

## **The role of aspect in the acquisition of *ser* and *estar* in locative contexts by English-speaking learners of Spanish**

Silvia Perpiñán, Universitat Internacional de Catalunya

Rafael Marín, Université de Lille

Itziri Moreno Villamar, University of Washington Tacoma

### Abstract

This study proposes an explanatory account for the developmental stages of the acquisition of *ser* and *estar* in locative constructions. We propose that this copular distribution is regulated by two aspectual features, *dynamcity*, and *temporal boundedness*. These features are crucial for the interpretation of nominals such as ‘dinner’, which refers to the physical food [-dynamic] with *estar*, and to the event of having a meal [+dynamic] with *ser*. In a Picture Matching Task and an Elicited Production Task, English-speaking learners of Spanish had to comprehend, locate, and distinguish objects from events by employing the two Spanish copulas. We questioned whether L2 learners would be sensitive to the aspectual nature of subjects and copulas in locative constructions. We found that participants had difficulties interpreting the feature [+dynamic] in nominal subjects, and propose that this is the last feature acquired, offering

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a revised developmental path of the acquisition of *ser/estar* building on VanPatten (1987).

*Keywords:* locative constructions, L2 Spanish, copular verbs, ser, estar, events, objects, temporal boundedness, dynamicity.

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All errors or misinterpretations remain our own.

## 1- Introduction

Research on second language acquisition is concerned not only with the outcome or final attainment of the target language but, crucially, with the process of acquiring a new language. During the 70s and 80s, a number of studies were devoted to describing common developmental stages based on empirical data (Meisel, Clahsen & Pienemann, 1981; Ravem, 1978; Wode, 1981; to name a few); particularly pertinent to the present study is VanPatten's (1985, 1987) seminal work on the identification of five transitional stages in the acquisition of *ser/estar* in L2 Spanish. Van Patten's (1987) fourth developmental stage focuses on the *ser/estar* uses that express location (*El examen {es/está} en el aula 301* 'The exam {will take place / physically is} in room 301'). Concentrating only on these uses and their semantic features, the goal of this study is to:

- 1- provide a more fine-grained aspectual description of the expression of location with *ser* and *estar* in Spanish by taking into account relevant semantic features not previously considered; and
- 2- to propose an expanded developmental path of the acquisition of the copular verbs in L2 Spanish guided by the aspectual features involved in each predicate.

Only with a precise description of interlanguage grammars will we be able to predict the order of the acquisition sequences in order to inform teaching methodologies, and more generally speaking, to distinguish between universal and language specific processes. The identification of the aspectual features involved in location with copular verbs in Spanish allows us to detect the properties that may accelerate or hinder the acquisition process.

Similar to the Lexical Aspect Hypothesis (Andersen, 1986; 1991), which proposes that inherent aspectual properties of verbs guide the acquisition of tense and aspect morphology, we question whether the aspectual properties of the Spanish copular verbs may direct the acquisition of their form, that is, whether they surface as *ser* or *estar*. We first attempt to put forward a formal feature analysis of the aspectual properties involved in location with *ser/estar*, which will allow us to make detailed predictions about the acquisition path of these structures. We then present the results of a production and a comprehension task that tested English-speaking learners of Spanish localizing with *ser* and *estar* in their initial development. Finally, we propose a revised developmental path for the acquisition of *ser* and *estar* in Spanish, and highlight the importance of the structural position of the semantic cues as well as the protracted acquisition of location of events given its apparent contradictory aspectual nature.

The selection of the copular verb in Spanish (*ser/estar*, ‘to be’) is a classic problem for Spanish L2 learners, particularly if their L1 has a single BE-system, such as English (Bruhn de Garavito & Valenzuela, 2006; Geeslin, 2002, 2003; Schmitt & Miller, 2007; VanPatten, 1985, 1987, 2010). Despite the attested difficulty in mastering the *ser/estar* distinction in the L2, the acquisition of copular constructions has not received the attention it deserves in the acquisition literature. In Montrul’s (2008) words: “A reason for the scarcity of research in this area may be related to both the linguistic complexity of Spanish *ser* and *estar* and the inadequacy of many available theoretical treatments to explain their complementary distribution.” (p.337). Our study aims to solve this concern

by proposing a novel theoretical analysis that accounts for the linguistic complexity of *ser* and *estar* in locative contexts, and applying it to L2 acquisition.

Generally speaking, the task of acquiring the copular verbs in L2 Spanish requires the L2 learners to first learn the two morphological forms, realize that they are in complementary distribution (in some cases also with *haber*) by detecting the relevant semantic properties, and then match them with the particular form of the copular verb. Assuming that language acquirers need to select only the relevant subset of features from the universal set of features for a particular language (Chomsky, 2001; Lardiere, 2008, 2009; Rizzi, 2005), and that these bundle of features may appear in different configurations in the L2, then the task of acquiring an L2 requires the learner to reassemble the “features from the way these are represented in the first language into new formal configurations on possibly quite different types of lexical items in the L2.” (Lardiere, 2009: 173). This view assumes that L2 learners bring to the L2 learning task their entrenched system of morphosyntactic features assembled into L1 lexical items or morphemes associated with functional categories (Hwang & Lardiere, 2013), an idea that directly stems from the Full Transfer/ Full Access Hypothesis (Schwartz & Sprouse, 1996). Following Lardiere (2009), we adopt a feature reassembly approach in which the task of the L2 learners is to detect, select, and (re)assemble the appropriate semantic features associated with *ser* and *estar* for each context.

