. Based on this notion of boundedness, we offer the following lexical entries. *estar* (26) presupposes that the context in which it is used $c$, is bounded with respect to its prejacent while *ser* (27) remains neutral in this regard.

$$[\text{estar}]^c = \lambda P_{(s,et)} \lambda x_{(s,e)} \lambda i_s : \text{Bound}(P(x), c, i). i \in \text{Circ}(c) \land P(x)(i) = 1$$

$$[\text{ser}]^c = \lambda P_{(s,et)} \lambda x_{(s,e)} \lambda i_s. i \in \text{Circ}(c) \land P(x)(i) = 1$$

It should be made clear that the boundedness presupposition is a felicity condition on the use of *estar* rather than a proposition whose content is entailed to be in the Common Ground. This characterization of *estar*’s presupposition makes precise predictions about the contextual conditions that will license the use of *estar*. The use of *estar* requires interlocutors to be able to use informational resources from the context in a precise way – to construct a set of alternative circumstances of evaluation ($\text{Circ}(c)$) that are relevant to assessing the truth of the prejacent. The properties of this set, i.e. whether it is heterogeneous w.r.t the prejacent (i.e. whether it contains distinct falsifying circumstances) determine whether the *estar* sentence is judged felicitous at a given context.

Since, on this analysis, *estar* and *ser* are treated as presuppositional variants, the existence of *estar* is predicted to have some effects on the use of *ser*. Specifically, we expect *ser* to be restricted to those contexts of use in which the boundedness presupposition of *estar* is not satisfied. It is observed that the use of *ser*, the presuppositionally weaker variant, often gives rise to the implication that the prejacent $P(x)$ is asserted to be true in general (not relative to a particular circumstance of evaluation). This implication belongs to the class of inferences which arise because of the ordering of lexical items on a scale with regard to their presuppositional strength. Associated with the item that is presuppositionally weaker, they have been labeled “antipresuppositions” (Percus 2006) or
“implicated presuppositions” (Sauerland, 2007). The crucial property of such inferences is that they are not inherent in the lexical entry of the presuppositionally weaker variant, but instead they can be derived in a fashion that is similar to the way that scalar implicatures are drawn by hearers that reason about speaker choices among possible devices.

In the case of *ser*, the anti-presupposition or implicated presupposition would be the negation of the boundedness presupposition associated with *estar* as given in (28). If subject to such an antipresupposition, the use of *ser* would be felicitous iff it is the case that all \( i \in \text{Circ}(i) \) are verifying circumstances for the prejacent. This basically means that the use of *ser* may signal that there is no falsifying circumstance in \( \text{Circ}(c) \) for the prejacent. All distinct circumstances \( i \in \text{Circ}(c) \) must be verifying circumstances.

\[
\neg \exists i' \in \text{Circ}(c) : i' \neq p_c \land P(x)(i') = 0
\]

These differences in the inferences associated with *estar* and *ser* account for their interpretations in context and their respective distributional profiles. In the next section, we show how particular semantic effects associated with the copular contrast arise as a consequence of variation in the context with respect to alternative circumstances that differ with respect to some parameter.

4.2 Application of the analysis

The boundedness-presupposition analysis introduced above suggests that the felicitous use of *estar* depends on the availability of a set of circumstantial alternatives that differ with respect to a particular parameter of the circumstance of evaluation. The idea is that speakers construct such a set of alternatives using contextual information. We show how the contrasts in meaning associated with the use of *ser* vs. *estar* in specific cases follows from variation along one of the parameters of evaluation. This application of the analysis is restricted to those uses described in §2, since it is those that inform our experimental design. For the full account of the application, the reader is referred to [Deo et al.] (under review).

4.2.1 Locative predicates: variation along the world parameter

The contrast in (29) (repeated from [4]) with a locative PP as predicate is as follows: the use of *estar* indicates the location of the bathroom in the actual world while the use of *ser* conveys the designated position for the bathroom given an architect’s plan.

(29)  a. *Si* lo necesitas, el baño de invitados *está*/*es* en el segundo piso.
If you need the bathroom of guests *estar*/*ser* on the second floor.
   If you need to use it, the guest bathroom here is on the second floor.

   b. *En* el mapa de la casa que envió el arquitecto, el baño de invitados *es/está* en el segundo piso.
   In the house plans the architect sent us, the guest bathroom is on the second floor.
On the current analysis, (29-a) involves the construction of $Circ(c)$ that varies along the world parameter. The use of *estar* indicates that the physical bathroom is on the second floor in the actual world, but it could have been otherwise. That is, there exist alternative circumstances (containing other accessible worlds) at which the bathroom is not on the second floor. The use of *ser*, in contrast, describes the contents of a plan and conveys that every circumstance of evaluation consonant with that plan contains worlds in which the bathroom is on the second floor.

### 4.2.2 Nominal predicates: variation along the time parameter

We observed in §2.2 that *estar* is sometimes used with nominal predicates if the property denoted by the nominal is understood to hold temporarily or in a non-intrinsic way of the subject referent. For instance, the context in (30-a) can be naturally followed by the sentence containing *estar* in (30-b) while the context in (31-a) is felicitous with the *ser* counterpart in (31-b).

(30) a. **Context:** My cousin, for now, has a six-month job.

   b. *Le pagan bien porque *está* de fontanero en el Palacio Municipal de Congresos.*
   
   He is well paid because he is/works as a plumber at the Congress Palace.

(31) a. **Context:** My cousin has been in the same job for years.

   b. *Le pagan bien porque *es* de fontanero en el Palacio Municipal de Congresos.*
   
   He is well paid because he is/works as a plumber at the Congress Palace.

On the current analysis, (31-a) involves the construction of $Circ(c)$ that varies along the time parameter. The use of *estar* indicates that the property denoted by the nominal predicate is only temporarily attributable to the subject referent. That is, there exist alternative circumstances (containing other accessible potential reference times) at which the property of being a plumber does not hold of the subject referent (making the predication false). The use of *ser*, in contrast, describes the profession of the subject referent, and implies that the subject referent has the property of being a plumber across circumstance of evaluation that differ with respect to time.

### 4.2.3 Adjective predicates

Within the class of clauses with adjective predicates, we focus on those that are, in isolation, taken to describe properties that hold of the subject referent in a stable, relatively permanent way – so-called individual-level adjectives. When such adjectives participate in the *ser-estar* alternation, a variety of readings arise, which our analysis attributes to the construction of circumstantial alternatives along the time, the contextual standard, or the agent parameter.

**Unexpectedness readings: variation along the world parameter**

19
2.3.2 described the use of *estar* with gradable adjectives that give rise to an understanding that the extent of occurrence of some property in the subject referent is unexpectedly high given the context. The exclamative construction in (32-a) conveys that the adjective is being interpreted relative to a very high contextual standard (higher than the standard at which the same adjective without *estar* might be interpreted, as in (32-b).

