COPULAS IN SPANISH: SCALAR STRUCTURE AND INTERPRETIVE ECONOMY

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ABSTRACT. This article analyzes the distribution of the copulas *ser* and *estar* in Spanish, based on a scalar theoretical framework. The main proposal is that their distribution can be captured in terms of the scalar structure of the predicates involved and the presence of cognitive salient points on those scales. The proposed framework centers around *ser* predicates involving a single degree on the scale, while those with *estar* involve an interval, which additionally must involve an onset, or salient point. This analysis has two advantages. First, it accounts for subjects and closed-scale adjective pairs not being able to alternate between *ser* or *estar*. The endpoints present on closed-scales act as strong salient points that, based on the Principle of Interpretive Economy, require that the copula *estar* is used if it can. Second, this analysis also accounts for the distribution of *estar* with open-scale predicates and explains why adjectives like *famoso* 'famous' or *rico* 'rich' are virtually absent from *estar* predications, despite having the same temporal and aspectual reading. Cognitive salient points are also responsible for generating the appropriate scalar interval required for *estar* predications, although their being weaker than endpoints on closed-scales does not require *estar* be the only copula available. The article also accounts for the nature of these onsets on open-scale adjectives and provides a diagnostic tool to determine which adjectives have them, and consequently can appear in *estar* predications.

Keywords: *copulas, Spanish, adjectives, scales*

RESUMEN. Este artículo analiza la distribución de las copulas *ser* y *estar* en español, basándose en un marco teórico escalar. La principal propuesta es que esta distribución puede capturarse en términos de la estructura escalar de los predicados participantes y en la presencia de puntos cognitivos reconocibles en esas escalas. El marco teórico propuesto se centra en el concepto de que los predicados con *ser* necesitan un solo punto en la escala, mientras que los predicados con *estar* requieren de un intervalo escalar, que además debe estar delimitado por un onset o punto saliente. Este análisis tiene dos ventajas. Por una parte, explica por qué los pares de sujeto y adjetivo de escala cerrada no son capaces de alternar entre *ser* y *estar*. Los límites presentes en las escalas cerradas actúan como puntos salientes fuertes que, basándose en el Principio de Economía Interpretativa, exigen que se utilice la cópula *estar*, siempre que se pueda. Por otra parte, este análisis también explica la distribución de *estar* con predicados de escala abierta y por qué adjetivos como *famoso* o *rico* son virtualmente inexistentes con *estar*, a pesar de tener las características temporales adecuadas. Los puntos cognitivos salientes también son responsables de generar los predicados con *estar* en estos casos, aunque son de una naturaleza más débil que los límites de las escalas cerradas y no exigen que sea la cópula *estar* la única que puede combinarse con ellos. Este artículo también analiza la naturaleza de estos onsets en adjetivos de escala abierta y da una herramienta de diagnóstico capaz de detectar qué adjetivos los tienen, y por consiguiente, si serán capaces de aparecer en predicaciones con *estar*.

Palabras clave: *copulas, español, adjetivos, escalas*

1. Introduction

Spanish, as is the case in other Romance languages like Catalan and Portuguese, has two copular verbs, *ser* and *estar*. This dual system poses a special challenge for

grammatical description and is a recurrent and often researched topic in the study of Spanish (for an overview, see Leonetti 1994; Fernández Leborans 1999; Batllori, 2006; Camacho 2012; Marín 2004; Pérez-Jiménez, Leonetti & Gumiel 2015).

In general terms, adjectives in Spanish can be divided into three main groups, regarding their distribution with copulas: those that can appear only with *ser*, such as *importante* 'important' or *común* 'common', those that appear only with *estar*, such as *embarazada* 'pregnant' or *absorto* 'absorbed', and those that appear with both *ser* and *estar*, such as *triste* 'sad' or *verde* 'green'.

This article examines the distribution of *ser* and *estar* with adjectival predications and provide an explanation for their distribution, for focusing on the scalar properties of their predicates, especially to the presence or absence of bounds on those scales. This distribution is explained in terms of the principle of Interpretive Economy (Kennedy, 2007) and it is proposed that the ability to project cognitive salient points on adjectival scales are a key component in copula distribution in Spanish.

Before continuing any further, a preliminary caveat on the scope on the analysis is necessary; only non-evidential uses of *estar* are considered. The copula *estar* is used in Spanish in two main contexts; evidential and non-evidential ones (Camacho 2005, 2012). Evidential uses of *estar* (Escandell-Vidal and Leonetti, 2002; Maienborn, 2005; Camacho, 2015; Escandell-Vidal, 2018) involve evaluative predicates, often associated to expressions of general quality, and always provide the option of alternating with the copula *ser*, as the following examples show:

(1)   a. Este vino {es/está} estupendo.
        this wine   {is.3sg$_{SER}$/ is.3sg$_{ESTAR}$}   stupendous
        'This wine is fantastic'
        b. La puerta {*es/está} abierta.
        the door {is.3sg$_{SER}$/ is.3sg$_{ESTAR}$}   open
        'The door is open'

The sentence in example (1a) is a paradigmatic case of evidential *estar*. The predicate establishes a property of the subject in terms of quality and the option of using *ser* is available. On the other hand, the example in (1b) is not one of evidential *estar*, as the *ser* counterpart of the *estar* structure is not available and the predicate does not involve an evaluation of a property as perceived by the speaker, since presumably, a door being open will be evaluated in the same way by any other person. Evidential uses of *estar* represent a challenge in terms of being incorporated under the same paradigm of scalar properties that covers non-evidential uses, since they seem to possess a different set of constraints. While some attempts have been made to incorporate them onto a general paradigm (Bazaco 2017), the interaction between standards of comparison and scalar endpoints in the interpretation of copulas suggested in the present study will require further revision in order to bring evidential uses along with non-evidential ones. Current proposals regarding evidential uses of *estar* (Escandell-Vidal, 2018a, 2018b) do not take such elements into consideration and as such, at this point, non-evidential uses will be used to establish a general framework, to which evidential uses can be incorporated in further investigations.

Consequently, evidential cases of *estar* require an analysis that falls outside the scope of this article and only the non-evidential uses of *estar* are taken into consideration. The evidential contexts will require further investigation if they are to be incorporated into the theoretical framework presented here, as their distribution escapes the observations that form the core of the present study.

Additionally, since the present proposal centers on the scalar properties of predicates as being the factor that determines copula choice in Spanish, only adjectives are used to provide examples. This does not represent an exclusive commitment to adjectives for the proposed theoretical framework, but simply a convenient identification of adjectival predicates and scalar properties. Current approaches to copulas in Spanish (Bazaco and González-Rivera, 2020) that focus on other types of predicates under a scalar framework can be adapted to the one proposed here. This article will first present a general overview of the literature on copula distribution in Spanish, followed by the data exemplifying the importance salient endpoints on the scale in copula choice. The following sections present the general theoretical framework based on the scalar properties of adjectives. The concepts supported by the Principle of Interpretive Economy and onsets are incorporated to this framework, formalizing the main proposals of the present article. Finally, the article provides a section providing general conclusions and future research directions.

2. The *ser* and *estar* distinction

The most pervasive way in which the distribution of *ser* and *estar* has been explained in the literature is by means of the dichotomy between individual-level (IL) and stage-level (SL) predicates (Kratzer, 1995). IL adjectives combine with *ser*, while SL adjectives combine with *estar*. Yet this interpretation is not without well-known problems (see Escandell and Leonetti, 2002; Marín, 2000; 2004; 2009).

