

# The inference of temporal persistence and the individual/stage-level distinction

The case of *ser* and *estar* in Spanish\*

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In this paper we propose that the differences between *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' predications traditionally associated with the individual-level/stage-level (IL/SL) distinction (having to do with their differing combinations with adverbs quantifying over situations, locative and temporal modifiers, etc.) can be explained without arguing that *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' sentences have different event/aspect/Aktionsart-related properties. Specifically, we claim that in copular sentences with adjectival complements, the different kinds of elements that build up the comparison class needed to evaluate adjectival properties can account for the IL/SL character of the predication and that, specifically, the IL/SL distinction is linked to the relative/absolute distinction. This proposal, together with the hypothesis that relative adjectives trigger by default an inference of temporal persistence, can account for all the aforementioned differences between *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' sentences. We thus argue for an extension of the explanatory value of the individual/stage-level distinction to the domain of gradability.

**Keywords:** *ser*, *estar*, individual-level, stage-level, degree, comparison-class, inference of temporal persistence

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## 1. Introduction. Aspectual and comparison-based approaches to the *ser* 'be<sub>SER</sub>'/*estar* 'be<sub>ESTAR</sub>' alternation

The distinct properties of copular sentences headed by the verbs *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' in Spanish have been characterized in the literature from many different perspectives. On the one hand, the differences between *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' predications have been explained in aspectual/event-structure/Aktionsart terms (*aspectual approaches*, Luján, 1981; Clements, 1988; Fernández Leborans, 1999; Gallego & Uriagereka, 2009; Marín, 2010; Zagona, 2012; Gumiel-Molina & Pérez-Jiménez, 2012; Roy, 2013). On the other hand, they have been accounted for in terms of how properties are attributed to subjects (*comparison-based approaches*, Crespo, 1946; Bolinger, 1947; Roldán, 1974; Carlson, 1977; Falk, 1979; Franco & Steinmetz, 1983, 1986; Gumiel-Molina, Moreno-Quibén & Pérez-Jiménez, 2015a [henceforth, GMP (2015a)]).

With respect to copular sentences with adjectival predicates, the primary goal of both aspectual and comparison-based approaches has been to account for the fact that some adjectives combine only with one of the copulas while other adjectives combine naturally with both *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>'. Specifically, *relational* adjectives combine with *ser* 'be<sub>SER</sub>', (1), and *perfective adjectives* (i.e. adjectives morphologically related to verbal participles that have an internal argument and express the result state of a process, see Bosque, 1990) combine with *estar* 'be<sub>ESTAR</sub>', (2).<sup>1</sup>

- (1) Adjectives that combine only with *ser* (relational adjectives): comunista 'Communist', español 'Spanish', falso (as in *billete falso* 'false/forged note'), semanal 'weekly', vegetariano 'vegetarian', etc.
- (2) Adjectives that combine only with *estar* (perfective adjectives): absorbido 'absorbed'/captivated', borracho 'drunk', cansado 'tired', contento 'happy', desnudo 'naked', descalzo 'barefoot', encinta 'pregnant', enfadado 'angry', enfermo 'sick', exhausto 'exhausted', harto 'fed up', lleno 'full', maltrecho 'beaten up', mojado 'wet', muerto 'dead', perplejo 'perplexed', quieto 'still', satisfecho 'satisfied', solo 'alone', vivo 'alive', etc.

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1. These adjectives can also be constructed with a classificative, non-gradable use, which expresses a property salient enough to define an individual as a particular member of a class. In this case, they combine with *ser* 'be<sub>SER</sub>'. These cases will not be explored in this paper.

- (i) a. El mantel es (\*muy) limpio  
the tablecloth is<sub>SER</sub> (\*very) clean
- b. El mantel está (muy) limpio  
the tablecloth is<sub>ESTAR</sub> (very) clean  
'The tablecloth is clean'

All the remaining gradable adjectives may combine with *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>', (3),<sup>2</sup> although sometimes the subject of predication is crucial to determine co-occurrence restrictions (see (7) below).

- (3) Adjectives that combine with both copulas: alegre 'happy', alto 'tall', bajo 'short', cauto 'cautious', cuidadoso 'careful', delgado 'thin', (in)discreto '(in)discreet', feliz 'happy', falso (as in *La gente es falsa* 'People are insincere'), feo 'ugly', flaco 'thin', gordo 'fat', grande 'big'/'tall', guapo 'handsome', hermoso 'beautiful', húmedo 'humid'/'damp', inteligente 'intelligent', inquieto 'restless'/'worried'/'lively', libre 'free-spirited'/'free', nervioso 'excitable'/'nervous', pequeño 'small', (im)prudente '(im)prudent', presumido 'arrogant'/'vain', tranquilo 'calm'/'quiet', transparente 'transparent'/'see-through', travieso 'naughty', viejo 'old', vivo 'lively', etc.

Besides this general goal, the aspectual and comparison-based approaches focus on different kinds of empirical phenomena. Since aspectual approaches characterize *ser/estar* 'be<sub>SER/ESTAR</sub>' predications in terms of event/aspect/Aktionsart-related differences, they focus, among other facts that will be presented in Section 2, on the different behaviour of locative and temporal modifiers in each kind of copular structure, (4), (5), or on the lifetime effects obtained with *ser* 'be<sub>SER</sub>', (6) (where it is naturally interpreted that the referent of the subject is dead).<sup>3</sup>

- (4) a. Juan está borracho en la cocina  
       Juan is<sub>ESTAR</sub> drunk in the kitchen  
       'Juan is drunk in the kitchen'  
    b. \*/#Juan es alto en la cocina  
       Juan is<sub>SER</sub> tall in the kitchen
- (5) a. Juan estaba borracho ayer  
       Juan was<sub>ESTAR</sub> drunk yesterday  
       'Juan was drunk yesterday'  
    b. \*/#Juan era alto ayer  
       Juan was<sub>SER</sub> tall yesterday

2. Qualifying gradable adjectives that are homophonous with relational adjectives are included in this group:

- (i) Hans, aunque es alemán, {es/ está} muy español  
       Hans although is<sub>SER</sub> German is<sub>{SER/ESTAR}</sub> very Spanish  
       'Although Hans is German, he behaves like a Spaniard'

3. The examples are doubly marked as \*/# because they are generally judged as ungrammatical in the literature. However, as we will try to show in this paper, these examples are merely semantically/pragmatically odd in out-of-the blue contexts. Consequently, they will be marked as # to indicate semantic/pragmatic ill-formedness.

- (6) Juan era alto vs. Juan estaba borracho  
 Juan was<sub>SER</sub> tall Juan was<sub>ESTAR</sub> drunk  
 ‘Juan was tall’ ‘Juan was drunk’

On the other hand, comparison-based approaches have mainly focused on the explanation of so-called *subject effects* seen in examples like (7), where the subject of predication seems to crucially determine the combination with one of the copulas, apparently independently of any aspectual or event-related difference (see GMP, 2015a).

- (7) a. María {es/ está} grande  
 María is<sub>{SER/ESTAR}</sub> big  
 ‘María is big’  
 b. La casa {es/ \*está} grande  
 the house is<sub>{SER/\*ESTAR}</sub> big  
 ‘The house is big’

The individual-level/stage-level distinction [henceforth IL, SL], implemented in many different ways in the literature, is frequently found behind the explanations offered by aspectual and comparison-based approaches to account for the distributional properties of adjectives in copular sentences as well as the rest of the empirical phenomena mentioned in the previous paragraphs. The occurrence of *ser* ‘be<sub>SER</sub>’ vs. *estar* ‘be<sub>ESTAR</sub>’ in copular sentences is thus often considered the hallmark of IL-hood vs. SL-hood. Specifically, aspectual approaches argue for the existence of core (event/aspect/Aktionsart-related) semantic properties defining IL vs. SL predications, which are taken to explain not only the distributional paradigm presented in (1)–(3), but also the fact that locative/temporal modifiers are only possible in *estar* ‘be<sub>ESTAR</sub>’ sentences and the fact that lifetime effects, by contrast, are only triggered in *ser* ‘be<sub>SER</sub>’ sentences, (4)–(6). Within aspectual approaches, different proposals attribute different relative roles to the copula and adjective in determining the eventive/aspectual properties of the whole predication. The most widespread view in the literature is that adjectives have eventive/aspectual properties in the lexicon that determine their combination with each of the copulas (generally via a matching relation).