(32) a. *Qué hermosa está la capilla Sistina.*
How beautiful is the Sistine Chapel!
How beautiful is the Sistine Chapel!
(it is even more beautiful than expected)
b. *La capilla Sistina es hermosa.*
The chapel Sistine es.PRES.3SG beautiful
The Sistine Chapel is beautiful.

Adapted from Crespo (1946: 49)

On the current analysis, (32-a) involves the construction of $Circ(e)$ in which the alternatives vary along the world parameter. (32-a) an exclamative clause, signals that the circumstance of evaluation $i$ relative to which the prejacent is interpreted contains a high contextual standard parameter $d_c' - i = \langle t, w, l, a, d_c' \rangle$. The use of *estar* is felicitous if there exist alternative accessible circumstances such that the property of being beautiful does not hold of the Sistine Chapel at those circumstances relative to the raised standard associated with $i$. There are such accessible circumstances that vary from $i$ with respect to the world parameter. These contain worlds $w'$ in the pre-utterance doxastic state of the speaker in which the Sistine Chapel is not as beautiful as it is in the actual world. At those circumstances $\langle t, w', l, a, d_c' \rangle$, the prejacent is false.

**Relational readings: variation along the contextual standard parameter**

We discussed in 2.3.3 relational uses of gradable adjectives in which the property denoted by the adjective is interpreted as obtaining in the nominal denotation to a degree that depends on a relation between the nominal denotation and some other entity salient in the discourse context. In (33), the speaker observes that the jacket is too tight relative to its occupant while (34) conveys that the jacket is designed to fit tight. A feature of relational uses is that the contextual standard is directly dependent on properties of the larger discourse context (the size of the shower opening or Lucía’s body) and the speaker conveys that the extent to which the property obtains in the subject referent is too high relative to this discourse-based standard. *estar* is the copula of choice for conveying this discourse-dependent contextual standard.

(33) a. **Context:** Lucía bought a beautiful jacket through Amazon, but it does not fit her, so she needs to return it.

b. *La chaqueta le está ajustada en los hombros.*
The jacket CL-IO estar.PRES.3SG tight.FEM on the shoulder.PL
The jacket is tight on the shoulders (for Lucía).

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10Basically, to say that the speaker did not expect the Sistine Chapel to be as beautiful as it is in reality is to say that there are worlds among the speaker’s doxastic alternatives at which the beauty of the Sistine Chapel does not exceed the contextual standard for beauty that the speaker is assuming.
(34)  a. **Context:** I love the style of the jacket that Lucía just bought.
    b. *La chaqueta es ajustada y muy moderna.*
       The jacket is tight and very fashionable
       ‘The jacket is tight and very fashionable’.

On the current analysis, cases like (33) involve the construction of Circ(c) alternatives that vary along the contextual standard parameter. The use of *estar* indicates that although the property denoted by the adjective (such as *ajustado* ‘tight’) is attributable to the jacket considering the standard for tightness (threshold) established by the context (determined by Lucía’s size), there are other relevant contextual standards for tightness accessible in Circ(c) at which the property of being tight is not attributable to the jacket. This would be the case if there are other sources for computing the contextual standard relative to which the jacket cannot be judged tight (other entities in the context or counterparts of Lucía’s in doxastically accessible worlds). Since this is the case in the context at hand (Lucía believed that she would fit comfortably in the jacket), the use of *estar* is felicitous.

**Temporariness readings: variation along the time parameter**

The use of *estar* with individual-level adjectives (which typically occur with *ser*) sometimes hinges on the construal of the temporal extent of the denoted property’s occurrence in an entity. Acceptable contexts for *estar* with individual-level adjectives are typically those in which the observed property is taken to be the result of some change in the subject referent (or is otherwise variable) over time, as in the example in (35).

(35)  **Context:** Pedro went on a diet for six months. I just saw him yesterday:
       *El es/está delgado.*
       He is skinny [now].

On the current analysis, (35) involves the construction of Circ(c) that varies along the time parameter. The use of *estar* indicates that the property denoted by the adjective is only temporarily attributable to the subject referent. That is, there exist alternative circumstances (containing other accessible potential reference times) at which the property of being thin does/did not hold of the subject referent (making the predication false). The use of *ser*, in contrast, allows the hearer to infer that the property of being thin is stably associated with the subject referent – i.e. the subject referent exhibits thinness across circumstances of evaluation differing with respect to potential reference times.

**Contrasting opinion readings: variation along the agent parameter**

In §2.3.4 we discussed the use of *estar* in which the speaker signals that the attribution of the property to the subject referent is a matter of their personal opinion in contrast to that of other agents salient in the context. The use of *ser*, in contrast, has a generalizing effect – it signals

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[11] The assumption is that for any given discourse context *c*, there will be a set of delineation functions compatible with *c* that are relevant to establishing the truth of propositions containing gradable predicates at *c*. These delineation functions will be within a reasonable range and not assign “too low” or “too high” contextual standards to the gradable predicates in their domain. Any circumstance in Circ(c) will contain some element of this set of contextually compatible functions.
that the property attributed to the subject referent is a matter of established fact and not personal, subjective opinion. The relevant examples are repeated below in (36).

(36)  

a. No sé cómo la gente puede comprarse bolsos Gucci, a mí me parece que están caros.

I don’t know how people can afford to buy Gucci purses, to me, they are expensive.

b. Los bolsos Gucci son caros y poco atractivos.

Gucci purses are expensive and unattractive.

The current analysis naturally accounts for these cases as involving $Circ(c)$ which contains circumstances that vary along the agent parameter. The use of $estar$ signals that there are alternative circumstances (containing other accessible agents) relative to which the prejacent is false. This must be the case in the context since the speaker is relativizing the truth of the prejacent (the attribution of expensiveness to Gucci purses) to their personal opinion and explicitly contrasting it with the opinions of other agents that might judge the predication false.

4.3 Link between analysis and experimental design

If the analysis of the $ser/estar$ alternation presented in this section is on the right track, then it can be hypothesized that the observed variation in the acceptability/use of $estar$ within and across dialects (reported in §3) is possibly a function of the degree to which $estar$’s presuppositional content is considered to be satisfied in the discourse context. The presupposition can be said to be satisfied if the speaker is successful at construing the set of alternative circumstances relevant to the evaluation of the $estar$ sentence. Such construal may be facilitated when the context provides the necessary clues regarding the parameter for constructing relevant circumstantial alternatives or not. The hypothesis can be stated in two parts as follows:

(37)  

a. Across dialects, the acceptability/use of $estar$ with predicates that are preferred with $ser$ when presented in isolation, will increase with explicit contextual support for $estar$’s presupposition.

b. Across dialects, the acceptability/use of $estar$ with these same predicates, when presented without explicit contextual support, may vary depending on the degree to which $estar$’s presupposition is accommodated by hearers.