The literature has identified several semantic features associated with each copular verb in Spanish, i.e.: [ $\pm$  perfectivity], [ $\pm$  susceptibility to change], [ $\pm$  animacy], [ $\pm$

semantic transparency], [ $\pm$  specificity], [ $\pm$  eventiveness], to name a few. Most of these studies have focused exclusively on the marked aspectual features of *estar* compared to the featureless or [-perfective] nature of *ser* (Luján, 1981; Schmitt, 2005; VanPatten, 2010). Although we do not disagree with the more marked aspectual nature of *estar*, we claim that this characteristic alone cannot fully explain the distribution and acquisition of the copulas in locative contexts, hence the need of our analysis and our study. Our contribution to the theoretical analysis of the copulas is the realization that *perfectivity* ( $\approx$  *temporal boundedness* or *stage-levelness*), the most recurrent feature to account for the distinction between *states* expressed with *ser* from those expressed with *estar*, is not a sufficient property to describe locative constructions, as these are always temporally bounded. For the locative contexts, we need another distinctive feature to account for the morphological difference between the location of individuals (*estar*) from the location of events (*ser*). We propose that this feature is *dynamicity*, coded not in the predicate of the construction, but in the subject. *Dynamicity*, as defined by Comrie (1976) refers to a situation that requires a sustained input of energy: it denotes eventive predicates that include notions of progression, process, or phases. *Temporal boundedness*, on the other hand, refers to the anchoring of the predicate in time and applies to locative predicates. Both of these features are aspectual in nature.

The purpose of this study is to account for these usually neglected locative contexts, and include them in the developmental path of the acquisition of the copulas that was initially proposed by VanPatten (1987). Thus, our proposal is an expansion of

VanPatten's original work by taking into account new crucial semantic features that we argue have an impact on the acquisition of the copulas. Our general research question is to which extent the aspectual properties associated with the expression of location with *ser/estar* guide the development of the Spanish interlanguage, and whether one of these aspectual features is more difficult to acquire than the other in the L2.

English, the L1 of the learners, uses the single form of the copular verb *to be* to express location and does not grammatically code the ontological distinction between objects and events, that is, whether the subject THEME is [ $\pm$  dynamic], at least not morphologically. Nonetheless, this distinction is a fundamental cognitive category that we assume universal, yet clearly parameterized. In fact, English does not lexicalize any aspectual difference in the selection of the copula 'BE', and according to Schmitt (2005), the English copula is featureless, a true copula. This is why VanPatten (2010) has proposed that the acquisition of the copulas in Spanish by L1 English speakers is mostly a question of acquiring the particular distribution and aspectual characteristics of *estar*, while "*ser* seems to take care of itself" (VanPatten, 2010, p. 33). Thus, VanPatten (2010), although not explicitly, seems to assume that *ser* is equivalent, or at least closer to the featureless *be*, as he does not predict difficulties in the acquisition of *ser*, possibly because he assumes that there is no real reassembly of features from the L1 *be* to the L2 *ser*. However, we believe that this is not exactly the case in the acquisition of the copulas expressing location, as the location of events (*ser*) is also marked aspectually and typically acquired later than the location of individuals (*estar*). Our investigation aims to

provide an explanatory account to this fact by arguing that *ser* with events is associated with several aspectual features not typically associated with *ser* in other contexts. This fact, we believe, delays the acquisition of this construction.

## 2- The Spanish copulas expressing location: A feature analysis

The general distribution of *ser/estar* in locative structures is as follows: *estar* locates individuals and *ser* locates events. This distribution has been stable in Spanish since the 17<sup>th</sup> century (Núñez-Méndez, 2012), and began in the 12<sup>th</sup> century (Batllori, Castillo & Roca, 2009), when STARE ('to stand') started to acquire locative meanings beyond being in a vertical position, and to lose part of its full lexical meaning, at the expense of ESSE/SEDERE ('to exist') particularly with inanimate subjects (Pountain, 1985), which reinforced the idea of lack of movement with *estar* (Díaz, 2016). Thus, the location of objects with *estar* is an innovation, and the use of *ser* to express location is in a way a relic in contemporary Spanish<sup>1</sup>. Many of the studies that describe the contrast between *ser* and *estar* emphasize their aspectual differences (Luján, 1981; Marín, 2004; Schmitt, 1992, 2005; Schmitt & Miller, 2007), proposing that *estar* is [+perfective] and *ser* [-perfective] or unmarked for aspect. A similar way to describe the copulas is by the type of predicate they create: predicates that apply to individuals (Individual Level predicates, I-

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<sup>1</sup> Certain Colombian dialects still accept the location of places with *ser* (Alvar, 1996)



L) go with *ser* and are usually described as more permanent; predicates that apply to stages or happenings of individuals (Stage Level predicates, S-L), usually go with *estar*, and are typically transient, bounded spatially and temporally (Camacho, 2012; Lema, 1995; Fernández Leborans, 1995). Almost all syntactic approaches interpret *estar* as a more complex and specified element than *ser* (Gallego & Uriagereka, 2016; Zagona, 2012), specifically as the lexicalization of a copulative verb and a preposition. However, many of the previously mentioned explanations cannot fully account for the distribution of the copular verbs in locative constructions, and in particular with events, the focus of our investigation. For instance, *El discurso fue<sub>SER</sub> entre las 7 y las 8 en el parlamento* ('The speech was between 7 and 8 in the parliament'), is neither permanent, nor I-L, and clearly has a spatiotemporal argument even though it combines with *ser*.