For example, an adjective like *enfermo* 'sick', in addition to be exclusively compatible with *estar* (*Eva está/*es enferma*), can appear in other SL contexts such as restricted by temporal adverbial expressions, as in *Estuvo enferma dos semanas* ('She was sick for two weeks'). IL adjectives such as *inteligente* 'intelligent', which result in very odd or, to some speakers, ungrammatical predicates with *estar* (*Adán es/??está inteligente*), cannot appear in such contexts, as **Fue inteligente dos semanas* ('He was intelligent for two weeks'). However, not every adjective in Spanish conforms to this general principle, and we can find SL adjectives, and we can find adjectives such as *importante* 'important' or *necesario* 'necessary' which can be constrained to a specific period of time, as in *Carlos fue importante en su empresa durante 2 años* 'Carlos was important in his company for two years' or *El sistema de guía es necesario durante el despegue* 'The guidance system is necessary during take-off', and yet, neither is acceptable in *estar* predications (*Eva *está/es {necesaria/importante}*).

Extending the IL/SP paradigm, Maienborn (2005) proposes that the core of the *ser* and *estar* alternation is *estar* being a discourse-dependent variant of *ser*. She reduces the distinction between the copulas to a contrast that is pragmatically licensed through some kind of topic situation. Schmitt & Miller (2007) and Escandell-Vidal (2015, 2018a, 2018b) expand on this idea, further moving away from the IP/SP paradigm and establishing a stronger pragmatic view.

Beyond the IL/SL distinction, other approaches are centered on the aspectual properties of predicates, claiming that *ser* vs. *estar* dichotomy can be described in terms of their Aktionsart. *Ser* predications are interpreted as unbounded states (Marín, 2010), imperfective states (Luján, 1981), non-resultative states (Clements, 1988), non-inchoative states (Camacho, 2012), homogeneous states (Gumiel-Molina and Pérez-Jiménez, 2012) or non-dense states (Roy, 2013). Conversely, *estar* predications represent bounded states, perfective states, resultative states, quantized states or dense states. All these approaches share the notion that *estar* predicates include an event boundary that temporally delimits it.

Aspectual approaches are similar to the previously mentioned ones, except they center the distinction between *ser* and *estar* in the aspectual properties of their predicates. Thus, Clements (1988) establishes this difference on a−*nexus*/+*nexus* distinction, where *estar* encodes a link to a previous situation, Lujan (1981) as −*perfective*/+*perfective* , where *estar* determines a property which holds within a temporally bound interval, and *ser* expresses a stative situation without boundaries, and Camacho (2012) as −*inchoative*/+*inchoative* copulas. Zagona (2010) proposes that the aspectual difference between *ser* and *estar* pivots on the presence or absence of an uninterpretable feature uP. *Estar* has this uninterpretable feature, and so it will need to merge with a predicate able to check this feature.

Adopting a similar approach based on syntactic properties of the predicates in copular sentences, Romeu (2015) describes the copula distinction in Spanish in terms of *ser* and *estar* lexicalizing Conjoint and Disjoint states. *Ser* predicates refer only to the positive state associated to the adjective; *Andrea es inteligente* 'Andrea is intelligent' would indicate that Andrea is currently in a state of being intelligent. *Estar* predicates refer both to the positive and negative interpretation of the adjective; *La jarra está llena* 'the jar is full' not only indicates that the jar is full right now (the positive interpretation of the adjective), but also that there is the possibility of the jar being not full (the negative interpretation of *llena*). In other words, an *estar* predication, in addition to providing information about the current status of the individual vis-à-vis the adjectival expression used in the predication, also conveys the idea that there is a potential status where the individual will not possess the property denoted by the adjective. This proposal suggested by Romeu covers all the previous interpretations of the temporality of copulas in Spanish, whether they are articulated around the temporary and permanent properties or IL and SL predicates.

Other approaches to the *ser* and *estar* disjunctive are based on the scalar properties of their predicates. Gumiel-Molina and Pérez-Jiménez (2012) and Gumiel *et al.* (2015) propose that the difference between the copulas lies in the origin of the degrees used to compare their interpretation. Under their interpretation, the individual subject of a *ser* predicate is evaluated with regard of other individuals, thus a sentence like *Cris es inteligente* 'Cris is intelligent' is true provided Cris meets the intelligence standard of the contextually relevant set of individuals. In a sentence like *La puerta está abierta* 'The door is open', on the other hand, its truthfulness is evaluated considering only other degrees of openness that the door might have. This distinction is formalized around the concept of the Comparison Class that all adjectival predicates require—a set of individuals that provide the necessary context to generate the standard of comparison. As such, *ser* predicates require a Comparison Class comprised of a set of different, contextually relevant individuals, while *estar* predications require a Comparison Class that only includes different degrees of the subject of the predication. For instance, in *Cris es inteligente*, Cris' degree of intelligence is compared to those contextually relevant individuals (her classmates, her friends or people in general, for example) while in *La puerta está abierta*, the Comparison Class includes only degrees of openness that the door can have.

One principal advantage that scalar approaches to copula distribution in Spanish have over aspectual ones is the fact that adjectives need not be endowed with purely aspectual properties or features, since scalar structure is the defining factor for *ser* and *estar* predicates, and this scalar structure is a core property of gradable adjectives.

The proposals by Romeu (2015) and Gumiel *et al.* (2015) provide two key aspects that are incorporated into the theoretical framework presented in this article; on the one hand, the notion that *estar* predicates refer to two different situations of an individual;

one with the positive interpretation of the adjective and another with the negative one. On the other hand, the importance of Comparison Class and the different standards of comparison it generates is a crucial component of this framework. The main innovation presented in this article is how the proposed framework can not only account for the data readily available in Spanish, but also the apparent gaps in the language such as *estar famoso* or estar importante, which previous proposals struggle in explaining.

3. The Data. Closed-Scale Adjectives

While all the previous approaches have strong points and possible weaker areas, the focus of the present study is a number of observations of the distribution of *ser* and *estar* that requires a perspective that encompasses aspects from a wide range of the existing literature in the topic. These observations deal with the sensitivity of *ser* and *estar* to the scalar structure of their predicates, more precisely, whether these predicates are open-scale or closed-scale.

Closed-scale adjectives (Unger, 1975; Kennedy & McNally 1999, 2005, among others) are associated with scales that allow mapping to an endpoint—a maximal or minimal degree—while the open-scale adjectives are associated with scales without endpoints. For example, an adjective like *empty* is associated with a scale with logical endpoints—once a vessel is empty, there is no way to empty it any further. On the other hand, an adjective like *intelligent* is associated with an open scale, since there is no degree of intelligence that determines the end of the scale and it is conceivable that someone more intelligent could come along. Closed-scale adjectives are divided into three categories; fully closed adjectives that have both a maximum and minimum endpoint, such as *full*, upper-closed adjectives, that have a maximum endpoint but no minimum, such as *dry*, and lower-closed adjectives, that have a minimum endpoint but no maximum, such as *wet*. For the purposes of the analysis presented in this article, all three of these categories behave in the same manner and as such, when closed scales are mentioned, the term applies to all three.