In this article, we develop an account of the data in (4)–(6) that is compatible with a comparison-based approach, which can also account for the *subject effects* illustrated in (7).<sup>4</sup> Specifically, we claim that the empirical contrasts

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4. It is not the specific goal of this paper to account for the distributional paradigm in (1)–(3). We refer the interested reader to GMP (2015a) for such an account as well as an explanation of *subject effects* of the kind shown in (7).

illustrated in (4)–(6) can be pragmatically derived from an *inference of temporal persistence* which is triggered only by *ser* ‘be<sub>SER</sub>’ predications. Our proposal is that the inference of temporal persistence, which is at the basis of the different behaviour of *ser* ‘be<sub>SER</sub>’ and *estar* ‘be<sub>ESTAR</sub>’ predications with respect to the aforementioned phenomena, can be traced back to the way in which the comparison class needed to evaluate the adjectival predication within the copular structure is formed in each case. In other words, the inference of temporal persistence is linked to the *relative* or *absolute* character of the adjectival complement of the copula. Therefore, no event/aspect/Aktionsart-related difference between *ser* ‘be<sub>SER</sub>’ and *estar* ‘be<sub>ESTAR</sub>’ predications need be postulated. Moreover, we will claim that the property of being a relative/absolute adjective is not lexically but syntactically derived.

The paper is organized as follows: In Section 2 we review the different behaviour of *ser* ‘be<sub>SER</sub>’ and *estar* ‘be<sub>ESTAR</sub>’ copular sentences with adjectival complements with respect to the combination with adverbs quantifying over situations, locative/temporal modifiers and the triggering of lifetime effects. In Section 3 we present some of the more widespread aspectual proposals existing in the literature and the explanations given to account for the contrasts introduced in Section 2. In Section 4, we show that a pragmatic explanation in terms of an inference of temporal persistence associated with IL-predications can account for the different behaviour of *ser* ‘be<sub>SER</sub>’ and *estar* ‘be<sub>ESTAR</sub>’ predications with respect to the phenomena analyzed in Section 2 (and, more broadly, the difference between individual-level-hood and stage-level-hood). In Section 5, we claim that the differences between *ser* ‘be<sub>SER</sub>’ (IL) and *estar* ‘be<sub>ESTAR</sub>’ (SL) predications with adjectival complements (expressing gradable properties) with respect to the diagnostics reviewed in the previous sections are ultimately linked to the different comparison class needed to evaluate the truthful applicability of the adjective in each case. The different kind of elements that comprise the class of comparison of the adjective in <*ser* ‘be<sub>SER</sub>’ + A> sentences vs. <*estar* ‘be<sub>ESTAR</sub>’ + A> sentences, namely individuals vs. counterparts of individuals, gives rise to the inference of temporal persistence only in the former case.

## 2. Basic contrasts between *ser* ‘be<sub>SER</sub>’ and *estar* ‘be<sub>ESTAR</sub>’ predications: The data

In this section, we will consider the different behaviour of *ser* ‘be<sub>SER</sub>’ (IL) and *estar* ‘be<sub>ESTAR</sub>’ (SL) predications (a) in conditional sentences and sentences with adverbs quantifying over situations (2.1), (b) with respect to their combination

with locative (2.2) and temporal modifiers (2.3) and (c) with respect to the triggering of lifetime effects (2.4).<sup>5</sup>

## 2.1 Conditional sentences and sentences with adverbs quantifying over situations

As the following contrast shows, only *estar* 'be<sub>ESTAR</sub>' (SL) predications are possible in conditional sentences (introduced by *siempre que* 'whenever', *cuando* 'when', *si* 'if'), (9a), and in sentences containing adverbs that quantify over situations (like *a menudo* 'often', *con frecuencia* 'frequently'), (9b). *Ser* (IL) 'be<sub>SER</sub>' predications are ungrammatical in these contexts, (8).

5. The generic vs. existential reading of indefinite subjects has also been considered a diagnostic of the IL/SL distinction in Spanish. Indefinite subjects of IL predications receive a generic reading, (ia); an existential reading is possible for the subjects of SL predications, (ib).

- (i) a. Una botella de agua es {transparente/ larga}  
 a bottle of water is<sub>SER</sub> {transparent/ big}  
 'Water bottles are {transparent/big}'  
 b. Una botella de agua está {sucia/ llena}  
 a bottle of water is<sub>ESTAR</sub> {dirty/ full}  
 'Water bottles are {dirty/full}' (Gumiel-Molina & Pérez-Jiménez, 2012, p. 40)

However, it must be noted that the contrast under (i) is not only dependent on the IL/SL distinction, whatever its implementation, but relies also on other factors related to the grammar of genericity, factors that are to the best of our knowledge not well understood. First, if an appropriate context is built up, the indefinite subject of *estar* 'be<sub>ESTAR</sub>' sentences can also receive a generic interpretation, (ii). Moreover, as Leonetti (1999, §12.3.3.3c) notes (see also Krifka, Pelletier, Carlson, ter Meulen, Chierchia & Link, 1995; Fernald, 1999), not every IL predicate gives rise to the generic reading of the subject. Only those IL predicates that express a property that is inherent to the subject trigger the generic reading, as the contrast in (iii) shows.

- (ii) a. Después de un incendio, un bombero está exhausto  
 after of a fire a firefighter is<sub>ESTAR</sub> exhausted  
 'After a fire, a firefighter is exhausted'  
 b. En hora punta, un policía de tráfico está estresado  
 in hour rush a police of traffic is<sub>ESTAR</sub> stressed  
 'In rush hour, a traffic officer is stressed'
- (iii) a. Un niño es travieso  
 a boy is<sub>SER</sub> naughty  
 'Every boy is naughty'  
 b. #Un hombre es alto  
 a man is<sub>SER</sub> tall  
 'A man is tall' (Leonetti, 1999, p. 876, ex. (218a))

The interpretation of indefinite subjects, then, which seems to involve a more complex set of factors than generally assumed related to the grammar of genericity and kinds, will not be explored in this paper as a diagnostic of IL/SL-hood.

- (8) a. \*/#{Siempre que/ cuando/ si} el perro es delgado,  
 {whenever/ when/ if} the dog is<sub>SER</sub> thin  
 Juan se alegra  
 Juan SE is-happy
- b. \*/#El perro es delgado {a menudo/ con frecuencia}  
 the dog is<sub>SER</sub> thin {often/ frequently}
- (9) a. {Siempre que/ cuando/ si} el perro está  
 {whenever/ when/ if} the dog is<sub>ESTAR</sub>  
 delgado, Juan se alegra  
 thin Juan SE is-happy  
 ‘Whenever the dog is thin, Juan is happy’
- b. El perro está delgado {a menudo/ con frecuencia}  
 the dog is<sub>ESTAR</sub> thin {often/ frequently}  
 ‘The dog is {often/frequently} thin’

It is important to note that the ungrammatical reading in (8) arises if a change in the dog’s weight is considered, because such an interpretation (which is the interpretation obtained with *estar* ‘be<sub>ESTAR</sub>’) seems to be impossible with *ser* ‘be<sub>SER</sub>’. However, note that the examples in (8) are acceptable in the following context: imagine dog shows in which the winner must be thin (either the thinnest dog or a dog that is thin to a certain degree); in this context, if John’s dog is usually the thinnest dog, or at least thin enough to win many contests, the sentences are possible (the examples improve if a degree modifier is added: *suficientemente/ bastante/lo bastante delgado* ‘thin enough’). Note that this interpretation implies not any change in the dog’s weight across stages (which seems to be the meaning of (9)), but rather a comparison of the dog’s degree of thinness/fatness with the degree of the property shown by other individuals on different occasions. This observation will be crucial to develop our proposal.