One of the reasons why locative structures are usually left unexplained by the theoretical analyses is that these proposals primarily deal with copular verbs in combination with adjectival attributes; very few studies have attempted to explain the copular alternation also present in locative structures. Demonte (1979) pointed out that locative structures suppose an asymmetry in the distribution of the copulas since the decisive element for the selection of the copula is not the predicate but rather the subject. Along this line of thinking, we claim that the localization of the syntactic subject directly depends on its ontological properties. The most frequent type of subjects in locative constructions is an individual (semantic type *e*, i.e.: objects, people, places, etc.); individuals do not have inherent aspectual properties. Subjects that denote an event

(semantic type *t*, i.e.: ceremonies, meetings, etc.), on the other hand, have a clear inherent aspectual meaning as they have an internal duration and are anchored in time and place. This aspectual difference in the subject is the determining factor in the selection of the copula in locative structures. In this sense, we are expanding the idea of aspectual compositionality that is assumed between verbs and their arguments within the VP (Verkuyl, 1972) to a VP-external domain: to the relationship between the nominal THEME in subject position and the copula.

With respect to the *ser/estar* distinction in locative constructions, we find some mentions in Arche (2006), Camacho (2012), Demonte (1979), Fábregas (2012), Franco (1985), Marín (2016), and Zagona (2012), but only Brucart (2010, 2012), and partially Fábregas (2014) devoted some of their studies to locative constructions. Brucart (2010) put forward a feature validation system based on previous analyses which assumed that the differences between *ser* and *estar* are not lexical but syntactic: *estar* is derived from *ser* by the incorporation of a preposition of terminal coincidence:  $estar = ser + P_T$  (Gallego & Uriagereka, 2016). Unlike in these studies, we would like to focus on the semantic properties of the parts involved in the predication instead of its syntax.

As mentioned above, unlike in adjectival attributes, it is the semantics of the subject or the THEME in the specifier position that conditions the choice of copula in locative constructions. Thus, the type of specifier-head relationship determines the selection of *ser/estar* in these cases. Some of the possible relationships with locatives are exemplified below, with eventive subjects that select *ser* (1), and individuals that select *estar* (2):

(1) El concierto es /\*está {a las tres / en el parque}. EVENT

The concert SER/ \*ESTAR at the three / in the park

‘The concert is {at three/ in the park}.’

(2) {El museo / Juan} está / \*es en la calle Montcada. INDIVIDUAL

{The museum / Juan} ESTAR /\*SER in the street Montcada

‘{The museum / Juan} is in Montcada street’.

There are certain predicates that accept both copulas depending on whether the predicate indicates the path/trajectory of the subject, which require *ser*, or whether the location is motionless, which requires *estar*, as shown in (3).

(3) La oficina de correos es / está por ahí. PATH / IMMOBILE

The office of post SER/ ESTAR by there

‘The post office is<sub>SER</sub> that way.’ (*ser* = path)

‘The post office is<sub>ESTAR</sub> around there.’ (*estar* = immobile place)

In addition, there is a type of nominals that can appear with both copulas resulting in different semantic interpretations, either as an event [+dynamic] or as an object [-dynamic]. These double reading nominals, exemplified in (4), are the focus of a section of our study.

(4) La obra de Shakespeare es / está en el teatro. EVENT / OBJECT

The play of Shakespeare *ser* / *estar* in the theater

‘The representation of Shakespeare is<sub>SER</sub> in the theater’. (*ser* = event)

‘The play (book) of Shakespeare is<sub>ESTAR</sub> in the theater’. (*estar* = object)

To propose a unified theoretical analysis for this particular distinction from a synchronic point of view is not a simple matter, especially if one wants to cover also the copular distribution with adjectives in a unified account. Mangialavori (2013) attempts to do so by relating certain properties of the expression of location of *estar* with the adjective predicates that select *estar*, and also with existential constructions with *haber*; however, the location with *ser*, something we will investigate here, is left unexplained.

Semantically speaking, the Localist approach (Jackendoff, 1990; Mateu, 2001) would unify the cases of *estar* following an analogy between locations and states of affairs expressed in Spanish by *estar* with adjectives (attributive clauses). As Mangialavori (2013) explains, “from this perspective, states (yielded by attributive clauses) are

conceived as abstract or metaphorical locations in which an entity can be situated (just as those expressed by locative PP constructions)” (p. 27). In particular, Mateu (2001) proposes that a sentence such as ‘*El gato está feliz*’ (The cat is<sub>ESTAR</sub> happy), partakes in both locative and attributive clauses, as the following structure outlines: [State BE [Thing CAT], [Place AT [Property HAPPY]]; and shares with a sentence such as ‘*El gato está en el patio*’ (The cat is<sub>ESTAR</sub> on the patio) a common syntactic structure, a common base predication, and a common aspectual interpretation, that is, a *temporally bounded* locative relation. We will adopt this unified perspective for the explanation of the uses of *estar*, as it gives us a homogeneous approach for language learning. From this account, we can conclude that all the predicates with *estar* are conceived as locative relations, and necessarily [+temporally bounded]. Indeed, this semantic feature is the relevant property in the selection of the copula within stative predicates, as [+temporally bounded] states always go with *estar*, such as in *Juan está enfadado* (‘Juan is angry’) and [-temporally bounded] states always go with *ser*, as in *Juan es vegetariano* (‘Juan is a vegetarian’). As explained above and summarized in Figure 1, events do not enter in this configuration as they belong to a different aspectual class altogether, they are not states. Events are by definition [+temporally bounded], so it is *dynamicity* and not *temporal boundedness* what determines the copula selection in locative constructions. This is the idea behind Marín’s (2016) observations regarding the obligatoriness of *ser* in events: he states that all events choose *ser*, whether they are eventive passives, such as in *El libro fue / \*estuvo escrito en Inglaterra* (‘The book was written in England’); eventive adjectives, such as in *El chico*

*fue* / *\*estuvo cruel con su hermana en la cena* ('The boy was cruel with his sister during dinner'); or the localization of events, the phenomenon investigated here.