At this point, we can proceed with the analysis of *ser* and *estar* structures with closed-scale predicates. These predicates present the least amount of variation regarding their copula choice in Spanish, and so they are useful in order to establish a baseline for our analysis. The only difference between *ser* and an *estar* with these type of predicates is that *ser* only involves the positive interpretation associated with the predication, while *estar* involves both the positive and negative interpretations. For example, in the predication *ser alto*, only the positive interpretation of being tall is considered in the derivation, while in *estar enfermo* both the positive, being sick and negative, not being sick, need to be available. The relationship between the two interpretations involved in an *estar* predication is best captured following Romeu's (2015) potential states, and it is the one adopted in this article. The following examples contain both *ser* and *estar* sentences including the closed-scale adjectives *abierto* 'open' and *seco* 'dry':

(2)   a. La puerta   está   abierta.
           the door   is.3sg$_{ESTAR}$ open
           'The door is open'
        b. La ropa   está   seca.
           the clothes   is.3sg$_{ESTAR}$ dry
           'The clothes are dry'

(3)   a. El conjunto de los sustantivos en español es   abierto.
        the set of the nouns in Spanish   is.3sg_SER   open
        'The set of nouns in Spanish is open'
        b. El clima del desierto del Sahara   es   seco.
        the weather of.the desert of.the Sahara   is.3sg_SER   dry
        'The weather in the Sahara desert is dry'

As can be seen from the examples in (2), when the pair formed by the subject and the adjective allows both for a positive and non-positive reading of the adjective—the two different interpretations—then *estar* is the copula of choice. In this context, a positive interpretation is one where, for example in (2a) the door is open. A negative interpretation would be one where the door would not be open. In example (2a), the context refers us to doors and their degrees of openness, while in example (2b), we are presented with clothes and their degree of dryness. In both cases, it is not hard to consider that doors that are opened can be closed, and articles of clothing that are dry can also be wet. In the case of closed scales, this access to two different states is all that is necessary for an *estar* predication. There is, therefore, a strong correlation between the way in which the world is interpreted and the way in which Spanish copulas reflect it. The examples in (3) confirm that this is intuition is correct. Given the same adjectives, *abierto* and *seco*, as in (2), by switching the subject of the predication to one such that does not have both positive and non-positive readings available—the set of nouns in Spanish cannot be closed (3a) and the weather in the Sahara Desert (3b) cannot be humid—*estar* ceases to be an option, and instead, *ser* needs to be used. The examples in (2) and (3) show that *estar* with closed-scales[1] in Spanish imposes but one requirement on its predicates; access to a different state.

Interestingly, the temporal information conveyed by the copula *estar* seems to be underspecified and only a connection to a different, potential state is infered. As already mentioned, some theoretical approaches (Romeu, 2015; Escandell-Vidal, 2018 among others) take this posture regarding *estar*, and the present article follows this intuition as well. While it is true that many *estar* predicates determine strict temporal states i.e. one where the subject has indeed undergone a change in state, it can be argued that this information is not provided by the copula, but rather by contextual information. In the absence of such contextual information, *estar* does not indicate whether its predicate represents a permanent state or a temporary one, but, as stated, simply that it can conceivably change. The following example shows this interpretation:

(4)   Aquellas casas rojas   están   vacías.
        those houses red   are.3pl_ESTAR   empty
        'Those red houses are empty'

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[1] A further observation about the relevance of scale structure on copula choice in Spanish that can be made at this point refers to the behavior of non-gradable predicates (Kennedy & McNally, 2005) such as *muerto* 'dead' or *carnívoro* 'carnivorous'. When these are considered as binary scales, closed scales containing only two endpoints, they behave in the same manner as gradable closed-scales. *Muerto*, when applied to human beings, combines with *estar*, since both states, alive and dead, are accessible. *Carnívoro*, on the other hand, only combines with *ser*, since animals can neither become nor cease to be carnivores. As predicted, endpoints are the relevant factor for *ser* and *estar*. While it is true that there are acceptable uses of *estar carnívoro*, these refer not the literal sense of the adjective—being a meat-eater—but to an extended or metaphorical use, where someone happened to eat a lot of meat at a particular time. In the latter case, *carnívoro* functions as a gradable adjective, as evidenced by its co-occurrence with modifiers such as *estar muy carnívoro*.

The sentence in example (4) can refer both to a situation where a constructor run into financial trouble and the red houses he built have never been occupied, or to houses that are empty, but that were occupied in the past. I other words, it is not necessarily the case that (4) determines a bounded event of the houses being empty, but rather it simply determines that those red houses are empty but could be occupied. Examples such as (4) show how the intuition of potential states presented by Romeu and Bazaco better reflects the information conveyed by *estar* than traditional interpretations conveying actual change of states.

Beyond the notion of potential change, a second observation about closed-scales in *estar* predications is that, if a subject-adjective pair is determined to have access to this potential, different state alluded by Romeu (2015) and Bazaco (2017), *estar* is not merely an option, but is in fact mandatory. If we try to force *ser* into our previous examples, the resulting sentence is not acceptable:

(5)   a.   *La puerta   es   abierta.
               the door   is.3sg_{SER}   open
               'The door is open'
        b.   *La ropa   es   seca.
               the clothes   is.3sg_{ESTAR}   dry
               'The clothes are dry'

The examples in 5 are not unacceptable because *abierta* and *seca* cannot appear in *estar* predications—*La sociedad moderna es abierta* 'Modern society is open' and *El clima del desierto es seco* 'The weather in the desert is dry' are readily acceptable in Spanish. The unacceptability is borne from the fact that one door that is open can easily imagined as being close, and dry clothes wet. In the case of society being open and the desert climate being dry, the adjectives are of a classifying nature, not merely describing a property, but also categorizing the noun as belonging to a certain category. As such, they no longer provide access to their negative interpretation and consequently, *estar* predications fail and *ser* is required.

While the existing literature has focused on giving an explanation regarding the data presented in examples such as in the previous cases in (2), there are no proposals that address the asymmetry found between closed and open scales regarding their occurrence with *ser* and *estar* and preventing sentences such as those in (5).

4. The Data. Open-Scale Adjectives

In addition to the behavior of closed-scales adjectives in *ser* and *estar* predications, this article also focuses on how open-scale predicates combine with both copulas. In these contexts, unlike their closed-scale counterparts, having access to a potential state is still necessary for an *estar* predication, but not sufficient. This can be seen in examples such as the following:

(6)   a.   Emilia   {es/está}   feliz/guapa.
               Emilia   {is.3sg_{SER} /is.3sg_{ESTAR}} happy/pretty/
               'Emilia is happy/pretty/'

b. Federico   {es/??está}   famoso/rico/importante.[2]
    Federico   {is.3sg$_{SER}$ /is.3sg$_{ESTAR}$}   famous/rich/important
    'Federico is famous/rich/important'

As the examples in (6) show, both open-scale adjectives, *feliz* and *famoso*, can co-occur with the copula *ser*. Following a traditional interpretation of *ser* depicting permanent states, this is not surprising, since it is easy to find human beings who are always in a state of happiness or fame. However, while *feliz* 'happy' is also universally acceptable with *estar*, *estar famoso* is marginal, and, to some native speakers, unacceptable. This same restricted distribution can also be observed in a number of adjectives in Spanish, such as *rico* 'rich', *necesario* 'necessary' or *importante* 'important'. In all cases, native speakers of Spanish consider these *estar* structures from odd to unacceptable. These are not predicted by theoretical approaches based on temporal or aspectual propertied of predicates, since being rich, necessary or important is not always a permanent property of individuals, and, in fact, it is trivial to find cases of people who acquired and lost fortunes or importance.

This gap in the distribution of copulas in Spanish has been overlooked in the literature, despite the number of questions it raises about the interpretation of *ser* and *estar*. Why is it the case that *feliz* 'happy' allows for *ser* and *estar*, but *famoso* 'famous' does not? Whether we ascribe the difference between the two copulas to differences between Individual vs Stage Level predicates, aspectual feature, a pragmatically determined situation being available or the comparison class for evaluating the predication, it is not clear why being happy should allow for such an interpretation, but famous does not. One of the goals of this article is to show the importance of the scalar structure of copular predicates and to formalize this phenomenon into a framework that not only accounts for structures present in Spanish, but that also explains the gaps in the data such as *estar famoso.* The literature provides several explanations that account for predicates like *estar famoso*. Escandell-Vidal (2008a, 2008b) argues that in such cases, *estar* needs to be given an evidential interpretation, since it is the only manner in which *famoso* can be given the appropriate temporal reading. Evidentially leads towards an interpretation of *estar famoso* where the speaker has direct evidence of the temporality of the predicate. These interpretations, however, fail to account to a critical aspect of *estar* with predicates like *famoso*; why are they so rare when compared with other predicates such as *estar feliz* o *estar aburrido*? While *estar feliz* is universally acceptable, and commonplace, in Spanish, the acceptability of *estar famoso* ranges from the extremely rare to being downright unacceptable to some speakers. One of the main aims of the present study is to ascertain what linguistic phenomenon is blocking or hindering the co-occurrence of *estar* with *famoso*, *conocido*, or *temido* that is absent from *feliz*, *enfermo*, or *aburrido*. An interpretation of predicates such as *estar famoso* needs to also account for the asymmetry with predicates such as *estar feliz*.