In hypothesizing that the source of variability in the acceptability/use of $estar$ across dialects has to do with differences in accommodation (37-b), we are making an assumption that speech communities, represented by the distinct dialects, may differ with respect to expertise in accommodating the same presuppositional content. In other words, speakers that may have encountered the use of $estar$ with greater frequency with a wider range of predicates in a larger variety of contexts are better prepared to accommodate $estar$’s presupposition in the absence of supporting contextual information than speakers who may not have comparable experience. Thus, in the case at hand, we hypothesize that speakers of dialects that have been (at least impressionistically) as-
sociated with greater *estar* usage (Mexican, Venezuelan) might also be more willing to accept/use *estar* when supporting contextual information is absent. The reason for this behavior would be familiarity with a greater diversity of contexts in which *estar* occurs.  

Four specific questions allow us to test the hypotheses in (37):

(38) a. Is it experimentally demonstrable that there is specific presuppositional content that distinguishes *estar* from *ser*?
   b. Is this content observable across the Spanish dialects?
   c. Does the presence/absence of a context that directly supports the presupposition have differential effects in different Spanish dialects (offline and in real-time)?
   d. Does the presence/absence of a context that directly supports the presupposition lead to different effects for distinguishable classes of predications within/across dialects?

The investigation of these questions is predicated on the possibility to assess the presence of presuppositions, that is whether semantic content has the property of being “taken for granted” in a given discourse. We make this assessment using two tasks: an acceptability-rating task and a forced choice task. The former allows us to collect acceptability ratings in contexts that do not directly support the presupposition. This can be then compared to contexts that explicitly support the presupposition. The forced-choice task gives participants the opportunity to select the lexical item (e.g., copula) which best fits contexts that do not directly support the presupposition. This choice can then be compared to the choice in contexts that explicitly support the presupposition. Results from the acceptability-rating task are presented in Study 1 and results from the forced-choice task are presented in Study 2. Real-time comprehension results are presented in Study 3.

5 Studies 1 & 2: Acceptability-Rating Questionnaire and Forced-Choice Task

5.1 Materials and Design

The study followed a 2x2 design: Two contexts (N=100) and two copula types (N=100), which amounts to a script containing 200 items (context-sentence pairings). The contexts were of two types: Alternative-neutral (AN, 50 contexts) and alternative-supporting (AS, 50 contexts), for a total of 100 contexts. An AN context is neutral with respect to the existence of alternative circumstances of evaluation that are relevant for assessing the truth of the prejacent. An AS context makes accessible a set of alternative circumstances which contains circumstances at which the prejacent is understood to be false. That is, AS contexts explicitly manipulate the nature of alternatives with respect to a particular parameter. Neither the verbs *ser* nor *estar* appeared in any of the context sentences to avoid biasing the participant towards a specific copula use.

As mentioned above, copula sentences consist of predicates with either *ser* (50 copula sentences) or *estar* (50 copula sentences) for a total of 100 sentences. All copula sentences were in

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12 An alternative approach would be to posit a difference in the presuppositional content associated with *estar* across dialects (a lexical semantic difference in the copula form) that accounted for the pattern of variability. We do not explore that route here since that would require a much finer-grained semantic analysis of copula-predicate patterns across dialects than the one undertaken here.
the present tense and, syntactically, they had the following distribution: For 60 sentences the main predicate was an adjective (e.g., *es/está alta*, ‘be tall’), for 20 sentences the main predicate was a noun (realized either as an NP or PP) (e.g., *es fontanero/está de fontanero*, ‘be a plumber’[^13] and for 20 sentences the main predicate was a prepositional phrase with locative meaning (e.g., *es/está en la cocina*, ‘be in the kitchen’).

Four parameter types are represented in the materials: World, Time, Contextual Standard and Agent. There are twenty items (context-sentence pairings) that involve variation along the World parameter (ten copula sentences with locative PPs as the main predicate and ten copula sentences with adjectives as the main predicate), fifteen items (context-sentence pairings) that involve variation along the Time parameter (ten copula sentences with nouns as the main predicate and five sentences with adjectives as the main predicate), and ten items that involve variation along the Contextual Standard parameter (all ten sentences with an adjective as the main predicate). Five items involve variation along the Agent parameter (all five sentences with adjectives as the main predicate). See Table 1 for examples of the experimental items.[^14]

[^13]: In the nominal/prepositional predicate condition, sentences differed by the copula and by the complement type (prepositional phrase for *estar* sentences and noun phrase for *ser* counterparts). This additional factor (complement phrase type) was introduced for grammaticality purposes as *estar* always requires the preposition *de* ’of’: *ser fontanero* vs. *estar de fontanero* ’be a plumber’.

[^14]: The version of the stimuli set in Table 1 is presented in a simplified mode due to space constraints. The reader is referred to the Appendix for the complete set of experimental stimuli.
All sentences were constructed to meet the idiomatic idiosyncrasies of each dialect as judged by native speakers of each of the dialects: Argentinian, Chilean, Iberian, Mexican and Venezuelan. The Argentinian, Chilean and Mexican versions included, additionally, 240 filler sentences. To ensure that participants were paying attention throughout the study, 25% of the sentences were followed by a comprehension question in all five questionnaires.

### 5.2 Participants

Participants were recruited using the following protocol. First, each potential participant was asked to fill in a personal questionnaire, which included the following information: level of education, length of time they had lived in their native country, length and location of stays abroad (if any), native language, additional languages spoken and level of expertise in each language (as judged by the participant: beginner, intermediate, advanced, native). Second, if the participant met the requirements, they were sent the set of instructions for the two tasks. Once they completed the instructions and agreed to participate, they were sent the corresponding link to the survey.

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<table>
<thead>
<tr>
<th>Parameter</th>
<th>AN Context (50)</th>
<th>AS Context (50)</th>
<th>Copula Sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>World (20)</td>
<td>La playa Mondragó tiene las cualidades de la playa ideal ‘Mondrago Beach has the qualities of the ideal beach.’</td>
<td>Fuimos por primera vez a la playa Mondragó y nos sorprendió. ‘I went for the first time to Mondrago Beach and we were surprised.’</td>
<td>El agua es/está azul y tiene un mar tranquilo. ‘The water is blue and has a calm sea.’</td>
</tr>
<tr>
<td>Time (15)</td>
<td>Mi primo lleva en el mismo trabajo desde hace años. ‘My cousin has been in the same job for years’</td>
<td>Mi primo de momento tiene un trabajo de seis meses. ‘My cousin, for now, has a six-month job.’</td>
<td>Le pagan bien porque es/está de fontanero en el Palacio de Congresos ‘He is well paid because he is a plumber at the Congress Palace’</td>
</tr>
<tr>
<td>Contextual Standard (10)</td>
<td>Sandra lleva una falda muy bonita. ‘Sandra is wearing a very nice skirt.’</td>
<td>Sandra tiene que cambiar la falda que compró el sábado en el mercado ‘Sandra needs to change the skirt that she bought on Saturday at the market.’</td>
<td>La falda es/está corta y ajustada de las caderas. ‘The skirt is short and tight on the hips.’</td>
</tr>
<tr>
<td>Agent (5)</td>
<td>No me gustó la última película de Almodóvar. ‘I did not like Almodóvar’s last movie.’</td>
<td>Acabo de empezar a ver la última película de Almodóvar y me aburro. ‘I just started to watch Almodovar’s last movie and I am bored’</td>
<td>La trama es/está aburrida y los actores hacen mal papel. ‘The plot is boring and the actors do a terrible job.’</td>
</tr>
</tbody>
</table>