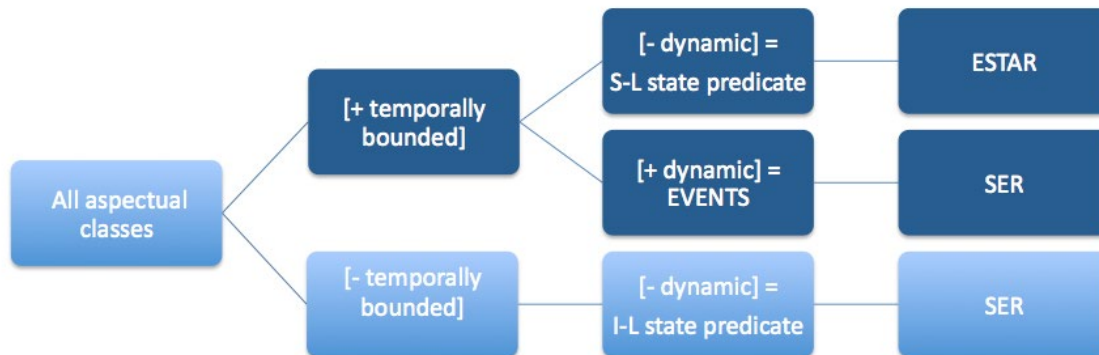


Figure 1: General distribution of copulas according to their aspectual class

All these meanings: eventive and stative location as well as all types of attribute predications (I-L and S-L states) are expressed with a featureless or aspectually unmarked or unspecified *to be* in English<sup>2</sup>. The difference between Spanish and English, then, mainly lays on the morpho-lexical choice of the copular verb and not in the uses or the aspectual interpretations that the copulas convey. Following the Feature Reassembly

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<sup>2</sup> English also employs the copula for existential constructions, which only partially overlaps with Spanish. These constructions, which can also be considered part of a universal locative paradigm (Freeze, 1992), will not be covered in this study.

Hypothesis (Lardiere, 2008, 2009), the learning task for the L2 learner is to select what we have identified as the two relevant aspectual features in the expression of location with copular verbs in Spanish, *temporal boundedness* and *dynamicity*. Then, the L2 learner needs to determine their feature strength, and reconfigure the feature values in two different lexical pieces, *ser* and *estar*. In particular, the bundle [+ temporally bounded, - dynamic] needs to be map onto *estar*, and [+ temporally bounded, + dynamic] onto *ser*<sup>3</sup>. According to Lardiere (2009), it is crucial for the L2 learner to infer the specific morphosyntactic, semantic, and pragmatic conditions under which the involved features are expressed in order to reassemble them correctly, and the complexity of these conditions as well as the distance from those of the L1 contribute to the difficulty of the L2 learning task.

### 3. Previous acquisition studies on *ser/estar* in locative predicates

First, we will look at studies on L1 or bilingual acquisition in children, and later at L2 acquisition in adults. Sera (1992) investigated several contexts with *ser* and *estar* in monolingual and bilingual children (L1 Spanish-L2 English), and adults. We will only

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<sup>3</sup> Notice that in most other contexts (I-L states), *ser* is mapped onto a different bundle of features [- temporally bounded, - dynamic].

report here the data concerning locatives. In monolingual L1 Spanish acquisition, Sera (1992) investigated how children aged from 1;6 to 9 years old used *ser/estar* in spontaneous and in semi-spontaneous oral production. She found that children used only *estar* to express location from very early on. Unfortunately, her data only had cases of location of objects, so we do not know anything about the location of events, but it is interesting to know that *estar* for location of objects is acquired very early in life. In another experiment, in a written production experiment that tested location with objects and events in bilingual children of Cuban descent in Miami (ages 3;6 to 11;1, divided into four age groups), Sera found that these bilingual children correctly used the verb *estar* over 95% of the time when locating objects, but used *ser* correctly less than 30% of the time when locating events (range 15-28%, no age effects in the task); instead, they overused *estar* across all ages. Interestingly, these children were quite accurate in distinguishing between *ser* and *estar* with adjectives, but not with location, which led the author to conclude that Spanish speakers represent the *ser/estar* contrast on a context-by-context basis. Additionally, Sera (1992) argued that these children had a ‘less semantic’ distinction than that of the adults’ and used more syntactic cues (i.e.: the appearance of a PP) than semantic ones. One of the explanations that Sera gave for her results is a potential late semantic representation of the ontological distinction between objects and events in children. Previous research found that this contrast is not present in children until age 7, with similar developmental paths in English and Spanish monolingual children (Keil, 1979); and since children in Sera’s study overused *estar*, she considered that they represent events as objects until later in life. Related to this study, Sera, Gathje



and Castillo Pintado (1999) tested English and Spanish native speakers and concluded that Spanish speakers, unlike English speakers, distinguished objects from events not only through temporal and physical properties as English speakers did, but also on the basis of spatial predicates. Furthermore, the authors suggested that the Spanish speakers that accepted events with *estar* sentences and spatial locations might have interpreted those events as objects, as suggested in Sera (1992). From a linguistic point of view, these results show that *ser* can exclusively locate events, either with spatial or temporal properties; whereas *estar* can more easily locate both, objects and events. This is consistent in the proposed extension of *estar* in the Spanish language (Silva-Corvalán, 1986), and consistent with the internal development of *ser/estar* through the history of Spanish language.

Bel (2013) analyzed the spontaneous speech of three monolingual Spanish-speaking children and three monolingual Catalan-speaking children (1;8-2;8; CHILDES), and observed that the copula *estar*, even though it is less frequent than *ser*, appears earlier and more consistently than *ser*, which emerges later and more gradually. Copular constructions in both Romance languages appear in the following order: first with nominals, then with locatives, and finally with adjectives. There are no instances of errors in the use of the copulas. Copula omission in Spanish is insignificant compared to that found in English-speaking children of the same age, which, according to Becker (2000), occurs in S-L predicates because of its eventive aspectual argument (Kratzer, 1995); Becker found omission in English, notably in locative constructions. Bel tested Becker's

proposals in Spanish and Catalan and concluded that the copular lexical distinction between *ser* and *estar* (I-L vs. S-L) acts as a facilitator in the acquisition process, since the semantic distinctions conveyed in the copulas are identified with a lexical choice.