Bazaco (2017) offers an explanation to this phenomenon by suggesting that *estar* with open-scale predicates require the presence of a process that drives the predication. The present study expands on this notion and presents a more detailed examination and analysis regarding the nature of this process, as well as providing a test to determine which open-scale adjectives will allow for *estar* predications. The goal is to construct a formal account of the *ser* and *estar* dichotomy in Spanish, as in (7), that establishes

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[2] These structures are marked with a ??, although some native speakers have pointed out that they find expressions such as *estar famoso* entirely unacceptable. In any event, and despite any variation in acceptability, it is safe to assume that these are structures that Spanish speakers seem not to produce easily.

the scalar structure of their predicates as the main factor for their distribution that can accommodate this process.

(7) a. La puerta {*es/está}   abierta CLOSED SCALE
   The door {is.3sg$_{SER}$ /is.3sg$_{ESTAR}$} open
  'The door is empty'
  b. Al anochecer, las nubes {son/están}   rojas. OPEN SCALE
   At dusk the clouds{are.3pl$_{SER}$ /is.3pl$_{ESTAR}$} red
  'At dusk, clouds re red'

The question as to why Spanish allows to characterize the clouds at dusk as both *ser rojas* or *estar rojas*, but a door that is open needs to be characterized as *estar abierta* is one that can shed some light on the general phenomenon and needs to be addressed.

The following section presents an outline of the theoretical framework for the distribution of copulas where the observations detailed in this section, both regarding closed and open scales, can be incorporated.

5. Framework

The previous section has shown the sensibility that the copulas *ser* and *estar* display towards their predicates. Specifically, how open and closed scales exhibit different behaviors in copula choice and the problems this represents for existing theoretical frameworks. This section briefly outlines an already existing theoretical approach (Bazaco, 2017) that incorporates some of the nuances already presented and which serves as the basis on which a better explanation of the particularities of copula distribution in Spanish can be given.

Bazaco proposes a scalar-based system for the distribution of *ser* and *estar* in Spanish, focusing on adjectives. This author claims that the *ser* and *estar* difference revolves around the concept of *ser* requiring its predications project a single degree on a scale, while *estar* predicates require their predicates describe a scalar interval i.e. two points on the scale.

The formal implementation of this scalar framework follows along the lines proposed by von Stechow (1984), Kennedy & McNally (2005) and Kennedy (2007), and assume that an unmodified Adjectival Phrase contains a null degree morpheme *pos* (positive form) whose function is to relate the degree argument of the adjective to an appropriate standard of comparison (Cresswell 1977, Bierwisch 1987, and Kennedy & McNally 1999, 2005). This standard of comparison is determined by the comparison class (Ludlow, 1989; Toledo & Sassoon, 2011; Solt , 2011). This comparison class is a set of relevant individuals which provides a standard in the form of a range calculated as a function of the degree of dispersion in that class. For instances, in order to determine the standard of comparison that would allow us to determine whether or not a person is tall, the comparison class will be comprised of the general population. If, on the other hand, we want to determine if one of our neighbors is tall, the comparison class will include only the people that live close to us. The positive form morpheme *pos* for *ser* and *estar* predications proposed by Bazaco (2017) takes the following form:

(8) a. $[\![\text{pos}_{SER}]\!] = \lambda g_{\langle e,d \rangle} \lambda P_{\langle d,t \rangle} \lambda x_{\langle e \rangle}.\ g(x) \succ \textbf{standout}$

  b. $[\![\text{pos}_{ESTAR}]\!] = \lambda g_{\langle e,d \rangle} \lambda P_{\langle d,t \rangle} \lambda x_{\langle e \rangle}.\ g(x) \succ \textbf{standout} \wedge g_{fin}{\uparrow}(x) \succcurlyeq g_{standout}{\uparrow}(x)$

In the *pos* morpheme for *ser* predicates *g* is the function from individuals to degrees represented by the adjective, *P* is the contextually-relevant comparison class, comprised by a set of degrees, and *x* is the individual subject of the predication. This morpheme imposes just one constraint; the degree projected by the individual needs to be bigger than the standout degree for this context i.e. the standard of comparison. In the case of the *estar* morpheme, the *g* function is a difference function—it measures the distance between two degrees on the scale. In the case of *estar*, this interval is generated by measuring the distance $g_{fin}\uparrow(x)$ from a final point *fin* to the degree that the individual *x* projects $g(x)$. Additionally, this interval needs to be bigger than a standard interval of comparison $g_{standout}\uparrow(x)$. This is the essential difference between a *ser* and an *estar* predicate. The former needs to provide only one point on the scale, while the latter an interval on said scale i.e. two points. It is the nature of the final point of the interval *fin* that this particular still leaves mostly unadressed. The present article addresses this problem and takes a closer look at how this interval in *estar* predications is constructed.

Bazaco's (2017) proposal is similar to Gumiel *et al* (2015) inasmuch both make use of the scalar properties of the predicates in order to capture the difference between *ser* and *estar*. Both approaches identify the nature of the comparison class used in the predication as a key element between *ser* and *estar*. Gumiel *et al* propose that a between-individuals comparison class—comprised of information extracted from many different subjects—is necessary for a *ser* predication, whereas a within-individual comparison class—only different stages of the subject of the predication—is present in an *estar* predication. While Bazaco agrees with this interpretation in the case of closed-scale adjectives, he proposes that in open-scale predications, *estar* requires both between-individuals and within-individuals information in their comparison class. The following examples reflect this difference:

(9)   a.   La puerta   está   abierta.   CLOSED SCALE
           The door   is.3sg$_{ESTAR}$ closed
           'The door is closed'
      b.   Pepa   es   feliz.   OPEN SCALE
           Pepa   is.3sg$_{SER}$ happy
           'Pepa is a happy person'
      c.   Pepa   está   feliz.   OPEN SCALE
           Pepa   is.3sg$_{ESTAR}$ happy
           'Pepa is happy'

In the case of example (9a), for the closed-scale adjective *abierta* 'open'*,* the standard of comparison for the positive interpretation of *abierta* is not contextually dependent (Kennedy & McNally, 2005; Kennedy,2007). In order to determine whether the door is open, only other instances of the degrees of openness of that door matter. Consequently, a within-individual comparison class is sufficient. In the case of the open-scale adjective *feliz* 'happy' (9b, 9c), the positive interpretation is contingent on Pepa's happiness meeting or surpassing a contextually determined standard of comparison (Kennedy & McNally, 2005; Toledo & Sassoon, 2011). In order to determine this standard, a relevant set of individuals and their degrees of happiness needs to be evaluated. Thus, a between-individuals comparison class is required. Examples (9a) and (9b) are the prototypical instances of within-individual and between-individual comparison classes. However, in the case of example (9c), Pepa's positive interpretation of being happy, despite this being an *estar* sentence, is also contingent on her being at least as happy as a contextually determined standard of comparison. We

can test this interpretation by assuming a context where Pepa is one of those people who are always happy and cheerful and seemingly impervious to sadness. If one day Pepa is still pleasant and smiling, but not her usual bubbly self, the sentence in (9c) would truthfully still apply to her and trying to force a non-positive reading for happy on her, such as *Pepa está triste* 'Pepa is sad' has an ironic interpretation. In other words, even if Pepa is at one of her lowest degrees of happiness, it cannot be said that she is not happy, since her within-individual comparison class for happiness contains degrees that all meet the standard. Likewise, if Pepa is a gloomy person, always depressed and down, if one day she is just a bit melancholic, describing her with the sentence in (9c) has an ironic flavor to it. From these observations, it can be concluded that the comparison class in open-scale *estar* predications needs to include both within-individual information—the process that drives the change—and between-individuals information—the contextual standard of comparison.