## 2.2 Locative modifiers

Let us now consider locatives. The examples under (10) show that *estar* ‘be<sub>ESTAR</sub>’ predications can co-occur with locative modifiers. The presence of locative modifiers in *ser* ‘be<sub>SER</sub>’ predications gives rise to ill-formedness (i.e. ungrammaticality, for many authors). So, for example, (10b) can mean that the astronaut lost weight while he was on Mars, but once he returned to Earth he became fat. By contrast, (11a) cannot receive such an interpretation.

- (10) a. Juan estaba {borracho/ contento} en la cocina  
 Juan was<sub>ESTAR</sub> {drunk/ happy} in the kitchen  
 ‘Juan was {drunk/happy} in the kitchen’

- b. El astronauta estaba delgado en Marte  
 the astronaut was<sub>ESTAR</sub> thin on Mars  
 ‘The astronaut was thin on Mars’
- c. Juan estaba tranquilo en el jardín  
 Juan was<sub>ESTAR</sub> calm in the garden  
 ‘Juan was calm in the garden’
- (11) a. \*/#El astronauta era delgado en Marte  
 the astronaut was<sub>SER</sub> thin on Mars  
 b. \*/#Juan era tranquilo en el jardín  
 Juan was<sub>SER</sub> calm in the garden

However, the behaviour of locatives is more complex. The examples in (11) (with *ser* ‘be<sub>SER</sub>’) are ill-formed if a change in the property of the subject is interpreted across locations. Nonetheless, note that locative modifiers are possible with IL predications when the locative is interpreted as restricting a subset of situations where the predicate is true, i.e. if they are frame setting adverbials (Roy, 2013; see also Maienborn, 2005). In an example like (12) it is asserted that the astronaut (who, let us say, weighs 100 kg) is thin with respect to his colleagues in the Mars mission (or even with respect to Martians!), but is fat with respect to his gym-mates in Washington, for example (this interpretation is parallel to the ‘dog-show’ interpretation possible for the examples in (8), as described above). In these cases, it seems that the locative contributes to narrowing down the comparison class needed to evaluate the truthful applicability of the predicate, but there is no change as to the degree to which the subject possesses the property.

- (12) El astronauta es delgado en Marte, pero gordo en su gimnasio  
 the astronaut is<sub>SER</sub> thin in Mars but fat in his gym  
 ‘The astronaut is considered thin on Mars (with respect to his colleagues on Mars), but fat at his gym (with respect to people at his gym)’

Moreover, Maienborn (2005, p. 163) argues for the idea that contrasts of the kind exemplified in (10)–(11) cannot be linked with eventive properties differentiating IL from SL predications. As she claims, examples like (13), with SL predications, receive the same odd interpretation as the examples in (11) with IL predications ((13a) and (13b) are Maienborn’s examples, judged as ungrammatical by the author). An example like (13b) cannot mean that there is an event of Carol being pregnant and this event is located in her room. Similarly, (13c) cannot be questioned as *¿Dónde está vivo el niño?* ‘Where is the baby alive?’<sup>6</sup>

6. It must be noted that a conjunctive reading should be excluded in these examples: ‘Carol is pregnant and Carol is in the kitchen’; ‘The baby is alive and the baby is in the kitchen’.



- (13) a. \*La camisa está mojada en la silla  
 the shirt is<sub>ESTAR</sub> wet on the chair  
 b. \*Carol está encinta en su habitación  
 Carol is<sub>ESTAR</sub> pregnant in her room  
 c. \*El niño está vivo en su cuna  
 the baby is<sub>ESTAR</sub> alive in his cot

These cases seem to be odd because it is not possible that the subject shows changes with respect to the property in question in different locations (even though we have a SL *estar* 'be<sub>ESTAR</sub>' predication). Note that when this interpretation can be obtained, the examples are fine:

- (14) a. La camisa estaba mojada en la lavandería,  
 the shirt was<sub>ESTAR</sub> wet at the laundry  
 pero hemos llegado a casa y ya está seca  
 but have arrived to home and already is<sub>ESTAR</sub> dry  
 'The shirt was wet at the laundry, but we've just arrived home and it is already dry'  
 b. El zombi está muerto en su ataúd, pero vivo fuera de él  
 the zombie is<sub>ESTAR</sub> dead in his coffin but alive out of it  
 'The zombie is dead in its coffin, but alive out of it'

It seems, then, that some predicates (*mojado* 'wet', *encinta* 'pregnant', *vivo* 'alive', *muerto* 'dead', recall that these predicates combine only with *estar* 'be<sub>ESTAR</sub>', (2)) describe properties that are interpreted as temporally stable with respect to some subjects (at least for a specific interval of time, as in the case of *encinta*) and also as stable across different locations.

### 2.3 Temporal modifiers

Consider now the behaviour of temporal modifiers in *ser* 'be<sub>SER</sub>' (IL) and *estar* 'be<sub>ESTAR</sub>' (SL) predications. As was the case with locatives, temporal modifiers are only acceptable in *estar* 'be<sub>ESTAR</sub>' sentences, as the contrast between (15) and (16) shows.

- (15) a. \*/#Mi padre era delgado  
 my father was<sub>SER</sub> thin  
 anteyayer (ahora es gordo)  
 the-day-before-yesterday (now is<sub>SER</sub> fat)  
 b. \*/#Mi hijo era bajo el mes pasado  
 my son was<sub>SER</sub> short the month last  
 (ahora es alto)  
 (now is<sub>SER</sub> tall)

- (16) Mi padre estaba {cansado/ enfadado/ enfermo/ delgado}  
 my father was<sub>ESTAR</sub> {tired/ angry/ sick/ thin}  
 el mes pasado  
 the month last  
 ‘My father was {tired/angry/sick/thin} last month’

#### 2.4 Lifetime effects

Finally, let us examine the lifetime effects that arise when *ser* (IL) ‘be<sub>SER</sub>’ predications appear in the past tense. As noted many times in the literature (see Arche, 2006 and references therein), the use of stative IL predicates in the past tense gives rise to the interpretation that a significant amount of time has passed since the state being described existed or the interpretation that the referent of the subject of predication is no longer alive. These interpretations do not arise with *estar* ‘be<sub>ESTAR</sub>’ (SL) predications.

- (17) a. Mi perro era delgado; Juan era inteligente  
 my dog was<sub>SER</sub> thin Juan was<sub>SER</sub> intelligent  
 ‘My dog was thin’; ‘Juan was intelligent’  
 b. Mi perro estaba delgado; Juan estaba enfermo  
 my dog was<sub>ESTAR</sub> thin Juan was<sub>ESTAR</sub> sick  
 ‘My dog was thin’; ‘Juan was sick’

### 3. Aspectual approaches: Event/aspect/Aktionsart-oriented explanations

As mentioned in the Introduction, the differences found between *ser* ‘be<sub>SER</sub>’ and *estar* ‘be<sub>ESTAR</sub>’ predications with respect to the empirical phenomena analyzed in Section 2 have been analyzed within aspectual approaches in terms of the IL/SL dichotomy. However, individual-level-hood and stage-level-hood have been characterized and defined in many different ways, leading to different proposals about what the core semantic (and/or syntactic) eventive/aspectual differences between *ser* ‘be<sub>SER</sub>’ and *estar* ‘be<sub>ESTAR</sub>’ sentences are that would explain the aforementioned phenomena. Specifically, within aspectual approaches, the differences between *ser* ‘be<sub>SER</sub>’ and *estar* ‘be<sub>ESTAR</sub>’ copular sentences have been mainly explained in terms of (a) differences in argument structure, or (b) differences in event/state boundaries.