In a longitudinal study on bilingual and multilingual children (Spanish, Catalan, German, Italian, aged 1;5-5;0), Arnaus (2013) could not find a single example of *ser* used to locate an eventive subject by these children; as in Sera (1992), these children did not produce any utterance with an event in it. Instead, Arnaus found that *ser* was used correctly to locate path nominals, but it was also used to locate some non eventive nominals, which is an ungrammatical overgeneralization of *ser*; this happened around 40% of the cases in which the copular verb was combined with a PP with a locative meaning. On the other hand, their use of *estar* was more adult-like, particularly with locative predicates, which were correctly located with *estar* 85% of the time (the other 15% were omissions).

In another longitudinal study of one young bilingual (Spanish-English) child, Silva-Corvalán and Montanari (2008) also attested a relatively good command of *estar* to locate entities, although his use of *estar* alternates with *ser* in this context at the early stages (1;7-1;10). This bilingual child also employed *estar* for existential constructions, in which *haber* was required, and also incorrectly located one event with *estar*: *Mi cumpleaños está en mayo*, ‘My birthday is in May’ (2;7.26, from Silva-Corvalán & Montanari, 2008, p. 355).

To summarize, data from bilingual children show very few problems in the acquisition of *ser/estar* in locative constructions, with few overgeneralizations of *ser* in locative contexts and some of *estar* in existential contexts; there are very few omissions compared to other *ser/estar* contexts. Overall, the acquisition of the copulas expressing location seems to be less problematic than the acquisition of the copulas with adjectives, and children have more target-like uses of *estar* than of *ser*, unlike what seems to happen with adjectives, in which *estar* is more problematic than *ser*. Finally, the appearance of eventive subjects is very scarce in the initial stages of acquisition, so there are not enough data to make any generalizations with respect to the location of events, as they appear very late and have not been captured in the longitudinal studies.

With respect to L2 acquisition after puberty, VanPatten (1987), in his seminal work on the acquisition of the copular verbs in Spanish by L1 English speakers, proposed five developmental stages that L2 learners go through when acquiring the distinction between *ser* and *estar*.

(5) VanPatten's developmental stages:

- 1- absence of the copula
- 2- use of only *ser* where either only *ser* or *estar* was required
- 3- use of *estar* with the present progressive
- 4- use of *estar* for location
- 5- use of *estar* for conditions

In VanPatten's (2010) words: "*ser* seems to take care of itself and can even be considered the default copula for learners, whereas *estar* engages learners in a protracted period of acquisition that, in the end, may never be complete." (p. 33). These observations made VanPatten (2010) conclude that the real "learner's job is to acquire the uses and constraints associated with *estar*, while 'chipping away' at the overextension of *ser*" (p. 33). In short, according to VanPatten (2010), all the learner has to do is to acquire the marked aspect feature encoded in the copula *estar*.

Bruhn de Garavito and Valenzuela (2008) investigated a parallel contrast to that studied here also in the L2 Spanish of English-speaking learners: the eventive and stative passives. Eventive passives are formed with *ser* (*el café es servido*) and stative passives with *estar* (*el café está servido*), which both would translate as 'Coffee is served' in English. This linguistic phenomenon, also partially regulated by the semantics of the subject, was generally explained by aspectual differences in the two types of passives; the results of this study showed that whereas L2 learners were able to distinguish between copulas when combined with adjectives, they were not able to distinguish between the passives regarding the interpretation of the subject. The authors explained these results in terms of interfaces, arguing that the L2 learners did not have problems with the semantics/lexicon interface that regulates the interpretation of the copulas with adjectives. On the other hand, the problems were found in the interface between semantics and syntax, and particularly with the eventive passives, which they assume to imply a higher processing load, as they require to match the aspectual properties of the

participle and the copula, together with the semantic distinctions of the subjects in terms of genericity. We believe that our theoretical approach in terms of *dynamicity* of events would also account for the difficulty in the acquisition of eventive passives.

Several studies have investigated the acquisition of copula distribution with adjectives and have documented that full control may not arrive until quite late in the acquisition process (Geeslin, 2000; Pinto & Guerra Rivera, 2015), and that even near-native speakers can experience difficulties with it (Guijarro-Fuentes & Geeslin, 2003). Ryan & Lafford (1992) found that *estar* with locatives appears later than with adjectives in English-speaking L2 learners, contradicting VanPatten (1987). Most of these studies investigated the distribution of the copulas as an aspectual feature, and particularly as a matter of *perfectivity* or I-L / S-L. It is generally understood that aspect is a semantic concept that can be very difficult, although not impossible, to master in the L2 grammar (Montrul & Slabakova, 2003). Thus, we believe that aspect is a complex concept that needs to be investigated more in depth.

Very few studies have investigated the L2 acquisition of the copulas in locative constructions. In a study that examined the semi-spontaneous use of copulas in locative and existential constructions in the interlanguage of English and Arabic speakers, Perpiñán (2014) documented a general delay of the acquisition of *estar*, compared to the use of *haber*, which is in contrast with *estar* in [-definite] (existential) contexts. The study also observed a low percentage of errors in expressing location in oral production, and concluded that the use of the copulas in these contexts is relatively unproblematic due to

the universality of the *definiteness effect*, which restricts the use of definite expressions in existential constructions. Another factor that could have contributed to the low percentage of errors was that the mapping was done through lexical items and not inflectional morphology, which is considered the bottleneck of SLA (Slabakova, 2009). However, Perpiñán (2014) did not take into account the locative contexts in which *ser* and *estar* are in direct competition, such as when locating events (*ser*) and objects (*estar*), which is the focus of this investigation.