Table 1: Examples of Experimental Items (AS = Alternative-Supporting, AN = Alternative-Neutral)
A total of 233 monolingual native speakers of Spanish were recruited to participate in studies 1 and 2. They were of five different dialects of Spanish (Argentinian, Chilean, Iberian, Mexican and Venezuelan). All participants met the following requirements: i) they were born in the same *a priori* defined region to ensure minimal linguistic variation, ii) they had middle-class socio-economic status, iii) they had at least secondary education, iv) they were between 18-37 years of age, v) they had not lived in another Spanish-speaking country for more than one year and, vi) they had not lived abroad for more than seven years. The specifics for each dialectal group are as follows:

**Argentinian Spanish:** Thirty-eight monolingual speakers of Argentinian Spanish (21 women) participated in the experiment. The participants were between 19-35 years old (average age: 27) and had at least a secondary education. They were born in and lived in Buenos Aires. Participants had not lived for more than four months outside the province of Buenos Aires and the average amount of time participants had lived abroad was one month.

**Chilean Spanish:** Seventy-five monolingual speakers of Chilean Spanish (37 women) participated in the experiment. The participants were between 18-37 years old (average age: 27) and had at least a secondary education. They were born in and lived in the Greater Santiago region. Participants had not lived for more than three years outside this region. The average amount of time participants had lived abroad was two months.

**Iberian Spanish:** Forty monolingual speakers of Iberian Spanish (24 women) participated in the experiment. The participants were between 19-36 years old (average age: 28) and had at least a secondary education. They were born in Spain and had lived in Spain most of their lives. Particular attention was paid to ensure that participants were not bilingual native speakers of any of the other official languages in Spain (Basque, Catalan and Galician) to minimize influences from a second language. The average amount of time participants had lived abroad was two years.

**Mexican Spanish:** Forty monolingual speakers of Mexican Spanish (22 women) participated in the experiment. Participants were between 19-37 years old (average age: 28) and had at least a secondary education. They were born in and lived in Mexico City or surrounding states (Morelos or Puebla) and had lived in Mexico most of their lives. Participants had not lived for more than one year in states that did not belong to the dialect of high-altiplano Mexican Spanish, which includes the following states: Mexico, Morelos, Tlaxcala, Puebla, Hidalgo and Mexico City. The restriction to this particular dialect of Spanish was made on the basis of dialectal studies indicating that the variety in this area constitutes a homogeneous dialect of Mexican Spanish (Lope Blanch, 1996). The average amount of time participants had lived abroad was five months.

**Venezuelan Spanish:** Forty-four monolingual speakers of Venezuelan Spanish (22 women) participated in the experiment. The participants were between 18-37 years old (average age: 24) and had at least a secondary education. This dialect was restricted to that spoken in Caracas and surrounding states, specifically in Distrito Capital, Miranda, Vargas, Carabobo and Aragua. Participants had not lived for more than two years in a different state. The average amount of time participants had lived abroad was two weeks.

### 5.3 Procedure

The stimuli set was distributed across tasks: an acceptability-rating task and a forced-choice task. Participants read each context-sentence pair only in one of the two tasks. Within each task, all participants took part in both studies during the same session. See description in Procedure below.
some of the context-sentence pairs were followed by a comprehension question to ensure that participants were paying attention to the stimulus.

Both tasks were presented online using the Qualtrics Survey software. Participants performed the tasks on their own computers at home and were asked to do the tasks in one sitting without interruption. Duration of each survey was recorded to ensure participants followed these instructions. All participants were compensated for their participation ($10 per hour).

5.3.1 Acceptability-Rating Task

Participants read each context-sentence pairing. Their task was to assign a rating from 1 (non-native like) to 5 (native-like) according to whether or not they thought the sentence could be said by a native speaker of their own Spanish dialect. Each score was assigned a specific meaning. A table, as shown in 2, was available to the participants throughout the study.

<table>
<thead>
<tr>
<th>Score</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A native speaker of Spanish would definitely not say these sentences. The sentences sound weird, and I do not understand the meaning.</td>
</tr>
<tr>
<td>2</td>
<td>A native speaker of Spanish would not say these sentences. The sentences sound weird, although I understand the meaning.</td>
</tr>
<tr>
<td>3</td>
<td>I am not sure. The sentences sound good, but a native speaker would not say them.</td>
</tr>
<tr>
<td>4</td>
<td>A native speaker of Spanish would say these sentences. I understand the meaning, but I could or could not say it in this way.</td>
</tr>
<tr>
<td>5</td>
<td>A native speaker of Spanish would definitely say these sentences. I understand the meaning and I myself would say it in this way.</td>
</tr>
</tbody>
</table>

Table 2: Scores and Associated Meanings Used in the Acceptability-Rating Task.

5.3.2 Forced-Choice Task

Participants read each context-sentence pairing. In this case, the copula was substituted by a blank and the participant’s task was to choose one of the copulas, either ser or estar, the one that they thought sounded more natural in their own Spanish dialect.

5.4 Predictions

Predictions for the acceptability-rating task: First, the ser and estar stimuli used in the acceptability-rating task are predicted to be within the acceptable range (3 and above) across dialects. Further, based on observations from §3, we predict a main effect of dialect – that is, the five dialects are expected to vary with respect to their mean acceptability ratings for both copulas when preceded by both alternative-supporting and alternative-neutral contexts. We also predict that, across dialects, the acceptability ratings for estar sentences will significantly increase when preceded by contexts that do provide explicit support for estar’s presupposition (contexts that provide cues for accessing
alternative falsifying circumstances of evaluation) in contrast to the same sentences, when preceded by neutral contexts that do not provide such explicit support. With respect to sentences containing ser, we predict that, across dialects, their acceptability ratings will significantly decrease when preceded by contexts that do provide explicit support for estar’s presupposition.