### 3.1 *Ser* 'be<sub>SER</sub>' vs. *estar* 'be<sub>ESTAR</sub>' predications: Differences in argument structure

From the first point of view, Kratzer (1989/1995), de Swart (1991), Diesing (1992) and Chierchia (1995), among others, analyze the IL/SL dichotomy on the basis of either the absence vs. presence of a (Davidsonian) event argument in the thematic grid of IL/SL predicates respectively, or the special character of the eventive argument of IL predicates.<sup>7</sup> Following these authors, Lema (1996) and Fernández Leborans (1999), among others, claimed that, in contrast to *estar* 'be<sub>ESTAR</sub>' predications (SL predications), *ser* 'be<sub>SER</sub>' predications (IL predications) lack an eventive argument.

As these authors note, the presence of the eventive variable in *estar* 'be<sub>ESTAR</sub>' predications explains why only *estar* 'be<sub>ESTAR</sub>' sentences can appear within a conditional structure or can be combined with quantifiers ranging over situations: only in *estar* 'be<sub>ESTAR</sub>' predications is there an eventive variable available for the conditional operator or quantifier to bind (recall (9)). By contrast, *ser* 'be<sub>SER</sub>' predications do not provide any variable (specifically, an eventive variable) for the operators/quantifiers to bind, hence the ungrammaticality (according to the afore-mentioned authors) or deviance of the sentences in (8).<sup>8</sup>

Consider now locative and temporal modifiers. The examples under (10) showed that *estar* 'be<sub>ESTAR</sub>' predications can co-occur with locative modifiers. Assuming that these modifiers are sensitive to the presence of an eventive argument, these examples are taken to show that *estar* 'be<sub>ESTAR</sub>' predications encode such an argument. An example like (10a) means that there is an event of Juan being drunk and this event is located in the kitchen, i.e. the locative takes the event as its argument. Questions like *¿Dónde está borracho Juan?* 'Where is John

7. According to Kratzer (1989/1995), SL predicates include a spatiotemporal/event variable that can be bound by Tense; IL predicates lack this variable. For Chierchia (1995), both SL and IL predicates have an event variable, but IL predicates compulsorily are combined with a generic operator, so that the eventive variable cannot be accessed; IL predicates are thus inherently generic. Finally, according to de Swart (1991), IL predicates have built into their semantic entry a uniqueness presupposition affecting the Davidsonian argument which prevents the predicate from applying in different spatiotemporal locations. These kinds of hypotheses have been challenged by many authors: see Maienborn (2003, 2005), Arche (2006), Schmitt & Miller (2007), Roby (2009), Camacho (2012), Jiménez-Fernández (2012) and others.

8. Note that *ser* 'be<sub>SER</sub>' predications including *dispositional adjectives* are grammatical in these contexts, (i). For these adjectives, a special semantics has been proposed including eventive information, see Arche (2006).

(i) Siempre que María es cuidadosa, su madre se alegra  
whenever that María is<sub>SER</sub> careful her mother SE is-happy  
'Whenever María is careful, her mother is happy'

drunk?’; *¿Dónde está contento Juan?* ‘Where is John happy?’ are indeed possible. *Ser* ‘be<sub>SER</sub>’ predications, lacking an eventive argument, are not compatible with locative modifiers, as we saw in (11). Similarly, temporal modifiers select an event as argument and locate it in time. Therefore, only *estar* ‘be<sub>ESTAR</sub>’ sentences are compatible with such modifiers (recall the contrast in (15)–(16)).

Similarly, for Kratzer (1989/1995), lifetime effects (2.4) derive from the lack of an eventive argument in IL predicates. In the absence of such an argument, the past tense operator binds the subject individual, giving rise to the interpretation that the subject has ceased to exist, (18).

- (18) a. Juan estaba enfermo/Juan was sick  
[in-the-past (e)] & [sick’ (Juan, e)]  
b. Juan era inteligente/Juan was intelligent  
[in-the-past (Juan)] & [intelligent’ (Juan)]

### 3.2 *Ser* ‘be<sub>SER</sub>’ vs. *estar* ‘be<sub>ESTAR</sub>’ predications: Differences in event/state boundaries

From a different perspective, as mentioned above, the characterization of IL and SL predications has been approached from the point of view of the internal temporal constitution of the situation they express. The schema in (19) summarizes the main proposals in the literature that account for differences between *ser* ‘be<sub>SER</sub>’ and *estar* predications in aspectual/Aktionsart terms:

- (19) a. *ser* ‘be<sub>SER</sub>’: *-perfective*/*estar* ‘be<sub>ESTAR</sub>’: *+perfective*  
*Estar* ‘be<sub>ESTAR</sub>’ sentences express the idea that the property holds within a temporally bound interval, while *ser* ‘be<sub>SER</sub>’ sentences describe a stative situation without boundaries (Luján, 1981).
- b. *ser* ‘be<sub>SER</sub>’: *-nexus*/*estar* ‘be<sub>ESTAR</sub>’: *+nexus*; *ser* ‘be<sub>SER</sub>’: *-resultative*/*estar* ‘be<sub>ESTAR</sub>’: *+resultative*  
*Estar* ‘be<sub>ESTAR</sub>’ sentences encode a link to a previous situation (Clements, 1988 and others).
- c. *ser* ‘be<sub>SER</sub>’: *unbounded*/*estar* ‘be<sub>ESTAR</sub>’: *bounded*  
The difference depends on the existence of a temporal bound for the state described (Marín, 2000, 2004).
- d. *ser* ‘be<sub>SER</sub>’: *-inchoative*/*estar* ‘be<sub>ESTAR</sub>’: *+inchoative*  
*Estar* ‘be<sub>ESTAR</sub>’ sentences express the inception of a state (Camacho, 2012).
- e. *ser* ‘be<sub>SER</sub>’ expresses *central coincidence*/*estar* ‘be<sub>ESTAR</sub>’ expresses *terminal coincidence* (Brucart, 2010; Gallego & Uriagereka, 2009; Zagona, 2012, this volume; Fábregas, 2012 and others; in these proposals the just-mentioned semantic difference is linked to the presence/absence of an abstract syntactic preposition, and/or the featural content of the copulas).

Let us consider, for example, (19a) or (19c). According to these proposals, the state boundaries argued for in *estar* 'be<sub>ESTAR</sub>' (SL) predications can be accessed by locative and temporal modifiers. *Ser* 'be<sub>SER</sub>' (IL) predications, expressing a state lacking boundaries, are not compatible with locative/temporal modifiers; hence the contrasts presented in Sections 2.2 and 2.3. Similarly, if *ser* 'be<sub>SER</sub>' (IL) predications are assumed to express a state without boundaries, the past tense operator is unable to locate the state *per se* in the past and locates instead the individual referred to by the subject, giving rise to the lifetime effect.<sup>9</sup>

Before concluding this section, let us mention that, within aspectual approaches, different proposals attribute different relative roles to the copula and adjective in determining the aspectual properties of the whole predication. A prevalent point of view is that a matching relation is established between the copulas and adjectives, which also lexically encode aspectual properties, generally implemented as formal features. Adjectives can thus be  $-/+$  perfective (Luján, 1981),  $-/+$  resultative (Clements, 1988), IL or SL (Fernández Leborans, 1999), or  $-/+$  inchoative (Camacho, 2012), hence their combination with *ser* 'be<sub>SER</sub>' or *estar* 'be<sub>ESTAR</sub>'. Adjectives that combine with both copulas, (3), are analyzed as aspectually neutral, unmarked or double-marked from the lexical point of view. From a different perspective, in Brucart (2010), Gallego and Uriagereka (2009) and Zagana (2012), the Aktionsart differences between *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' predications are acknowledged but are conceived not as properties of the copulas *per se* but rather as reflexes of some adjectival property, which is syntactically built up (no matching relation between copulas and adjectives is thus argued for). As will become clear in the following sections, our proposal follows this second line of reasoning.