To our knowledge, only two studies have directly investigated the object/event contrast in locatives on L2 Spanish, and both of them with intermediate and advanced learners. These are Dussias, Contemori and Román (2014), and Pérez-Leroux, Álvarez and Battersby (2010). Dussias et al. (2014) employed a guided production task and a grammaticality judgment task while participants' ERPs were being recorded, and Pérez-Leroux et al. (2010) employed an offline grammaticality judgment task. Pérez-Leroux et al. (2010) found asymmetrical results depending on the structure: their participants were target-like with *estar* expressing location with objects, and with *ser* in change-of-state attributive constructions. This led them to conclude that L2 acquisition of *estar* is not facilitated even though it is more semantically transparent than *ser*, particularly in change of state contexts. Overall, both studies found that advanced English-speaking learners had problems locating events with *ser*, and particularly with rejecting *estar* for events. They also showed that there was not a significant improvement in the use of *ser* with events as proficiency increased, but the rejection of the ungrammatical objects with *ser* did

improve. Thus, the English-speaking learners were improving in the location of objects, and were more target-like in those structures, but were not improving in the location of events. In general, these studies found that the most accurate construction was *estar* to express location of objects, followed by the rejection of *ser* to locate objects, and then the acceptance of *ser* to locate events, and finally, the rejection of *estar* with events. These results are comparable to those of Sera (1992) with bilingual children, in which *estar* was correctly used to locate objects, but *ser* was not always correctly used to locate events.

To sum up, the findings from Dussias et al. (2014) and Pérez-Leroux et al. (2010), and to some extent those from Sera (1992) identify the location of event nominals as the locus of trouble in the acquisition of these constructions as opposed to the location of objects, which are acquired earlier. These results are at odds with VanPatten's claim regarding the general little difficulty of the acquisition of *ser*, and the higher complexity in the acquisition of *estar* due to its aspectual marked nature. Our analysis aims to provide a theoretically sound explanation for this asymmetry.

As a last remark, the literature on experimental studies have also showed that Spanish native speakers are more likely to accept the location of an event with *estar* than the location of an object with *ser* (Dussias et al., 2014; Leone-Fernández, Molinaro, Carreiras, Barber, 2012; Sera et al., 1999).

### 3.1. Specific research questions and hypotheses

As stated at the beginning, our general research question is to what extent the aspectual properties associated with the expression of location with *ser/estar* guide the development of the Spanish interlanguage, and whether there is a hierarchy or a specific order of acquisition of these aspectual features in the L2. That is, we question whether and when L2 learners are sensitive to the aspectual properties associated with the expression of location with the Spanish copulas, and whether those properties guide the development of the Spanish interlanguage from the beginning of the acquisition process. In particular, if *estar* is the copula acquired later (VanPatten, 2010) because it is the aspectually marked one (Schmitt, 2005), and probably also the most complex syntactically speaking (Gallego & Uriagereka, 2016), then we question why all intermediate and advanced L2 learners tested in previous studies performed worse with *ser* with an eventive interpretation than with *estar* with a non-eventive construction.

In order to answer these questions, we first needed to propose a novel feature-based analysis for the distribution of *ser/estar* in locative contexts (section 2), and then we tested this analysis in L2 acquisition, with the following hypotheses:

H1: If Full Transfer (Schwartz & Sprouse, 1996) takes place, we hypothesize that learners will initially assume that the copular *ser* is the morpholexical equivalent of English copula *be*, and thus, aspectually unmarked. This predicts that at initial or early stages of L2 development, English native speakers will overuse *ser* for all locative contexts. This corresponds to VanPatten's second developmental stage.



H2: At intermediate proficiency levels, when the L2 learners have already realized that Spanish has two copular verbs, we predict that they will start associating [+temporal bounded] predicates with *estar* in prototypical cases such as location of individuals or objects. This initial (partial) aspectual association would be reinforced by input and instruction, and would make the right predictions for stative locative contexts (with *estar*), the most frequent ones, but not for eventive locative contexts (with *ser*). We anticipate the eventual overgeneralization of *estar* for all sorts of locative meanings (with all [+ temporal bounded] predicates) inasmuch as *ser* will decrease its use as a default copula. This overgeneralization of *estar* for locative contexts is not predicted by VanPatten (1987). We also presume that at this point learners will still fail to semantically distinguish between objects and events, as they will not be ready yet to pay attention to the copular verb in order to disambiguate the meaning of these double-reading nominals.

H3: At an advanced developmental stage, we predict that once L2 learners are more exposed to location with events, which are rare in the input, and to its explicit instruction, they would realize that the distribution of the copulas in locative contexts also depends on the *dynamicity* of the subject, and they will include this feature into the configuration. At this point, we predict an initial stage in which *estar* is still associated with all [+temporal bounded] predicates, and *ser* is associated with the feature [+dynamic] cued in the subject position. This stage would produce certain indeterminacy as the bundle [+ temporally bounded, + dynamic], which corresponds to the location of events, could be associated to

both copulas by the learners if the feature *temporal boundedness* dominates (then, *estar* would incorrectly surface), whereas *ser* would appear if the feature *dynamicality* prevails.

H4: Generally speaking, we hypothesize that the feature [ $\pm$ dynamic], which is coded in the subject of the sentence and is scarcely cued in other copular constructions<sup>4</sup>, will be more difficult to select; the last to be acquired. This hypothesis goes against VanPatten (1987, 2010), which generally predicts that *estar* is the difficult verb to master given its marked aspectual characteristics. By proposing a detailed feature analysis of the aspectual properties involved in the expression of location with copular verbs, which VanPatten fails to include in his studies, we are able to catch a much finer-grained understanding of the L2 development of these constructions.