Predictions for the forced choice task: We predict that the proportion of estar choice will be higher when the preceding context provides explicit support for estar’s presupposition than when it does not. Correspondingly, the proportion of ser choice is expected to be lower when the preceding context provides explicit support for estar’s presupposition than when it does not. We also predict a main effect of dialect in this task – that is, the five dialects are expected to vary with respect to their copula choice profile when preceded by both alternative-supporting and alternative-neutral contexts.

5.5 Data Analysis and Results

5.5.1 Study 1: Acceptability-Rating Task

For the statistical analysis, we used R (R Core Team, 2019) and lme4 (Bates et al., 2014) to perform a multilevel analysis on copula sentence acceptability. As fixed effects, we entered copula, context, dialect, parameter and the corresponding interactions into the model. As random effects, we had intercepts for subjects and items. P-values were obtained by likelihood ratio tests of the full model with the effect in question against the model without the effect.

We present the results following the predictions. We first address the question of whether context-sentence pairings are acceptable across dialects. We observe that, across dialects, mean acceptability ratings are in the 3-5 range regardless of context type and copula type (see Figures 1 and 2). This result indicates that participants found the sentences within the acceptable range. As predicted, we found a significant copula × dialect interaction $\chi^2(4)= 178.86, p<.001$. Pairwise comparisons with Bonferroni correction reveal significant differences across dialects in mean acceptability ratings. These differences happen to show the following order (ordered from highest mean acceptability rating to lowest): for [AN+estar], Mexican > Venezuelan, Chilean > Iberian, Argentinian (see Figure 1a); for [AS+estar], Mexican > Venezuelan, Chilean, Iberian > Argentinian (see Figure 1b).

16Throughout the presentation of the results, we will use the following color code: light blue for alternative neutral contexts + estar [AN+estar], dark blue for alternative-supporting contexts + estar [AS+estar], light orange for alternative neutral contexts + ser [AN+ser], dark orange for alternative-supporting contexts + ser [AS+ser]
For *ser*, we observe the following order: for [AN+ser], Argentinian, Mexican > Chilean, Iberian, Venezuelan (see Figure 2a); for [AS+ser], Mexican > Venezuelan, Chilean > Iberian. The Argentinian dialect only differs significantly relative to the Iberian dialect (see Figure 2b).

Next, we address the question of whether the presence of a context that provides explicit support for *estar*’s presuppositional component increases the acceptability of *estar* sentences in the different dialects. As predicted, the acceptability ratings of *estar* sentences in AS contexts increase relative to AN contexts across the five dialects. This is manifested by a main effect of context for *estar* sentences [Argentinian: $\chi^2(1)= 63.6, p=.<.001$, Chilean: $\chi^2(1)= 40.6, p=.<.001$, Iberian: $\chi^2(1)= 153.1, p=.<.001$, Mexican: $\chi^2(1)= 7.17, p=.007$, and Venezuelan: $\chi^2(1)= 26.5, p=.<.001$]. These results are illustrated in Figure 3.
With respect to *ser*, we find a significant decrease in the acceptability of *ser* sentences in AS contexts relative to AN contexts across dialects. This is manifested in a main effect of context type for *ser* across dialects [Argentinian: $\chi^2(1)= 60.54$, $p<.001$, Chilean: $\chi^2(1)= 34.2$, $p<.001$, Iberian: $\chi^2(1)= 178.72$, $p<.001$, Mexican: $\chi^2(1)= 14.6$, $p<.001$, and Venezuelan: $\chi^2(1)= 17.97$, $p<.001$]. Main effects (p-values) per dialect are illustrated in Figure 4.
Finally, we investigate whether the presence/absence of an AS context has differential effects when distinct parameters represented in the stimuli are considered. We indeed observe a three-way interaction context $\times$ dialect $\times$ parameter [$\chi^2(12) = 176$, $p < .001$] for *estar* sentences, which we broke down by conducting separate multilevel analyses by context type (AS vs AN).

For the [AS+Estar] condition (Figure 5), we find a dialect $\times$ parameter interaction [$\chi^2(12) = 182.96$, $p < .001$], which we further analyzed by conducting separate multilevel analyses by parameter type (i.e., World, Time, Contextual Standard and Agent), with dialect as fixed effect. We observe main effects of dialect in two parameters: Contextual Standard [$\chi^2(4) = 61.95$, $p < .001$] and Agent [$\chi^2(4) = 41.48$, $p < .01$]. The Contextual Standard parameter shows the most variation across dialects, with three main dialectal clusters: i) Mexican dialect shows the highest mean scores, ii) followed by Chilean, Iberian and Venezuelan dialects, and iii) finally the Argentinian dialect with the lowest mean scores. No differences across dialects are observed in the World [$\chi^2(4) = 2.04$, $p = .73$] and Time parameters [$\chi^2(4) = 7.6$, $p = .1$]. Mean acceptability scores for each dialect by parameter type are shown in Figure 5.
For the [AN+Estar] condition (Figure 6), we find a dialect × parameter interaction \(\chi^2(12)=108.24, p<.001\), which we further analyzed with separate multilevel analyses by parameter type. This reveals main effects of dialect across all four parameter types: Time \(\chi^2(4)=12.17, p=.02\), Contextual Standard \(\chi^2(4)=53.39, p<.001\), Agent \(\chi^2(4)=64.69, p<.001\) and World \(\chi^2(4)=19.33, p<.001\). Most dialectal variation in mean acceptability scores is found in the Contextual Standard and Agent parameters. In the Contextual Standard parameter, there are three significantly different dialectal clusters: i) Mexican dialect shows the highest mean scores, ii) followed by Chilean, Iberian and Venezuelan dialects, iii) and a third cluster with the Argentinian dialects, which shows the lowest mean scores. In the Agent parameter, the following three clusters are found: i) Mexican dialect shows the highest mean scores, ii) followed by the Chilean and Venezuelan dialects, and iii) the Argentinian and Iberian dialects with the lowest mean scores. Mean acceptability scores for each dialect by parameter are shown in Figure 6. Across parameter types, we observe that Chilean and Venezuelan dialects tend to cluster together and the Mexican dialect tends to show overall the highest mean scores across parameters.
5.5.2 Study 2: Forced-Choice Task

We performed a generalized linear mixed model with binary copula choice (ser or estar) as a dependent variable, using the R Code (R Core Team, 2019) and lme4 (Bates et al., 2014). As fixed effects we included context, dialect, and parameter type. As random effects, we had intercepts for subjects and items.