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9. Very recently, the IL/SL distinction in the domain of stative predications has been analyzed as a semantic distinction based on the part-structure of the situation described in terms of homogeneity vs. quantization (based on Borer, 2005) of the state expressed (Husband, 2010, 2012; Roy, 2013). Husband (2010, p. 131) claims that lifetime effects derive from this proposal: "Since individual-level predicates are homogeneous predicates, they apply to homogeneous stages of the subject, i.e. the individual itself. Lifetime effects arise in these cases because all of the stages of the individual are put in the past." Stage-level predicates, on the other hand, are quantized predicates that apply to a quantized stage of the subject. Therefore, "lifetime effects do not arise because only some stage of the individual is put in the past." Following Husband's proposals, Gumiel-Molina and Pérez-Jiménez (2012) propose that *ser/estar* 'be<sub>SER/ESTAR</sub>' predications reflect a difference between homogeneous and quantized states that derives from the scalar properties of the adjectives that appear in the copular constructions. See GMP (2015a) for a detailed criticism of this proposal.

#### 4. A pragmatic explanation: The inference of temporal persistence

The goal of this section is to show that the different behaviour of *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' predications with respect to the phenomena explored in Section 2 (and, more broadly, the difference between individual-level-hood and stage-level-hood) can be explained in pragmatic terms and is not triggered by any core event/aspect/Aktionsart-related semantic (and/or syntactic) difference between the copulas and/or between their adjectival complements.

We will claim that the differences found between *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' predications with respect to their appearance in conditional sentences, their combination with adverbs of quantification (frequency quantifiers) and locative/temporal modifiers, or the triggering of lifetime effects, derive from the fact that *ser* 'be<sub>SER</sub>' predications – IL predications – give rise to an inference of temporal persistence which explicitly states that *if the property expressed holds at time t, it also holds at any past or future time t' if no information is given to the contrary* (McNally, 1994, p.9). More specifically, when copular sentences appear in conditional sentences (*when*-clauses), or include frequency adverbs or locative or temporal modifiers, the meaning obtained is that the property in question expressed by the copular sentence is holding across the specific times referred to by the *when*-clause and the frequency quantifier; and at the locations pinpointed by the locative/temporal modifiers. However, in *ser* 'be<sub>SER</sub>' sentences, the inference of temporal persistence renders the information expressed by these kinds of adjuncts irrelevant or uninformative: the temporal persistence associated with the IL predication covers by default the different times and event locations referred to by the *when*-operator, the frequency adverb and the locative/temporal modifier, hence the unfelicitousness/pragmatic-ill-formedness of the examples presented in Section 2.

If this proposal is on the right track, since the property of temporal persistence is an *inference*, it is expected to be cancellable if the right context is set up, specifically if a spatial/temporal limit is set in which the property in question holds. Let us revisit some of the data presented in Section 2 under this new pragmatic light. The origin of the inference of temporal persistence will be explained in Section 5.

##### 4.1 Locative modifiers

Under the pragmatic explanation adopted in this section, the unacceptability of the examples in (11) (*#El astronauta era delgado en Marte* 'The astronaut was thin on Mars', *#Juan era tranquilo en el jardín* 'Juan was calm in the garden') arises because the temporal stability of the property, associated with the inference of temporal

persistence triggered by the *ser* 'be<sub>SER</sub>' (IL) predication, renders the information expressed by the locative modifiers uninformative (i.e. the information that the property holds at the location determined by the locative PPs is superfluous and the sentence is pragmatically ill-formed).

However, examples like (20) are perfectly acceptable. (20a) can mean that Alice (in the context of *Alice in Wonderland*) is 3 m tall when she is in the house, i.e. that the property of being 3 m tall holds when and only when she is in the house. When she is in the rabbit's hole, the property that holds is her being 50 cm tall. Alice's height, which, as we know, is subject to (rapid) changes, is evaluated in both cases with respect to normal young girls (i.e. Alice is tall for a young girl when she is in the house; Alice is short for a young girl when she is in the rabbit's hole). In this special context, the inference of temporal persistence triggered by the IL predication seems to be cancelled, given that the different locations at which Alice appears set a limit on the persistence of the property. Something similar can be said about the example in (20b), where the locative modifiers set up a time limit in which the properties in question hold.

- (20) a. Alicia es alta en la casa  
 Alicia is<sub>SER</sub> tall in the house  
 y baja en la madriguera del conejo blanco  
 and short in the hole of.the rabbit white  
 'Alice is tall in the house but short in the white rabbit's hole'
- b. Supermán es flacucho en el Daily Planet,  
 Superman is<sub>SER</sub> scrawny at the Daily Planet  
 pero corpulento en los cielos de Metrópolis  
 but muscular in the sky of Metropolis  
 'Superman is scrawny when he is at the Daily Planet office, but muscular when he is in the skies above Metropolis'

It is important to stress that in (20) the inference of temporal persistence is cancelled (i.e. the property changes across different locations), but the degree to which the subject possesses the property is evaluated with respect to a comparison class made up of other individuals (i.e. Alice is tall or short with respect to other young girls, for example) and not with respect to previous stages of the subject.

#### 4.2 Temporal modifiers

The unacceptability of examples like (15a) (\*/#*Mi padre era delgado anteayer – ahora es gordo* – ; lit. My father was thin the day before yesterday, now he is fat) and (15b) (\*/#*Mi hijo era bajo el mes pasado – ahora es alto* – ; lit. My son was short last month, now he is tall) vs. (16) (*Mi padre estaba {cansado/enfadado/*

*enfermo/delgado} el mes pasado* ‘My father was {tired/angry/sick/thin} last month’) can also be explained on pragmatic grounds, as derived from the inference of temporal persistence associated with IL predications. (15b), for example, is pragmatically odd in the interpretation that my son’s height has changed considerably across a short period of time (one month), so that he was considered short with respect to fourteen-year-old children last month, but tall with respect to the same comparison class today. Again, the temporal stability of the property, imposed by the inference of temporal persistence triggered by the *ser* ‘be<sub>SER</sub>’ (IL) predication contradicts the information expressed by the temporal modifiers, hence the unacceptability of the sentence.

A similar explanation is given by Percus (1997) and Husband (2010) for the unacceptability of examples of the kind exemplified by (15a), (15b). Specifically, these authors claim that these kinds of examples are odd because they are “out-of-the-blue” utterances. Percus (1997) claims that every utterance is interpreted with respect to some context. Out-of-the-blue sentences are evaluated with respect to our global context, i.e. world knowledge. What world knowledge tells us about individual-level predications is that they denote properties of individuals which tend to be stable over time. Temporal modifiers are not compatible with IL predications because these modifiers are at odds with our world knowledge about the properties these predications express.

However, Husband (2010), quoting Percus (1997), notes that temporal modifiers are possible with IL predications if a reasonable context is set up: on the one hand, temporal modifiers compatible with temporal stability are licensed with IL predications; on the other hand, if a local context is provided which suspends our world knowledge about the stability of some properties, temporal modifiers are acceptable in IL predications. These two conditions make temporal modifiers acceptable in *ser* ‘be<sub>SER</sub>’ sentences, as (21) shows. Again in these contexts, the inference of temporal persistence is cancelled.