The framework presented in this section allows us to incorporate a solution to the observations on closed and open scales given in previous sections. First, a solution is proposed to the distribution of closed-scales predicates and their preference for *estar*, and then open-scale *estar* predicates and the process they require are incorporated into the general account.

6. Closed Scales and Interpretive Economy

Even though the account presented in the previous section can explain the data found in Spanish, there is still a question that remains regarding closed-scales, *ser* and *estar*. As pointed out, when a closed-scale adjective is determined to be able to appear in an *estar* predication, a *ser* version cannot be forced, even if a context with no potential change is implied. While the literature has centered on explaining why *estar* is possible in these structures, the question as to why closed-scale adjectives that accept *estar* cannot also accept *ser* remains unanswered. The present article proposes that the reason can be traced to the principle of Interpretive Economy (Kennedy, 2007). Here is where the present proposal departs from previous accounts for copulas in Spanish, including those based on scalar properties of predicates. Under this proposal, the key factor that differentiates the interpretation of *ser* and *estar* is not on the type of Comparison Class involved or on an evidentiality intention behind the use of *estar*, but rather on the interaction between the degree projected by the individual and cognitively salient points present on the scale, whether these represent a boundary to the scale or not. The importance of these salient points begins by assuming this principle of Interpretive Economy, which is formulated as follows:

(10)   *Interpretive Economy*
      Maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions

This principle, as Kennedy points out, "requires truth conditions to be computed on the basis of the conventional meanings of the expressions of a sentence (or logical form) to the extent possible, allowing for context-dependent truth conditions only when conventional meaning is insufficient". In other words, the interpretation of a structure will make use of context-dependent information as a last resort. As Kennedy points out, endpoints on a scale are cognitive salient points representing conventional, context-independent values, while standards of comparisons in open scale represent contextually-dependent ones. In closed-scale such as the one associated to *vacío* 'empty', speakers do not require any contextual clues regarding when a glass, for

instance, is full or empty—see Footnote 4 for further comments. On the other hand, the interpretation of an open-scale adjective like *inteligente* 'intelligent' can change from context to context—somebody might qualify as intelligent when compared to their siblings, but not when compared to NASA scientists—and even in the same context, different speakers might disagree on whether someone is intelligent or not.

Following Kennedy's Interpretive Economy, in the case of copula predicates in Spanish, the endpoints of closed scales, being absolute values, will be used in their interpretation whenever possible, and the contextual standard of comparison of open scales will be a last resort. This hypothesis explains why closed-scale predicates will limit themselves to *estar* if a scalar endpoint is available to them. In order to test whether the principle of Interpretive Economy forces *estar* predications with closed scales, first we examine the role that endpoints play in such structures in Spanish.

The critical role that the presence or absence of endpoints play in copula choice can be attested in cases where the closed-scale adjective is replaced with an open-scale synonym. In these cases, the overall meaning of the sentence is essentially the same, the context is kept constant, but, alternating between an open and a closed scale triggers a change in the copula. For instance, let's imagine a situation where we have bought a used bicycle and we have just painted it red. This change in color can be expressed with either the open-scaled adjective *roja* 'red' or the closed-scale *pintada* 'painted'. As predicted, *roja* requires *ser* while *pintada* needs *estar*:

(11)   a.   La bicicleta   {es/*está}   roja.
               the bicycle   {is.3sg$_{SER}$ /is.3sg$_{ESTAR}$}   red
               'The bicycle is red'
        b.   La bicicleta   {*es/está}   pintada de rojo[3].
               the bicycle   {is.3sg$_{SER}$ /is.3sg$_{ESTAR}$}   painted of red
               'The bicycle is painted red'

Data such as the one presented in (11) is not easily explained by invoking a pragmatically determined context that validates *estar* in (11b) that is unavailable in (11a), since they both refer to the same situation with essentially the same meaning. Furthermore, it is similarly hard to justify the different copulas in (11) under a different comparison class account. The redness of the bicycle in (11a) should obtain from comparing it to the redness of other bicycles, whereas in (11b), the fact that it is painted is evaluated only with respect to different degrees of paintedness of my new bicycle. This requirement seems arbitrary, or at least it appears there should be an additional explanation as to what is blocking comparing my new bicycle's degree of redness with itself—*estar roja*—and comparing its degree of pointedness with other bicycles—*ser pintada*.

This section has accounted for the asymmetry of copula distribution in Spanish in closed-scale predicates in terms of the relevance of cognitive salient points and Interpretive Economy. The following section tackles open-scale predicates and how the absence of such points affects *ser* and *estar*.

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[3] One reviewer points out that there are contexts in which *la bicicleta está roja* is acceptable after it has been painted, for instance as a response after being repeatedly asked to paint the bicycle, one could say *¿No la querías roja? ¡Pues ya está roja!* 'Didn't you want it red? Now it is red! These structures with *estar* can be interpreted as evidential uses, similar to proclaiming *¡Pues este vino está estupendo!* This wine is great! after someone has complained about the wine. In this sense, they provide a beautiful contrast with 11b) and represent the type of evidential structure that needs to be considered in future research endeavors, but they fall outside of the scope of the present proposal.

7. Open Scales and Onsets

In a previous section, it was shown that open-scale adjectives in Spanish do not all have the same behavior in terms of copula choice as closed-scale predicates. Example (12), repeated here, shows these differences:

(12) a. Emilia   {es/está}   feliz.
          Emilia   {is.3sg$_{SER}$ /is.3sg$_{ESTAR}$}   happy
          'Emilia is happy'
      b. Federico   {es/??está}   famoso.
          Federico   {is.3sg$_{SER}$ /is.3sg$_{ESTAR}$}   famous
          'Federico is famous'

This section proposes a solution to this distribution and incorporates it to a general framework for *ser* and *estar* based on salient points and scalar properties. The proposed analysis builds on what was hinted at by Bazaco (2017), regarding the presence of a process driving the acceptability with *estar* of predications such as (12b). Bazaco suggests that this process is pragmatically determined, although no further analysis is provided.

Additional proof of the importance of the process suggested by Bazaco (2017) in open-scale predications in Spanish can be seen in cases where the process ends. While they are not common, one such a process that validates *estar* predications can be found in the growth process in human beings. The following examples illustrate how the finalization of the process affects the acceptability of *estar* predications, in this case by using the adjective *alto* 'tall' both with adult and child subjects.

(13) a. Federico$_{CHILD}$ está   alto.
          Federico   is.3sg$_{ESTAR}$ tall
          'Federico is tall'
      b. ?? Gracia$_{ADULT}$ está   alta.
          Gracia   is.3sg$_{ESTAR}$ tall
          'Gracia is tall'

As the sentence in example (13a) shows, while the growth process that drives the change in height is active—the subject of the predication being a child—the presence of *estar* is completely acceptable. However, as example (13b) shows, when the subject of the predication is an adult and the growth process has presumably stopped, *estar* is no longer an option. In other words, in the absence of a valid process, an open-scale adjective like *alto* cannot co-occur with *estar*.

In order to incorporate the concept of the process that Bazaco (2017) describes into the general scalar framework proposed for *ser* and *estar*, this process is treated in a similar manner as the endpoint of the scale were on closed scales. Just as the terminal points of a scale were the key factor in determining an interval that allowed for *estar* predications when the adjective involved a closed-scale, in the case of open-scales, processes serve a similar purpose; provide the second point of an interval that would allow for *estar*. This second point can be considered a cognitive salient point albeit weaker than the endpoint on a closed-scale. Consequently, all *estar* predicates can be reduced to one single instance: *estar* requires a cognitive salient point to generate a valid predicate. This proposal can explain, along the already mentioned concept of Interpretive Economy, not only why *estar* is required in closed-scale predicates that

allow it, but also why it is optional in open-scales: endpoints on closed-scales are strong enough to require they are used, while the cognitive points of processes in open-scales are enough to generate scalar intervals for *estar*, but they are not strong enough they force *estar*.