First, as predicted, we observe a main effect of context \( \chi^2(1)= 725.27, p=0.001 \), which indicates that, for any given sentence, the probability of choosing estar is significantly higher when the sentence is preceded by an AS context relative to an AN context. Correspondingly, the likelihood of choosing ser is significantly lower when the sentence is preceded by an AS context relative to an AN context (see Figures 7 and 8).
As predicted, we also observe a context × dialect interaction, which reveals that the five Spanish dialects vary with respect to their copula choice profile [AS contexts: $\chi^2(4)= 41.31, p<.001$; AN contexts: $\chi^2(4)= 44.18, p<.001$]. We proceed to present the results by context type. For AN contexts, we observe the following dialectal differences, ordered relative to the percentage of estar choice: Mexican (Mexican=Venezuelan) > Iberian (Iberian=Venezuelan, Chilean) > Argentinian (Argentinian=Venezuelan) (Figure 9). For AS contexts, we see the following order: Mexican > Argentinian, Venezuelan, Chilean > Iberian (Figure 10).
Finally, we observe differences in copula choice across dialects as a function of parameter type. This is manifested in a main interaction dialect×parameter for both AS contexts $[\chi^2(12)= 354.08, p<.001]$ and AN contexts $[\chi^2(12)= 152.98, p<.001]$. We further analyzed this interaction by conducting separate multilevel analyses by parameter type. For AN contexts, dialectal variation is observed with the Contextual Standard $[\chi^2(4)= 95.52, p<.001]$ and Agent parameters $[\chi^2(4)= 95.52, p<.001]$. Most variation is observed with the Contextual parameter, where three significantly different dialectal clusters can be distinguished: i) the Mexican dialect shows the highest percentage of *estar* choice, ii) the Argentinian dialect shows the lowest percentage, and iii) Chilean, Iberian and Venezuelan dialects behave similarly by showing a pattern that is in between these two main clusters (see Figure [11]). No main effects of dialect are found for the Time $[\chi^2(4)= 5.68, p=.22]$ and the World parameters $[\chi^2(4)= 7.7, p=.1]$. 

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**Figure 9**: Percentage of Copula Choice by Spanish Dialect for Alternative-Neutral (AN) Contexts

**Figure 10**: Percentage of Copula Choice by Spanish Dialect for Alternative-Supporting (AS) Contexts.
For **AS contexts**, we observe main effects of dialect for three parameters: Time [$\chi^2(4)= 55.59$, $p=<.001$], Contextual Standard [$\chi^2(4)= 124.66$, $p=<.001$] and Agent [$\chi^2(4)= 32.875$, $p=<.001$]. We found no dialectal differences in copula choice with the World parameter [$\chi^2(4)= 3.76$, $p=.43$].

Most variation is found in the Contextual Standard parameter, where posthoc Tukey tests indicate that at least three different clusters can be differentiated: i) Iberian and Mexican dialects show the highest percentages of *estar* choice, ii) Argentinian Spanish showing the lowest percentage, and iii) Chilean and Venezuelan show similar percentages (Figure 12).
5.6 Acceptability-Rating Task and Forced-Choice Task Results: Summary

Our predictions are borne out by the results. For Study 1, the acceptability-rating task, we find all sentences to be within the acceptable range 3-5, regardless of context type and copula type. With respect to *estar*, we observe that the five dialects vary with respect to their mean acceptability ratings in both the alternative-neutral (AN) and alternative-supporting (AS) conditions. In addition, we observe that acceptability ratings of *estar* sentences increase in AS contexts relative to AN contexts. With respect to *ser*, we observe that acceptability ratings decrease in AS contexts relative to AN contexts.

For Study 2, the forced-choice task, we find that the proportion of *estar* choice is higher with AS contexts relative to AN contexts. Correspondingly, we observe that the proportion of *ser* choice is lower with AS contexts relative to AN contexts. We also find that the five dialects vary with respect to their copula choice profile when preceded by both alternative-supporting and alternative-neutral contexts. The pattern of variability that we found here is similar to the one found in the acceptability rating task.

6 Study 3: Self-Paced Reading Study

6.1 Materials and Design

For this study, only the adjective predicates were included; otherwise the design of the stimuli followed that of the acceptability questionnaire and of the forced-choice task. A final script containing a total of 180 sentences was created, which includes 45 items per condition (AS+estar, AS+ser, AN+estar, AN+ser). See examples of the stimuli in Table 3:

<table>
<thead>
<tr>
<th>AN Context (45)</th>
<th>AS Context (45)</th>
<th>Copula Sentence estar (45), ser (45)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Sandra lleva una falda muy bonita.</em></td>
<td><em>Sandra tiene que cambiar la falda que compró el sábado en el mercado.</em></td>
<td><em>La falda es/está corta y ajustada de las caderas.</em></td>
</tr>
<tr>
<td>‘Sandra is wearing a very nice skirt.’</td>
<td>‘Sandra needs to change the skirt that she bought on Saturday at the market.’</td>
<td>‘The skirt is short and tight on the hips.’</td>
</tr>
</tbody>
</table>

Table 3: Examples of Experimental Items (AS = Alternative-Supporting, AN = Alternative-Neutral)

The Iberian study included, additionally, 90 filler sentences. The Argentinian and Mexican studies included 144 additional fillers. All of the fillers were unrelated to the experimental sentences. All sentences were followed by a comprehension question to ensure that participants were paying attention.

6.2 Participants

A total of 175 monolingual native speakers of Spanish (Iberian, Argentinian, and Mexican dialects) participated in the study. Participants were recruited following the same criteria as for
Studies 1 & 2. Specific descriptions for each dialect group of Spanish are as follows:

**Argentinian Spanish:** Sixty monolingual speakers of Argentinian Spanish (30 women) participated in the experiment. The participants were between 19-34 years old (average age: 27) and had at least a secondary education. As in studies 1 and 2, they were all born in and lived in Buenos Aires. Participants had not lived for more than four months outside the province of Buenos Aires.

**Iberian Spanish:** Sixty-one speakers of Iberian Spanish (24 women) participated in the experiment. The participants were between 17-36 years old (average age: 29) and had at least a secondary education. They were born in Spain and had lived in Spain most of their lives. No bilingual native speakers of any of the other official languages in Spain (Basque, Catalan and Galician) were included in the study.

**Mexican Spanish:** Fifty-four monolingual speakers of Mexican Spanish (32 women) participated in the experiment. The participants were between 18-37 years old (average age: 26) and had at least a secondary education. The participants were either born in Mexico City or in one of the surrounding states: Hidalgo, Mexico, Morelos, Puebla or Tlaxcala. Participants had not lived for more than two years in states that did not belong to the variety of high-altiplano Mexican Spanish.17

### 6.3 Procedure

The experiment was programmed using the E-Prime software (E-Prime 3.0, 2016) software and the presentation order of the items was randomized for each participant. Sentences were presented word by word using the moving-window paradigm. In this paradigm, the participants first see each word replaced by underscores. In order to see the first word of the sentence, they press the space bar. On the second press, the second word is displayed and the first word is replaced again by underscores. This process is repeated until the end of the sentence. Reading time is taken to be the time it takes for a participant to go from word to word in the sentence.