- (21) a. Mi padre era delgado {hace un año/  
my father was<sub>SER</sub> thin {ago one year/  
en su juventud} (ahora es gordo)  
in his youth} now is<sub>SER</sub> fat  
‘My father was thin {a year ago/in his youth} (now, he is fat)’
- b. Alicia era alta hace unos segundos,  
Alicie was<sub>SER</sub> tall ago few seconds  
pero, tras haber comido el hongo, es baja  
but after have eaten the mushroom is<sub>SER</sub> short  
‘Alice was tall a few seconds ago, but now, after having eaten the mushroom, she is short’



### 4.3 Lifetime effects

Finally, note that lifetime effects triggered by *ser* 'be<sub>SER</sub>' (IL) predications, recall (17a), are easily cancellable, as (22) shows. This fact, according to our hypothesis, indicates that lifetime effects are not derived from any event/aspect/Aktionsart-related semantic (and/or syntactic) property defining IL predications. The lifetime effect associated with *ser* 'be<sub>SER</sub>' predications would arise from the interaction between the inference of temporal persistence and the meaning of the past tense.

- (22) Juan era inteligente y entonces empezó  
 Juan was<sub>SER</sub> intelligent and then started  
 a tocar el trombón  
 to play the trombone  
 'Juan was intelligent and then he started playing the trombone'

Authors like Magri (2009) also offer a pragmatic explanation to account for lifetime effects. According to Magri, IL predications like (*be*) *tall* are associated with an assumption about common knowledge ( $W_{ck}$ ) such that "it follows from common knowledge  $W_{ck}$  that, if an individual is tall at a given time, then he is tall throughout his entire life span". This assumption is stated as in (23), where  $\lambda t.in^w(d,t)$  stands for the life span of an individual  $d$  in a world  $w$ . The only difference between IL and SL predications is that for IL predications  $W_{ck}$  contains no worlds where the extension of the predicate does not satisfy (23).<sup>10</sup>

- (23) For every individual  $d$  in  $D_e$  and for every world  $w$  in  $W_{ck}$  compatible with common knowledge: if there is a time  $t'$  in  $T$  such that  $[[tall]]^w(d,t')$ , then  $[[tall]]^w(d,t)$  for every time  $t$  such that  $in^w(d,t)$ . (Magri, 2009, p. 271, ex. (70))

According to this proposal, lifetime effects derive from the interaction between the meaning of the past tense and this assumption about common knowledge. Similarly, the oddity of some locative and temporal modifiers with IL predicates arises when this common knowledge assumption is incompatible with the situation described.

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10. The assumption in (23) is in fact too strong: if John is tall at a given time, then he has to be tall at literally every time  $t$  throughout his life span, which may not be true. Assumption (23) should be restated as in (i), replacing John's whole life span (ia) with some proper subset (ib), which might depend on the specific IL predicate considered, and be vaguely defined and context dependent.

- (i) a.  $\lambda t.in^w(j,t)$   
 b.  $\lambda t.C^w_{tall}(j,t)$

#### 4.4 Conclusion: The inference of temporal persistence

The previous sections have shown that the availability of *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' predications as restrictors of quantifiers (in conditional sentences headed by *cuando* 'when', *siempre que* 'whenever'), their co-occurrence with frequency adverbs (*a menudo* 'often', *con frecuencia* 'frequently') and their combination with locative and temporal modifiers are not determined by intrinsic semantic (and/or syntactic) eventive/aspectual/Aktionsart-related properties of the copulas and/or their adjectival complements. All the empirical phenomena presented in the previous sections are better explained on the basis of the so-called inference of temporal persistence, which was formulated by McNally (1994) as in (24). This pragmatic explanation of the behaviour of IL predications naturally accounts for the fact that the inference is cancellable due to contextual changes.

- (24) Individual-level predicates are associated with an inference of temporal persistence; stage-level predicates are not. The inference of temporal persistence in effect specifies the following: if an eventuality is going on at time *t* and you have no information that it is not going on at some later time *t'* [and equally at a previous time *t''*], then infer that it is going on at that later [and previous] time *t'* as well. Note that this is a default inference, surfacing only if there is no information to the contrary. (McNally, 1994, p.9 quoting Condoravdi, 1992, p.9, additions between brackets by McNally, 1994)

The inference of temporal persistence associated with IL predicates was formulated by McNally (1994) to account for the contrast between IL and SL predicates (assuming a lexicalist approach to the IL/SL distinction) as depictive secondary predicates: only stage-level predicates can occur as depictive secondary predicates, as the Spanish examples in (25) show.

- (25) a. María llegó a su casa {cansada/ sola/ sobria}  
 María arrived to her house {tired/ alone/ sober}  
 'María arrived home {tired/alone/sober}'  
 b. \*/#María llegó a su casa {alta/ joven/ lista}  
 María arrived to her house {tall/ young/ bright}

According to McNally (1994) (see also GMP, 2015b), secondary predicates must fulfil a simultaneity condition (broadly speaking, the situation they describe must be simultaneous with the situation described by the main predicate of the sentence). Simultaneity must be relevant and informative, hence non-trivially met. Given the inference of temporal persistence triggered by IL predicates, the simultaneity condition is trivially met in many cases in out-of-the-blue sentences containing secondary predicates, giving rise to infelicitous sentences like (25b). However, if the right context is set up, the inference can be cancelled, (26).

- (26) a. La malvada bruja tomó la pócima y  
 the wicked witch took the potion and  
 llegó joven a casa del príncipe  
 arrived young to house of.the prince  
 ‘The wicked witch took the potion and had become young by the time she  
 arrived at the prince’s house’
- b. Alicia comió el hongo y salió alta  
 Alice ate the mushroom and went tall  
 de la casa de la oruga  
 of the house of the caterpillar  
 ‘Alice ate the mushroom and had become tall by the time she left the  
 caterpillar’s house’

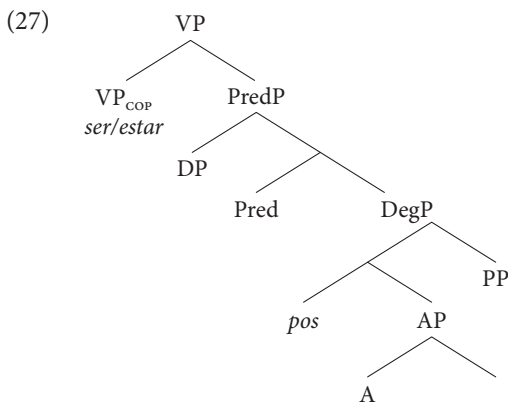
Now, if the behaviour of *ser* ‘be<sub>SER</sub>’ predications (IL predications) with respect to the facts revised in the preceding section is not triggered by any eventive/aspectual/Aktionsart-related semantic or syntactic property which could define the IL/SL distinction but is related to the (cancellable) inference of temporal persistence associated with IL predications, the question that should be posed is the following: How does the inference of temporal persistence arise in *ser* ‘be<sub>SER</sub>’ predications, and, more generally, in IL predications? Can it ultimately be associated with any (non-eventive/aspectual/Aktionsart-related) syntactic/semantic property characterizing *ser* ‘be<sub>SER</sub>’ vs. *estar* ‘be<sub>ESTAR</sub>’ predications, i.e. IL vs. SL predications?