The following paragraphs focus on establishing a formalization of these process on open scales and their integration into the existing theoretical framework.

The theoretical framework adopted assumes that *estar* requires that predicates determine an interval on the scale they project. Moreover, this interval needs to be established between points on different sides of the standard of comparison—both the positive and non-positive interpretations. In the case of some open-scale adjectives, even if the positive interpretation of the adjective is true, the non-positive side is not accessible to create a scalar interval. In the case of an adjective like *famoso*, even if it is known that an individual meets the standard to be considered famous, access to her non-famous degrees is not available, and therefore, *estar famoso* structures range from unacceptable to extremely rare. On the other hand, leaves changing color in the fall allow for a scalar interval to be established between their red and non-red states, and thus *estar* structures are acceptable. If we are to capture the linguistic nature of these *estar*-enabling processes, it help establish a reliable test that allow us to predict the behavior of open-scale adjectives regarding their acceptability with *estar*. In doing so, we can establish which open-scale adjectives will give us access to both sides of their scales, since our intuition might not map with the way Spanish interprets adjectives.

The task now is to find a way in which we can determine whether a predication, aside from establishing a change from a positive to a negative interpretation defined by adjective, retains the 'memory' of its previous interpretation. In other words, adjectives that allow us access to both scalar sides of the standard of comparison. One such test can be by employing the pseudo-copulative verbs *hacerse* and *ponerse*. Pseudo-copulative verbs (RAE, 2009), also called semicopulas, establish a relationship between a property—an adjective in our case—and an attribution base—the subject of the predication, adding grammatical nuances of an aspectual or modal nature. Pseudocopulas in Spanish have been studied to determine if they can help in advancing our understanding of *ser* and *estar*.

Fabregas (2012) points out that the interpretation of pseudo-copulas, in which he includes *volverse* and *quedarse*, "cannot be identical to the *ser/estar* contrast, as they do not match it in a perfect way." Fabregas and Marín (2015) also examine their behavior regarding SL and IL predicates, and also reject a perfect alignment with the *ser* and *estar* distinction. Pseudo-copulas are therefore not reliable as universal predictors for copula choice in Spanish. Yet the task they are given here is not to predict whether an adjective will appear with *ser* or *estar*, but rather whether an open-scale adjective provides access to its positive and non-positive interpretation. Morimoto & Lucero (2007) and Delbecque & Van Gorp (2012) examined the aspectual properties of pseudo-copulas. Morimoto and Lucero point out, without any further analysis that *ponerse* does map with *estar* predicates and *hacerse* with *ser* ones, although this is too strong a claim, since there are adjectives, particularly closed-scale ones, like muerto 'dead' or *soltero* 'single' that cannot appear with neither of the semicopulas. What this article proposes is that, at least in the case of identifying open-scale adjectives that will accept *estar* predications, the pseudo-copulative verbs *hacerse* and *ponerse* prove to be useful analytical tools.

According to Delbecque & Van Gorp, in *hacerse*, the progression in time corresponds to an internally ordered ascending movement. Critically, this progression represents "a change into something from nothing". In terms of scalar properties, this

progression can be stated by determining that *hacerse* represents a change where a standard of comparison is met, one where there is an implicature of a new state being acquired, but this change is blind, in the sense that there is no information about the state that is left. Consequently, we can predict that open-scale adjectives that can appear in *hacerse* predications will not be able to appear in *estar* ones, since the scalar interval as defined previously cannot be formed—there is no access to the non-positive state. For example, *hacerse famoso* 'famous' represents a change where an individual enters a state of being famous, and yet, the adjective does not retain any information about the non-famous state of the individual. Even if our knowledge of the world would suggest otherwise, the adjective *famoso* lacks this information, and therefore, *estar famoso* is not readily available in Spanish.

The other pseudo-copula that can serve as a diagnostics tool is *ponerse*, which represents a similar change to *hacerse*, in terms of it being an inchoative process. There is a progress along a scale where a new state is reached, and therefore, a standard of comparison is met. The critical difference is that *ponerse* is not, as was the case with *hacerse*, a blind change (Delbecque & Van Gorp, 2012). *Ponerse* retains the information of the state that is left and, therefore, an open-scale adjective that can appear in a *ponerse* predication gives access to its non-positive state and can determine a scalar interval necessary for *estar*.

These two pseudo-copulas show precisely the type of interaction between changes of state that can be used to diagnose which open-scale adjectives can appear in *estar* predications. *Estar* requires that the derivation include information about both sides of the scale determined by the standard of comparison. In this sense, open-scale adjectives that combine with *hacerse* will combine with *ser*, since they won't have access to the other potential state. Those that combine with *ponerse*, will do so with *estar*, since the information about both states is available. In order to test this prediction, the following examples examine the distribution of *hacerse* and *ponerse* with two groups of open-scale adjectives, one that strongly prefers *ser* (*rico, famoso, necesario, importante*) and one *estar* (*triste, rojo, alto, gordo*):

(14)   a.   Hacerse   {rico/famoso/necesario/importante}
                     make oneself {rich/famous/necessary/important}
                     'Become {rich/famous/necessary/important}'
      b.   ??Ponerse   {rico/famoso/necesario/importante }
                     put oneself   {rich/famous/necessary/important}
                     'Become   {rich/famous/necessary/important}

(15)   a.   ??Hacerse   {triste/rojo/alto/gordo}
                     make oneself {sad/red/tall/fat}
                     'Become {sad/red/tall/fat}'
      b.   Ponerse   {triste/rojo/alto/gordo}
                     put oneself   {sad/red/tall/fat}
                     'Become {sad/red/tall/fat}'

As predicted, the first group of adjectives in (14), those that can freely combine with *ser* (14a), combines with *hacerse*. The second group of adjectives in (15), those that map with *estar* (15b) also do so with *ponerse*. In the case of open-scale predicates, it can be stated that there is a correspondence between *ser* and *hacerse* on the one hand and *estar* and *ponerse* on the other.

It is also worth pointing out that *hacerse* and *ponerse* are not in complementary distribution with open-scale adjectives in Spanish. There are open –scale adjectives that

can appear both in *hacerse* and *ponerse* predications. For example, *insostenible* 'unbearable', *peligroso* 'dangerous', *optimista* 'optimist' or *precario* 'precarious'. The following examples show this:

(16) a. La situación {se hizo/se puso} insostenible.
          the situation {made itself/put itself} unsustainable
          'The situation became untenable.'
      b. La situación {era/estaba} insostenible.
          the situation {was.3sg$_{SER}$ /was.3sg$_{ESTAR}$} unsustainable
          'The situation became untenable.'

(17) a. La situación {se hizo/se puso} peligrosa.
          the situation {made itself/put itself} dangerous
          'The situation became dangerous.'
      b. La situación {era/estaba} peligrosa.
          the situation {was.3sg$_{SER}$ /was.3sg$_{ESTAR}$} dangerous
          'The situation was dangerous.'

(18) a. El jefe {se hizo/se puso} optimista.
          the boss {made himself/put himself} optimistic
          'The boss became optimistic.'
      b. El jefe {era/estaba} optimista.
          the boss {was.3sg$_{SER}$ /was.3sg$_{ESTAR}$} optimistic
          'The boss was optimistic.'

(19) a. La situación {se hizo/se puso} precaria.
          the situation {made itself/put itself} precarious
          'The situation became precarious.'
      b. La situación {era/estaba} precaria.
          the situation {was.3sg$_{SER}$ /was.3sg$_{ESTAR}$} precarious
          'The situation was precarious.