All items included a verification task, in the form of a yes-no/true-false comprehension question/statement respectively about the sentence just presented. This allowed us to ascertain whether participants were paying attention to the sentences and processing them fully. For 75% of the items, half of the questions/statements referred to the context sentence and the other half to the copula sentence. In the remaining 25% of the items, participants did not see a question/statement, but instead were asked to press ‘yes’ or to press ‘no’. Participants pressed the right ‘shift’ key to answer ‘yes’ or the left ‘shift’ key to answer ‘no’. Half of the responses had ‘yes’/‘true’ as a correct answer and half of them ‘no’/‘false’.

Before the testing session, participants were presented with a set of practice items. Participants were instructed that they were going to read sentences on the screen and they had to either answer a short question about the sentence or say whether a statement about the content of the sentence was true or false. They were also told that sometimes the only action required from them after the sentence was to press the ‘yes’ or ‘no’ keys. The testing section consisted of four blocks separated by three short breaks.

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17The dialect of high-altiplano Mexican Spanish includes the following states: Mexico, Morelos, Tlaxcala, Puebla, Hidalgo and Mexico City (Lope Blanch, 1996).
6.4 Predictions

We expect that contexts that provide no explicit contextual support for estar’s presupposition (i.e., alternative-neutral [AN] contexts) will lead to increased reading times for estar sentences in comparison to contexts that do provide such explicit support (alternative-supporting [AS] contexts). Moreover, in line with the discussion in §4.3, we expect that dialects that have been associated with greater estar usage may fail to exhibit the cost associated with the accommodation of the presupposition.

6.5 Results

We used R (R Core Team, 2019) and lme4 (Bates et al., 2014) to perform multilevel analyses to assess the relationship between copula, context and reading times. Models were conducted on the following sentence segments: the copula (COP), the adjective (ADJ), one word after the adjective is encountered (ADJ+1) and two words after the adjective (ADJ+2). For all models, we used both participant and item as random effects to analyze the effect of each region of interest. Context and copula type, as well as any interactions, were included as fixed effects as well. P-values were obtained by likelihood ratio tests of the full model with the effect in question against the model without the effect. Across dialects, reading times greater than two standard deviations below or above the mean for each condition and for the four critical segments were excluded from the analysis (5% of the data). The mean percentage of response accuracy among participants is 90%.

First, we observe a context × copula interaction at all sentence segments, except the copula [COP: $\chi^2(1)=.07$, $p=.8$; ADJ: $\chi^2(1)=5.7$, $p=.02$; ADJ+1: $\chi^2(1)=13.14$, $p<.001$; ADJ+2: $\chi^2(1)=12.87$, $p<.001$]. A breakdown of the interaction by copula type reveals a main effect of context for estar sentences: alternative-neutral (AN) contexts lead to an increase in reading times for estar sentences in comparison to alternative-supporting (AS) contexts. This main effect of context is found at all segments but the copula [COP: $\chi^2(1)=.03$, $p=.9$; ADJ: $\chi^2(1)=7.6$, $p=.006$; ADJ+1: $\chi^2(1)=8.5$, $p=.004$; ADJ+2: $\chi^2(1)=20$, $p<.001$]. For ser, we find a main effect of context at one word after the adjective (ADJ+1). In this case, alternative-supporting (AS) contexts lead to an increase in reading times for ser sentences in comparison to alternative-neutral (AN) contexts COP: $\chi^2(1)=.3$, $p=.6$; ADJ: $\chi^2(1)=.3$, $p=.6$; ADJ+1: $\chi^2(1)=4.8$, $p=.03$; ADJ+2: $\chi^2(1)=.2$, $p=.6$). These results by copula type are illustrated in Figure 13.
The inclusion of dialect as a fixed effect into the model reveals no effect of dialect at the copula segment [COP: $\chi^2(2)=4.9$, $p=.08$]. In addition, the model reveals interactions with dialect type at all other sentence segments [ADJ: dialect $\times$ context interaction, $\chi^2(1)=5.8$, $p=.05$; ADJ+1: dialect $\times$ copula interaction, $\chi^2(1)=13.14$, $p<.001$; ADJ+2: dialect $\times$ context $\times$ copula interaction, $\chi^2(1)=7.41$, $p=.02$]. These interactions were further analyzed by conducting separate multilevel analyses for each dialect (Argentinian, Iberian and Mexican) by copula type. For *estar* sentences, the results indicate that the Iberian and Argentinian dialects show a similar pattern. The Argentinian dialect shows an increase in reading times for *estar* sentences preceded by AN contexts as soon as the adjective is encountered [ADJ: $\chi^2(1)=7.4$, $p=.007$]. This effect of context continues at one word and two words after the adjective [ADJ+1: $\chi^2(1)=10.3$, $p=.001$, ADJ+2: $\chi^2(1)=5.6$, $p=.02$]. No differences in reading times are found at the copula segment [$\chi^2(1)=.03$, $p=.87$]. For the Iberian dialect, the analyses show that *estar* sentences are read significantly slower when preceded by an AN context. This effect of context appears at the adjective and at two words after the adjective [ADJ: $\chi^2(1)=5.2$, $p=.02$; ADJ+2: $\chi^2(1)=17.1$, $p<.001$]. No further reading time differences are found for any other sentence segments [COP: $\chi^2(1)=.01$, $p=.9$; ADJ+1: $\chi^2(1)=1.22$, $p=.26$]. In contrast to Argentinian and Iberian, the Mexican dialect does not show any differences in reading times as a function of context type at any of the critical sentence segments [COP: $\chi^2(1)=.27$, $p=.6$; ADJ: $\chi^2(1)=.22$, $p=.64$; ADJ+1: $\chi^2(1)=.02$, $p=.88$; ADJ+2: $\chi^2(1)=1.2$, $p=.26$]. Mean reading times per dialect are illustrated in Figure 14.
Finally, regarding *ser* sentences, the Iberian and Mexican dialects show no differences in reading times as a function of context type [Iberian: COP: $\chi^2(1)=1.4$, $p=.23$; ADJ: $\chi^2(1)=1.2$, $p=.27$; ADJ+1: $\chi^2(1)=.41$, $p=.52$; ADJ+2: $\chi^2(1)=.28$, $p=.59$; Mexican: COP: $\chi^2(1)=.22$, $p=.64$; ADJ: $\chi^2(1)=1.25$, $p=.26$; ADJ+1: $\chi^2(1)=.91$, $p=.34$; ADJ+2: $\chi^2(1)=1.57$, $p=.21$]. As for the Argentinian dialect, we find that *ser* sentences are read slower when preceded by AS contexts relative to AN contexts. This increase in reading times appears at the copula segment and is also observed one word and two words after the adjective [COP: $\chi^2(1)=11.9$, $p<.001$; ADJ: $\chi^2(1)=1.16$, $p=.28$; ADJ+1: $\chi^2(1)=5.4$, $p=.02$; ADJ+2: $\chi^2(1)=4.25$, $p=.04$]. Figure 15 illustrates the results for *ser* sentences for each dialect.
6.6 Self-Paced Reading Results: Summary