##### 5. The origins of the inference of temporal persistence: The formation of comparison classes in copular sentences with adjectival complements

Following GMP (2015a), our proposal is that, in fact, *ser* ‘be<sub>SER</sub>’ (IL) and *estar* ‘be<sub>ESTAR</sub>’ (SL) predications are similar from the eventive/aspectual/Aktionsart point of view. The differences between *ser* ‘be<sub>SER</sub>’ (IL) and *estar* ‘be<sub>ESTAR</sub>’ (SL) predications with adjectival complements (expressing gradable properties) relative to the diagnostics reviewed in the previous sections are ultimately linked to the different comparison class needed to evaluate the truthful applicability of the adjective in each case. The different kinds of elements that comprise the class of comparison of the adjective in <*ser* ‘be<sub>SER</sub>’ + A> sentences vs. <*estar* ‘be<sub>ESTAR</sub>’ + A> sentences give rise to the inference of temporal persistence only in the former case. In Section 5.1 we will summarize GMP’s (2015a) proposal about the nature of the *ser/estar* ‘be<sub>SER/ESTAR</sub>’ distinction. The connection between GMP’s (2015a) proposal and the inference of temporal persistence will be explicitly stated in Section 5.2. In this section, the connection between the relative /absolute distinction and the IL/SL distinction will be also dealt with.

5.1 Relative/absolute adjectives in *ser/estar* 'be<sub>SER/ESTAR</sub>' copular sentences

In GMP (2015a), following standard assumptions about the structure of copular sentences, we assume that copulas are verbs (V) selecting for a Predication Phrase as complement, (27) (Bowers, 1993; Baker, 2003; Mikkelsen, 2005; and others). In the case of copular sentences with adjectival complements, the Pred node introduces the AP and its associated functional projections (Degree Phrase) and also the subject of predication (the individual argument of the gradable property) via functional application. Our claim is that *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' have as complements predications expressing different ways of attributing properties to subjects. Specifically, as will be explained below, V<sub>ESTAR</sub> has as a complement a Predication Phrase (PredP) that includes stages of the subject of predication, whereas V<sub>SER</sub> has as a complement a PredP that contains not stages of the subject but rather different individuals.<sup>11</sup> In other words, our proposal is that *estar* 'be<sub>ESTAR</sub>' co-occurs with absolute adjectives (in terms of Toledo & Sassoon, 2011, i.e. adjectives that have stages of an individual in their comparison class) while *ser* 'be<sub>SER</sub>' co-occurs with relative adjectives (which have individuals in their comparison class).



Following Toledo and Sassoon (2011), we assume that all gradable adjectives require a standard of comparison established in relation to a comparison class to be interpreted. The difference between relative and absolute adjectives, which is at the core of their co-occurrence with *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>', is determined

11. The ideas developed in the text are compatible with both approaches that claim that *ser/estar* 'be<sub>SER/ESTAR</sub>' have selection restrictions as part of their meaning which determine (in semantic and/or syntactic terms) the possible complements they may combine with, and also approaches that claim that *ser/estar* 'be<sub>SER/ESTAR</sub>' are the spell-out reflexes of some semantic/syntactic property of their PredP complements. In this paper we remain neutral with regard to this aspect.

by the nature of the comparison class selected in each case. The comparison class of an adjective depends on the individual it is predicated of and can be established based on *variance between individuals* (relative adjectives, (28)) or based on *variance within the same individual* (absolute adjectives, (29)). Relative adjectives are decoded relative to an *extensional category*, generating a between-individuals interpretation in which an individual is compared to other distinct individuals within the index of evaluation (which are also members of the category containing the individual the adjective is predicated of). Absolute adjectives are decoded relative to a *counterpart comparison class*, giving rise to a within-individual interpretation, in which the adjective's argument is compared to its *counterparts* in different indices (world-time pairs). For example, in (29a), the description of the shirt as wet is based on a visualization of that shirt in various degrees of wetness rather than on its juxtaposition with other concrete shirts (Toledo & Sassoon, 2011, p. 141). Similarly, in (29b), the adjective generates an interpretation relative to a counterpart comparison class comprised of the same glass with different levels of water. That is, in the case of absolute adjectives only one individual contributes values to the comparison class; *counterparts* are thus "possible temporal stages of the same individual in actual but not present circumstances (i.e. in the past) or in normal although not actual circumstances" (Toledo & Sassoon, 2011, p. 146).

(28) Tu hijo es<sub>BE-SER</sub> alto/Your son is tall

- (29) a. La camisa está<sub>BE-ESTAR</sub> húmeda/The shirt is wet  
 b. El vaso está<sub>BE-ESTAR</sub> lleno/The glass is full  
 c. Tu hijo está<sub>BE-ESTAR</sub> alto/Your son is tall

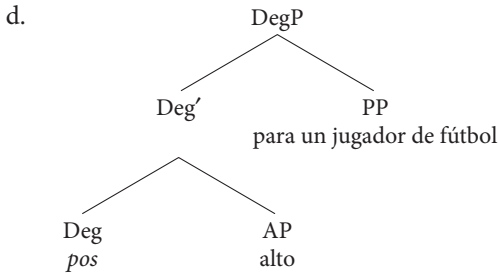
Note that many adjectives, in fact all the gradable adjectives in (3), can be interpreted as either relative or absolute, depending on the context, and hence may combine with either *ser* 'be<sub>SER</sub>' or *estar* 'be<sub>ESTAR</sub>' (note for example *alto* 'tall' in (28) and (29c)). Our proposal is that the relative/absolute distinction, defined with respect to the kind of elements that comprise the comparison class of the adjective, is introduced in the syntax by the *pos* (i.e. *positive*) morpheme, syntactically generated as the head of the Deg node present in the extended projection of adjectives, recall (27) (Abney, 1987; Corver, 1991).<sup>12</sup> Following Kennedy (1999) and Fults (2006), GMP (2015a) claim that the comparison class acts as a second argument of the M function introduced by *pos*, (30).

(30)  $[[_{Deg} pos]] = \lambda g \lambda P \lambda x. g(x) \geq M(g)(P)$

12. The abstract functional morpheme expressing positive degree has no phonological expression in Spanish.

The function *M* sets the standard degree to which the reference degree (i.e. the degree assigned to the individual by the function) is compared, and can be regarded as a “function over gradable properties [g] and comparison class properties [P]” (Fulst, 2006, p. 134). The comparison class is normally instantiated by a PP headed by *for* in English or *para* in Spanish (Ludlow, 1989; Contreras, 1993 and many others), but it can also be instantiated by a null pronoun *C* (Stanley, 2000; Kennedy, 2007). An illustrative example is offered in (31).

- (31) a. alto para un jugador de fútbol  
 tall for a player of soccer  
 ‘tall for a soccer player’  
 b.  $\lambda x.\text{alto}(x) \geq M(\text{alto})(\lambda y.\text{jugador-de-futbol}(y))$   
 c. The property of being tall to a degree equal to or greater than the standard degree of being tall in the class of soccer players



We claim that the comparison class introduced by *pos* can be, on the one hand, a set of individuals. In this case, it is extensionally defined as the set of individuals *y* such that *y* is *P* or is related to *P* in the world of evaluation (this extensional-comparison class is equivalent to the *between-individuals* comparison class of Toledo and Sassoon, 2011), (32a). Turning back to the example in (31), since the comparison class for *alto/tall* is comprised of individuals, the function *M* applied to this comparison class and to the gradable property returns a midpoint standard as the value to which the reference degree is compared, (32b).

- (32) a. Comparison class =  $\{y: P(y)\} = \lambda y.P(y)$   
 b. Juan es alto para un jugador de fútbol  
 ‘Juan is tall for a soccer player’  
 $[[\text{Juan es alto para un jugador de fútbol}]]^{w,t} = 1$  iff the degree of Juan’s height is equal to or greater than the standard degree of height of members of the class of soccer players as given by function *M*.

On the other hand, the comparison class introduced by *pos* can be intensionally defined (this is equivalent to the *within-individual* comparison class by Toledo and Sassoon, 2011) as in (33), where *w'* ranges over world-time pairs. *A* is an accessibility relation that, given a world *w*, relates *w* to worlds *w'* which are normal or where all the things that normally hold hold (Asher & Morreau, 1995).