The examples in (16), (17), (18) and (19) show the reliability of the two pseudo-copulative verbs in predicting the behavior of open-scale adjectives regarding copula choice in Spanish. As predicted, since both *hacerse* and *ponerse* are options for these adjectives, both *ser* and *estar* are available to them.

The data presented in this section reinforces the notion that the key factor in *ser* and *estar* choice resides in the nature of the predicate; specifically, whether or not the degree projected by subject of the predication at the time of the event can be connected to the negative interpretation—adjectives like *rico* only give access to the positive interpretation, while adjectives like *contento* give access to both the positive and negative one. In the case of *ser* predications, access to both is not required, and the opposite is true for *estar*. Additionally, the statement presented by Morimoto & Lucero (2007) that *hacerse* and *ponerse* correspond with *ser* and *estar* is too strong. The semicopulas are useful as predictors of the behavior of adjectives, but they are not, as they suggest, in complementary distribution. It is in this capacity that the different implicatures regarding the change of state they define provide a valuable insight into the hypothesis presented in this article: open-scale adjectives require that both their positive and negative interpretation be available if they are to appear with *estar*. The following section details how this information can be implemented into the existing theoretical framework already outlined.

8. Endpoints and Onsets

The previous sections have presented the data and provided an analysis of how the copulas *ser* and *estar* interact with open and closed scale predicates. This section implements this information into the theoretical framework already presented.

One of the main aims of this article is to show the importance that focus points on a scale have in the interpretation of *estar* predicates. In the case of closed-scale predicates, the endpoints of the scale are involved, while for open scales, the onset of the process provides the focus point. Given the similarities in the involvement of the scalar endpoints in closed scales and the process onsets on open scales, the *pos* morpheme that governs the formation of *estar* predicates can now be amended to incorporate this notion. At this point, the *pos* morpheme for *estar* can be simplified and be given the following form:

(20) $\llbracket \text{pos}_{\text{ESTAR}} \rrbracket = \lambda g_{\langle e,d \rangle} \lambda P_{\langle d,t \rangle} \lambda x_{\langle e \rangle}.\ g_{\text{onset}} \uparrow (x) \succ 0$

This new *pos* morpheme for *estar* is a simplified version of the one suggested in Bazaco (2017). While the adjective still retains its measuring function form, thus generating a scalar interval for the subject, and not simply a point, it now only requires that this interval be greater than 0. The main innovation presented in this revised *pos* morphme is the concept of the **onset** and what it entails. In the previous section, the **onset** has been described as a cognitive salient point on a scale which has the negative interpretation of the one provided by the adjective, and we have seen how the availability of this onset is tied to an adjective being able to participate in *estar* predications. Consequently, the concept of the **onset** needs to be formally incorporated into the formalization of *estar*. Firstly, the **onset** can be formalized in the following manner:

(21)   **onset** = d ∈ D_g | d ≺ standout ∧ ¬∃d' ∈ D_g d≻d'≻standout

The **onset** then is the degree in the domain of the function *g* such that this **onset** is smaller than the contextual **standout** of comparison, and there is no other degree d' on that same scale that lies between the onset and the standout. Verbally, the onset can be defined as the last degree available before the standard of comparison. For example, in the case of a glass being full, the **onset** would be the highest degree where the glass could still be considered empty. The importance of this onset being available has been attested in data presented in previous sections; those predicates that did not have access to this onset were not able to construct a valid scalar interval for an *estar* predication. The role of the entity subject of the predication in defining the onset comes from the role the subject plays in the Comparison Class, which in turn determines the standout degree of comparison. In cases where the Comparison Class only includes within-individual information, the subject of the predication alone supplies the information used in determining the standout. In cases of between-individuals Comparison Classes, the subject of the predication provides the kind of individual considered in determining the standout.

In addition, the *pos* morpheme for *estar* also requires that the interval defined by the individual on the adjectival scale also be larger than a standout interval g↑$_{\text{standout}}$. This condition mirrors the one found in the *ser pos* morpheme, where the degree defined by the individual must be greater than a standout degree—the standard of comparison. In the case of *estar* predications, this standout interval g_{standout}↑ is the minimal difference

that must exist between the degree projected by the individual and the onset. For example, let us consider an *estar* sentence such as the following:

(22)   Los niños   están   altos.
       the children   are.3sg~ESTAR~   tall
       'The children are tall.'

In (22), in order for the sentence to be true, the interval defined by the leaves is constructed from a non-tall height—the onset—to a tall one—the degree defined by the kids at the time of the utterance. However, the change described by this interval must be of a sufficient amount, since a minute change from a barely non-tall degree to a tall one would not allow for an *estar* predication. In other words, a kid who is at the verge of being tall and then grows an inch would not easily support an *estar* predication of being tall. The inclusion of the standout interval $g\uparrow_{standout}$ and the requirements it imposes on the predicate ensures a correct interpretation of *estar* predicates.

This simplified form of the *pos* morpheme for *estar* is allowed by the onset requiring that it falls on the other side of the standard of comparison, and thus, the access to a potential different state that is a requirement for an *estar* predication is guaranteed. Let us consider an example:

(23)   El vaso   está   lleno.
       the glass   is.3sg~ESTAR~   full
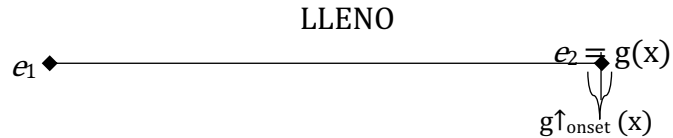   'The glass is full.'

In example (23), the scale defined by the adjectives *lleno* 'full' is fully closed—there is both an upper and lower boundary, determined by the points where the glass cannot be filled anymore and where it cannot be further emptied. These boundaries are context independent and an integral part of the interpretation of the adjective (Kennedy & McNally 2005; Kennedy, 2007) and thus, always available to speakers. Furthermore, these endpoints also determine the positive and negative state of the adjective i.e. one endpoint represents an empty state and the other a full one. The following graph depicts this structure for the adjective *lleno* 'full':

(24)

LLENO

$e_1 \blacklozenge$◀━━━━━━━━━━━━━━━━━━━━━━━━▶$\blacklozenge e_2$

The leftmost boundary, $e1$, represents the degree of minimum fullness i.e. the degree of an empty vessel. The rightmost boundary, e_2, represents the degree of maximum fullness i.e. the degree of a completely filled vessel. Given this structure, the interpretation of an *estar* predication involving *lleno* will always involve either e_1 or e_2.

In example (23), the individual x, the glass, projects a degree onto the scale determined by the adjective *lleno* that establishes it is in the maximum degree of fullness. In other words, the degree of fullness of the glass is the endpoint of the scale. The graphical representation of this sentence is:

(25)

$$\text{LLENO}$$

$$e_1 \blacklozenge \longrightarrow e_2 \equiv g(x)$$

$$g\!\uparrow_{onset} (x)$$

As can be seen in the graph, $g(x)$, the degree projected by the subject of the predication, is the same as the endpoint of the scale. In other words, a glass is full provided that it has reached its maximum degree of fullness allowed. Assuming that filling a glass gives us access to both the full and empty states, in order to construct the interval necessary for an *estar* predication, the general formula, per the *pos* morpheme is:

(26) $g_{onset}\!\uparrow (x) > 0$

This formula yields that the interval is constructed from the **onset** to the degree projected by *x*, and that interval needs to be greater than zero. The **onset**, as defined, is a degree with the opposite interpretation of the adjective such as there is no other degree between it and the standard of comparison. In the case of closed scales, the standard is an endpoint (Kennedy 2005; Kennedy & McNally 2007). We can see in example (23) that the glass projects the degree of complete fullness, so any other degree on the scale will be of non-fullness[4]. In other words, a glass that is not filled to its capacity it is in some state of non-fullness. This consideration has an immediate consequence for our analysis; the standout degree change in closed scales is trivially the smallest, non-zero interval possible. It can safely be concluded that there is no degree that falls between the onset, the standout and the degree projected by the individual.