Our predictions, which focused on estar, are borne out by the results. We find a main effect of context such that estar sentences engendered higher reading times when preceded by alternative-neutral (AN) contexts relative to alternative-supporting (AS) contexts. We also observe that the three dialects vary with respect to whether they show an effect of context: the Argentinian and Iberian dialects do show this effect, whereas the Mexican dialect does not. This pattern was expected, given that the Mexican dialect has been associated with greater estar usage, which, by our hypothesis, may lead to reduced cost in accommodation of the presupposition. Although no specific predictions were made for ser, we observe a main effect of context such that ser sentences lead to higher reading times when preceded by alternative supporting (AS) contexts.
7 General Discussion and Conclusion

This paper examined the semantic distinction signaled by differences between *ser* and *estar* predications in Spanish with the goal of achieving a unified understanding of the distribution and interpretational effects associated with the two copulas. We systematically investigated the variation in acceptability of the two copulas in combination with predicate types whose use has been discussed in the literature (adjective predicates, nominal predicates and locative predicates) across five Spanish dialects (Argentinian, Chilean, Iberian, Mexican and Venezuelan). Specifically, we tested the hypothesis that *ser* and *estar* are presuppositional variants with *estar* as the stronger member of the pair. This hypothesis was tested by manipulating the discourse context preceding *ser/estar* sentences by either providing support for *estar*’s presuppositional component or providing a context neutral with respect to *estar*’s presuppositional component.

We studied the effect of this presupposition-based contrast both within and across five Spanish dialects in two offline studies (acceptability-rating questionnaire and forced-choice task). We also conducted a real-time study (self-paced reading task) across three of the five Spanish dialects. The results support the hypothesis that there is specific presuppositional content that distinguishes the two Spanish copulas and which is observable across the five Spanish dialects included in the studies. In the questionnaire study, we observe that acceptability ratings of *estar* sentences improve in contexts which satisfy *estar*’s presuppositional component (alternative-supporting (AS) contexts), and lower in alternative-neutral (AN) contexts, which are neutral with respect to *estar*’s presupposition. With respect to *ser*, we observe the inverse pattern, such that acceptability ratings decrease in supporting (AS) contexts relative to neutral (AN) contexts. Similarly for the forced-choice task, we find that the proportion of *estar* choice is higher with AS contexts relative to neutral (AN) contexts. Correspondingly, the proportion of *ser* choice is lower with supporting (AS) contexts relative to neutral (AN) contexts. In the self-paced reading study, we find that *estar* sentences engender higher reading times when preceded by neutral (AN) contexts relative to supporting (AS) contexts. Correspondingly, we find that *ser* sentences engender higher reading times when preceded by supporting (AS) contexts relative to neutral (AN) contexts.

These studies further allowed us to investigate meaning variability of *ser/estar* predications across dialects of Spanish. We found that the presence/absence of a context that directly supports *estar*’s presupposition has differential effects across the five Spanish dialects included in the studies. In the offline tasks, we observe that the dialects vary with respect to their mean acceptability ratings for *estar* sentences and also with respect to their copula choice profile when preceded by both supporting (AS) and neutral (AN) contexts. The pattern of variability is similar across both studies: Mexican speakers provide higher ratings and choose *estar* more frequently in both the AN and AS conditions relative to the Argentinian and Iberian dialects; whereas Chilean and Venezuelan dialects appear in between. In these offline studies, we also find variation with respect to the use of *estar* with distinct classes of predications across dialects. Specifically, stimuli in which the alternatives are understood to vary along the world parameter have the highest acceptability ratings and highest percentage of *estar* choice. In contrast, stimuli in which the alternatives are understood to vary along the agent parameter have the lowest acceptability ratings and lowest percentage of *estar* choice. Finally, in the self-paced reading study, we observe variation with respect to which dialect shows an effect of context: the Argentinian and Iberian dialects show this effect, the Mexican dialect does not. This result was expected given that the Mexican dialect has been associated with greater *estar* usage which, by our hypothesis, may lead to reduction in cost associated with
accommodation of the presupposition.

These studies contribute to the experimental investigation of presuppositional content in at least two ways: empirically, by examining cross-dialectal differences in responses to presence/absence of support for identical presuppositional content; and methodologically, by combining both offline and real-time methodologies while using the same contextual manipulation. Through this study we observe that *estar*, which is putatively considered to be associated with the same meaning across dialects, and probed through identical contextual manipulation, nonetheless exhibits quite distinct offline and real-time behavior in the studied dialects. The finding that speakers across dialects vary with respect to their acceptability and use of *estar* and their real-time comprehension patterns suggest that we require a finer-grained understanding of the interplay between the discourse context and presuppositional expressions. Specifically, these data can be accounted for either by positing a difference in the status of the presuppositional content of *estar* itself across dialects (a semantic difference) or by positing a difference in the degree to which speakers are able to accommodate certain kinds of presuppositional content. We have chosen, in this paper, to take a conservative perspective on the semantic content of *estar*, assuming it to be identical across the dialects. In line with this option, we have hypothesized that speech communities, represented in the study by speakers of different Spanish dialects, differ with respect to their expertise in accessing the same presuppositional content. We propose that these differences in expertise arise as a result of encountering *estar* predications with greater frequency, with a wider range of predicates, and in a more diverse set of contexts. Such differences in expertise would allow speakers of certain dialects (e.g. Mexican dialect) to be better prepared to accommodate *estar*’s presupposition in the absence of supporting contextual information relative to speakers of other dialects that have been associated with less frequent *estar* usage (e.g., Argentinian and Iberian).

It is possible that the increase in expertise with respect to *estar* use, may lead over time to its occurrence with an even more diverse set of predicates and in a larger variety of contexts. This, in turn, may lead to the loss (bleaching) of the presuppositional component of *estar*. At such a stage, the two copulas would be expected to be semantically indistinguishable and distributed in exactly the same set of contexts. This is a stage that Mexican Spanish might be claimed to be in; however our results show that even this dialect, at this time, despite higher acceptability patterns is sensitive to the presuppositional component associated with *estar*. The precise diachronic mechanics by which presuppositional content is lost and presuppositional variants come to be synonymous in meaning must be spelled out in a much more explicit account – a task we leave for a future project. However, the patterns of variation presented here (the first systematic study of variation in this domain, to our knowledge) make it clear that such a diachronic account must rely on a precise understanding of which properties of discourse contexts may license the use of *estar*, such that there is a feedback loop between *estar*-usage and speaker expertise in accommodation of *estar*’s presupposition. This paper offers the first step in this direction.
References


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