These hypotheses can be summarized in the following developmental stages for the acquisition of *ser/estar* in locative contexts:

- 1- Overuse of *ser* due to transfer from the L1.
- 2- Eventual overgeneralization of *estar* to all locative constructions by mapping all [+ temporally bounded] predicates onto *estar*.

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<sup>4</sup> We find it in the location of events, eventive passives, and eventive adjectives, as explained at the end of section 2.

### 3- Selection of the feature *dynamicity* and final mastering of *ser* for eventive

[+dynamic] contexts and rejection of *estar* for [+temporal bounded, + dynamic] contexts.

In order to test these hypotheses, we designed two experimental tasks that targeted production and comprehension of objects and events with *ser* and *estar* in beginning and low intermediate learners, a population that has not been largely investigated in this respect. The tasks and participants' profiles are explained in the following section. We will also use the data from previous studies in order to (dis)confirm our hypotheses.

## 4. Methodology

### 4.1. *Participants and procedure*

An experimental group of English-speaking students of Spanish as a second language participated in the study. These university students were finishing either second semester (beginner's course) or fourth semester (lower intermediate) Spanish and had no study abroad experience in any Spanish-speaking country. We tested a total of 109 students from 6 Spanish classes, 3 from each level. The experiment consisted of a proficiency test and two linguistic tasks, which were implemented on the Web survey platform [surveygizmo.com](http://surveygizmo.com). Subjects completed the experiment in the following order: Spanish proficiency test, a picture selection task, and a written production task. The tasks included

in this experiment were presented as review classroom activities, so the topic was introduced in class at some point during the course. All instructors interviewed, though, agreed on the idea that location of events (with *ser*) is minimally taught, and that, for the most part, the expression of location with objects (*estar*) is covered when teaching location with the copulas. The participants were tested during their assigned lab time (a maximum of 45 minutes) and 102 of them gave ethical permission to use the data for research purposes. There was also a control group of 21 monolingual native Spanish speakers from Spain and El Salvador who were tested remotely using the Web platform; the purpose of including a monolingual group is to prove the validity of the tests and to make sure that the expected responses are not subject to dialectal differences.

#### 4.2. *Materials*

Given the time constraint, proficiency in Spanish was tested for all groups using a reduced version of the standardized grammar ( $k=15$ ) and vocabulary ( $k=10$ ) sections of a superior level of the DELE (Diploma de Español como Lengua Extranjera). There were a total of 25 multiple-choice questions. Results of the proficiency test in the experimental group demonstrated that scores do not necessarily correspond to the level of class the students were enrolled in. Therefore, we divided the L2 Spanish learners by proficiency scores rather than by their course levels. This categorization created a group of beginner Spanish learners ( $n = 48$ ), whose mean proportion of accurate responses in the

proficiency test was .30 ( $SD = .05$ ), and a group of intermediate learners ( $n = 54$ ), whose mean proportion of accurate responses was .48 ( $SD = .09$ ). The control group's mean scores were .94 ( $SD = .05$ ). A one-way ANOVA determined that proficiency was significantly different among the groups ( $F(2, 120), 617.94, p < .001$ ); a Bonferroni post-hoc test demonstrated that all groups differed among themselves at the  $\alpha$ -level of .001.

#### 4.3. *Task A: Written production task*

In order to investigate the general knowledge of location of objects and events with copular verbs, and to assess knowledge of the copular morphological alternation, that is, whether L2 learners are aware of the two copular forms in Spanish, participants were required to complete a sentence using the copulas and a prepositional phrase. The students were presented with a map of a city in a Spanish speaking country with iconic pictures of buildings (e.g. cinema, hospital) located on the different streets of the map (Figure 2). The goal of the task was to locate a list of 8 nominals (4 objects and 4 events) in the map by creating whole sentences with *ser* or *estar*. There were 9 buildings on the map; these included a hospital, a theater, a hotel, a church, a disco, a cinema, a university, a restaurant, and a stadium. The list of nominals for the L2 learners included 4 objects: *las palomitas* 'popcorn', *la sopa* 'soup', *los estudiantes* 'students', *el doctor* 'doctor', and 4 events: *la conferencia* 'the conference', *la fiesta* 'the party', *el estreno* 'the premier', *la*

*cita* ‘the date’. Students were told they could ask for translations of the words they did not know. Instructions were provided in English and Spanish.

“INSTRUCTIONS: using the information provided by the map below, construct sentences locating the elements listed below, as in the example.

**¿Dónde se encuentran las siguientes cosas?**

MODELO:

**La convención**

La convención es en el hotel de la avenida Mayo.

**Los actores**

Los actores están en el teatro de la avenida Corrientes.”