In the case of open-scale predicates, the interval necessary for an *estar* predication is still constructed around the standard of comparison, just like in closed-scales, the only difference being that this standard will not be a scalar endpoint, and therefore, will be contextually determined. Let us consider an example of an open-scale predication:

(27)   En otoño,   las hojas   están   rojas.
       in fall   the leaves   are.3sg~ESTAR~   red
       'In fall, the leaves are red.'

In this case, the scale determined by the adjective *rojo* 'red' is open-ended. There are no logical endpoints to it and, in order to be considered red, any individual needs to meet a contextually-dependent standard of comparison. This standard is the degree of redness that needs to be met to be considered red. Graphically, this can be represented as follows:

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[4] McNally (2009) proposes an alternative view where the endpoints on closed-scale adjectives can be given context-dependent interpretations. While her proposal sheds some light on certain aspects of the nature of closed scales and their structure, that discussion is secondary to the one presented in this article and all closed-scales are given the classical interpretation, with the caveat and understanding that this structure might be too strict.

(28)

ROJO

$$\xleftarrow{\qquad\qquad} \underset{\displaystyle |}{\overset{\displaystyle s}{}} \xrightarrow{\qquad\qquad}$$
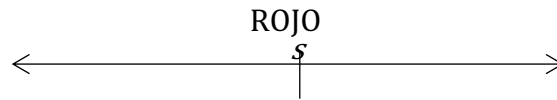
In the graph, there are no endpoints delimiting the scale, and the standard *s* determines the frontier between non-red degrees (smaller than *s*) and red ones (bigger than *s*). If the sentence in (27) is to be represented in the graph, the result is as follows:

ROJO

$$\xleftarrow{\qquad\qquad} s \quad \overbrace{\qquad}^{\displaystyle g(x)} \xrightarrow{\qquad}$$
$$g{\uparrow}_{onset}(x)$$
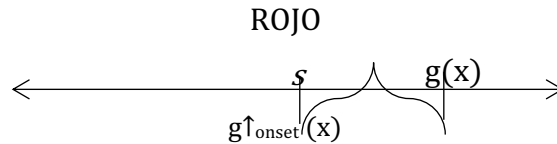
The degree of redness *g(x)* projected by the individual the leaves exceeds the standard for redness in this context i.e. the leaves are red. Since this is an *estar* predication, the necessary interval needs to be constructed between g(x) and another degree of redness for the leaves that is accessible and that lies on the other side of the standard—a non-red degree; the **onset**. The *ponerse* test presented in a previous section works in the case of leaves being red, this potential non-red degree is accessible and the interval can be successfully constructed, yielding a valid *estar* predicate. In the case of an adjective like *famoso*, for instance, this onset is not available, and thus, the resulting predicate is not one that *estar* can accept.

These two examples of *estar* predications examined in this section show how the only difference between closed and open-scale predicates lies in the former being more easily understood in terms of potential different states, since there is a stronger connection between our understanding of the world and how *estar* works. The latter does not have such a connection and requires further constraints in order to be understood—the *hecerse/ponerse* test. While the structure suggested in this article—an interval—is constructed in the same manner in both cases, open-scales not always behave as expected.

One question that still remains is the asymmetry between closed-scale predicates that allow for *estar* actually mandating the use of *estar*, while open-scale predicates have a greater degree of flexibility in copula choice. This asymmetry can be seen in the following examples:

(29)   a.   El vaso   {*es/está}   lleno.
                the glass   {is.3sg_SER /is.3sg_ESTAR}   full
                'The glass is full.'
         b.   En otoño,   las hojas   {son/están}   rojas.
                in fall   the leaves   {are.3sg_SER /are.3sg_ESTAR} red
                'In fall, the leaves are red.'

In example (29a), the closed-scale adjective *lleno* requires that the copula *estar* is used. On the other hand, in example (29b), an open-scale like *roja* allows for both *ser* and *estar* to describe the same situation. Under the framework presented in this paper, scalar endpoints are interpreted to be strong focal points and context independent. According to the principle of Interpretive Economy (Kennedy, 2007; Potts, 2008), these strong, contextually-independent focal points will be preferably used in the

interpretation of the predicate, while contextual-dependent ones, such as those in open-scale predicates, will be used as a last resort. In the case of the *estar* predicates examined in this paper, it follows that closed scales that allow for *estar* predications, will prefer this copula, since the endpoints will always be involved in the consideration of the truth conditions. Conversely, open scales that allow for *estar* predications lack such strong focal points; their onsets are provided by the processes mentioned in previous sections. The asymmetry in the distribution of copulas seen in (29) can then be explained in terms of the relative strength of intervals involved in *estar* predications. Scalar endpoints are strong enough to demand an *estar* predication, while onsets in open-scale *estar* predicates, while strong enough to generate an interval, allow for *ser* and *estar*.

Regarding the *pos* morpheme for *ser*, the revised *pos* morpheme for *estar* predicates mirrors the one for *ser* ones, the only difference being that the adjective in the former takes the form of a measuring function, establishing an interval between two degrees on the scale, while the latter is a simple function, establishing a single degree:

(30)   a. $[\![\text{pos}_{\text{SER}}]\!] = \lambda g_{\langle e,d\rangle}\lambda P_{\langle d,t\rangle} \lambda x_{\langle e\rangle}.\ g(x) \succ \textbf{standout}$
       b. $[\![\text{pos}_{\text{ESTAR}}]\!] = \lambda g_{\langle e,d\rangle}\lambda P_{\langle d,t\rangle} \lambda x_{\langle e\rangle}.\ g\!\uparrow_{\textbf{onset}}(x) \succ 0$

Both copulas, *ser* and *estar*, are parallel in their interpretation, with the basic notion that *ser* involves a predicate determining a single degree while *estar* predicates determine an interval. This nature and origin of this interval, regardless of the scalar structure of the predicate, can be analyzed and predicted in terms of the availability of cognitive salient points. The temporal and aspectual differences, their asymmetries and distribution of both copulas can be explained along this single idea.

9. Conclusions

The main objective of this article is to give an account of the distribution of *ser* and *estar* with adjectival predicates, based their scalar properties and the presence of cognitive salient points. This framework can accommodate not only the particularities of the distribution of copulas in Spanish, but also offers an explanation about certain asymmetries and apparent gaps in the data between open and closed-scale predicates.

There still remain a number of questions that this article leaves for future investigations. One of this questions deals with whether the proposal outlined here can be extended to other, non-adjectival contexts. Regarding verbal contexts, *ser* and *estar* are the copulas of choice for Passive voice and Progressive constructions respectively. Extending the paradigm presented in this article, where *ser* predicates determine a single degree on a scale, while *estar* ones determine an interval, seems promising in accounting for these verbal predicates, extrapolating degree scales into temporal ones. Additionally, there is further need of research regarding extending this proposal to prepositional and nominal contexts. While nominal expressions can be given a scalar structure under certain circumstances, the same cannot be said about prepositional predicates. This lack of a structure where degrees can be inferred presents a problem for this framework.

Yet another area of copula use in Spanish that is a future avenue for investigation are the evidential uses of *estar*. Although the present article focuses solely on the non-evidential, there is room within a scalar framework to incorporate the former into the general paradigm. Camacho (2015), Escandell-Vidal (2018) among others have laid out a basis on these evidential uses where perhaps the importance of focus points could be attested.

Beyond the standard uses of *ser* and *estar*, there is a wide dialectal variation of copula use in Spanish (Cortés-Torres, 2004; Malaver, 2009, 2012; Juárez-Cummings, 2014; among others). This variation also presents both a challenge and an opportunity to test the extent to which the theoretical framework presented in this article can incorporate these uses of the copulas.

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