- (33) Comparison class =  $\lambda s. \forall w' [[w'Aw][x \text{ is R(ealized) as } s \text{ at } w' \& \{P(x) \text{ or } x \text{ is related to } P\} \text{ at } s \text{ in } w']]$

Given a world, the function in (33) returns the set of stages such that for every accessible typical world  $w'$ , the individual  $x$  has a realization  $s$ , and  $x$  normally {manifests/is/is related to}  $P$  at  $s$  in  $w'$ . This comparison class is effectively within individuals, in particular within the individual  $x$ , the argument of the predicate. From this viewpoint, stages are counterparts, entities that are instantiated in worlds in which typicality holds and the comparison class is intensional (as Luisa Martí, p.c., notes, a device should be added to the formula to guarantee that all stages are traced back to the same individual).

Let us illustrate with Example (34). In the case of *lleno* 'full', the comparison class is comprised of different stages of the predicate argument, the restaurant in this particular case, as this argument is instantiated in different stages in every contextually salient typical world. It is therefore a *within-individual* comparison class. The function  $M$  will apply to this class and will return as its value one of the degrees of the gradable property since it is instantiated as a stage in those typical worlds. The fact that the degrees in question are manifested through stages has the consequence that the standard degree selected by  $M$  will count as maximal or minimal (within the comparison class). The adjective is thus interpreted as absolute.

- (34) a. El restaurante está lleno  
 the restaurant is<sub>ESTAR</sub> full  
 'The restaurant is full'
- b.  $C = \lambda s. \forall w' [[w'Aw][x = \text{the restaurant is R(ealized) as } s \text{ at } w' \& \{P(x) \text{ or } x \text{ is related to } P\} \text{ at } s \text{ in } w']]$
- c.  $[[\text{El restaurante está lleno } C_{\text{PRO}}]]^{wt} = 1$  iff the degree of fullness of the restaurant is equal to the standard (maximal) degree of fullness of the restaurant as it would be typically instantiated as a stage  $s$  included in every normal world  $w'$ .

As mentioned above, we claim that being absolute or relative is not a *lexical* property of adjectives but rather is syntactically linked to the degree morphology with which the adjective combines. The degree morpheme *pos* is responsible for the categorization of adjectives as absolute or relative. This explains why most gradable adjectives can behave as either relative or absolute adjectives, therefore combining with either *ser* 'be<sub>SER</sub>' or *estar* 'be<sub>ESTAR</sub>', recall (28)–(29c).<sup>13</sup>

So, informally speaking, in *ser* 'be<sub>SER</sub>' sentences, the comparison class is between individuals, i.e. the property is not evaluated with respect to stages of the

13. Cases of non-variability, namely relational adjectives (1), which combine with *ser* 'be<sub>SER</sub>', and perfective adjectives (2), which combine with *estar* 'be<sub>ESTAR</sub>', require an independent explanation. We refer the interested reader to Gumiel-Molina, Moreno-Quibén and Pérez-Jiménez (2015a).

individual denoted by the subject of predication. Therefore, no change of the subject with respect to the property is necessarily assumed, giving rise to the inference of temporal persistence, contrary to what happens in *estar* 'be<sub>ESTAR</sub>' sentences. This idea will be formally developed in the following section.

## 5.2 Comparison classes and the inference of temporal persistence

As has been claimed in the preceding section, in *estar* 'be<sub>ESTAR</sub>' sentences, where absolute adjectives are found, the *within-individual* comparison class includes counterparts of the subject. Necessarily, then, there is a change regarding the degree to which the individual holds the property in different indices. Therefore, with absolute adjectives the inference of temporal persistence is not obtained. In other words, since the property contributed by the absolute adjective is evaluated with respect to stages of the subject, no inference of temporal persistence of the property with respect to the subject is available when the truth of the sentence is evaluated. Consequently, both the fact that *estar* 'be<sub>ESTAR</sub>' predications can appear in the scope of conditional or frequency operators and the possibility of contextualizing the predication with locative/temporal modifiers follow from the lack of temporal persistence ultimately associated with the absolute character of the adjectives appearing in these copular sentences.

On the other hand, in *ser* 'be<sub>SER</sub>' sentences relative adjectives express the degree to which an entity has a specific property as compared to other entities (*between-individuals* comparison class). Relative adjectives thus give rise to the inference of temporal persistence as a default inference, since in the domain of the discourse in which the sentence is evaluated, stages of the subject/property are not found, but only different individuals instantiating different degrees of the property in question.

Note, however, that this inference, being a default one, can be cancelled without coercing the relative adjective expressing the property into an absolute one, as can be observed in Example (35). Here the temporal modifier in the contrastive statement sets a limit to the persistence of the property without changing the nature of the comparison class associated with the adjectives (a *between-individual* comparison class made up of individuals with different degrees of height). Recall the crucial observations that were made above about the possible readings of Examples (8), (12), (20) and (21).

- (35) Alicia era alta hace unos segundos,  
 Alice was<sub>SER</sub> tall ago few seconds  
 pero ahora, tras haber comido el hongo, es baja  
 but now after have eaten the mushroom is<sub>SER</sub> short  
 'Alicia was tall a few seconds ago, but now, after having eaten the mushroom,  
 she is short'



At this point, let us clearly state the connection between the relative/absolute distinction and the IL/SL distinction. As has been claimed, between-individual and within-individual comparison classes give rise to two different types of gradable adjectives, relative and absolute ones. If an adjective is evaluated with respect to a comparison class comprising counterparts of an individual, the property manifested by the counterparts of the individual in different indices must be interpreted as subject to variation. Therefore, the inference of temporal persistence which seems to be at the basis of the individual-level character of predicates (McNally, 1994; Percus, 1997; Magri, 2009) does not arise, giving rise instead to the stage-level interpretation of the predication.

On the other hand, the inference of temporal persistence arises as a default inference in the case of relative adjectives since in the comparison class selected by these adjectives there are no stages instantiating different degrees of the property but just individuals manifesting different degrees of it.

In a nutshell, we propose that the individual-level/stage-level distinction is connected to the semantics of gradable adjectives (and also reflected in copular sentences) via comparison class formation (i.e. the relative/absolute distinction) and the pragmatics of the inference of temporal persistence. The individual-level/stage-level distinction is thus recast in the adjectival domain as a distinction related to the kind of elements that build up the comparison class needed to evaluate adjectival properties, together with the inference of temporal persistence that is or is not obtained in the case of relative vs. absolute adjectives.

## 6. Conclusions

The general conclusions that arise from this proposal are as follows. First, the differences between *ser* 'be<sub>SER</sub>' and *estar* 'be<sub>ESTAR</sub>' predications traditionally analyzed as event/aspect/Aktionsart-related can be explained in comparison-based approaches if these kinds of approaches are supplemented with a pragmatic notion such as the inference of temporal persistence, independently proposed to explain the behaviour of IL predications in *when*-clauses (Condoravdi, 1992) and in secondary predication contexts (McNally, 1994). Second, the inference of temporal persistence emerges as a default inference in *ser* 'be<sub>SER</sub>' sentences because of the way the comparison class of relative adjectives is formed. Relative adjectives express the degree to which an entity has a specific property compared to other entities (*between-individuals* comparison class). In this case, within the comparison class needed to evaluate the adjectival predication, there are no stages instantiating varying degrees of the property but rather distinct individuals with different degrees of it. No change in time of the property expressed by the relative

adjective can be traced back. This allows us to explain the individual-level/stage-level distinction in the domain of the <copula + adjective> predication in terms of the semantics of gradable adjectives via comparison class formation and the pragmatics of the inference of temporal persistence.

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