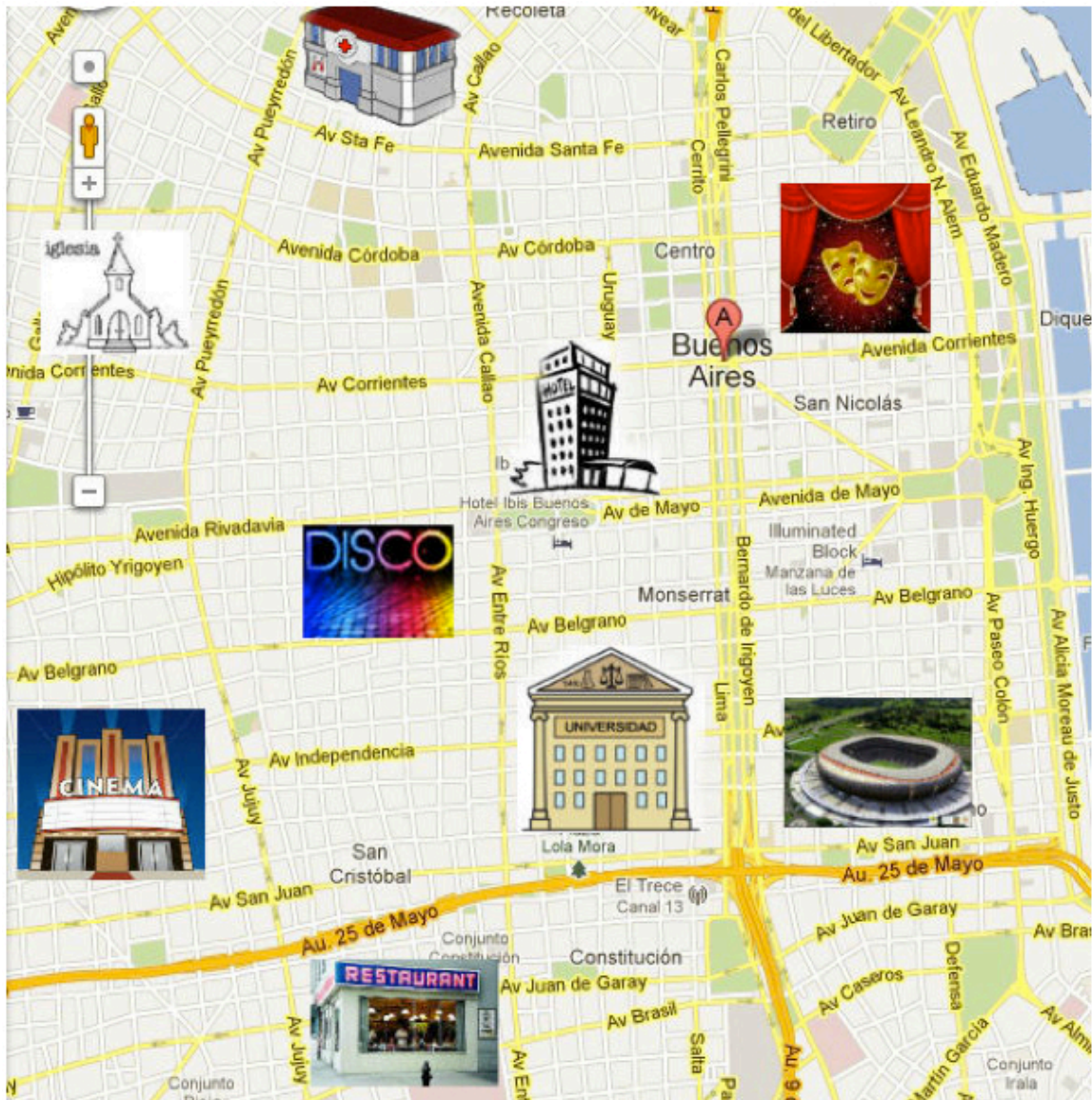


Figure 2: Written Production Task

A model of two sentences, one with *ser* + event, and one with *estar* + object was provided: *Los actores están en el teatro de la avenida Corrientes* ('The actors are<sub>estar</sub> in the theater in the Corrientes avenue'); *La convención es en el hotel de la avenida Mayo*, ('The convention is<sub>ser</sub> in the hotel in the Mayo avenue'). We realize that providing examples with the target forms could somehow prime the participants' responses, so in order to minimize this possible priming effect, we provided an example of each verb.

The task was completed on the computer; participants had a long space next to each provided word so they could write the full sentence next to each object or event to be located.

#### 4.4. Task B: Picture Selection Task

The Picture Selection Task consisted of a sentence and a pair of images (a scenario); participants had to select the picture that best represented the sentence given. The purpose of this task was to test whether the L2 learners were able to semantically interpret the subject of the sentence; in particular, if they could pay attention to the semantic interpretable feature [ $\pm$  dynamic] in the subject of the sentence and match it with the relevant copular verb. That is, [+dynamic] with *ser* and [-dynamic] with *estar*. This is an innovative approach to the investigation of the acquisition of *ser/estar*, as for the most part comprehension has not been directly considered in previous studies. For this task, we used ambiguous nominals, which can have both interpretations, as events or as objects,



depending on the context and the copular verb employed. These ambiguous nominals forced the participants to pay attention to the copular verb used, and to the interpretation of the subject. There was a total of 24 scenarios, half of them with *ser* to be matched with an object picture, and half of them with *estar* to be matched with an event picture.

The target scenarios ( $k = 12$ ) consisted of pairs of pictures referring to an ambiguous nominal in its objective or in its eventive reading. These six pairs of images appeared twice, once with a sentence with *ser*, thus the eventive reading was forced, and once with *estar*, in which the object reading was targeted. The same pair of images never appeared back-to-back or together in the same page, so the scenarios could not be compared against each other. The complete task is displayed in the appendix. The ambiguous nominals were *la cena* ('the dinner'), *los fuegos artificiales* ('the fireworks'), *la película* ('the movie'), *la obra de Shakespeare* ('Shakespeare's play'), *el examen final* ('the final exam'), and *el discurso* ('the speech'). All these nouns can refer to a physical object or to an event. Figure 3 provides a sample task item targeting the ambiguous nominal *la cena* (the dinner) in its objective reading (scenario A), and its eventive reading (scenario B).



Figure 3: Example of Target Scenarios in the Picture Selection Task

Scenario A:

La cena está en el comedor.

‘The dinner is<sub>estar</sub> in the dining room.’ (Subject = object; Target Response: Picture A)

Scenario B:

La cena es en el comedor.

‘The dinner is<sub>ser</sub> in the dining room.’ (Subject = event; Target Response: Picture B)

The control scenarios ( $k = 12$ ) consisted of six pair of pictures either depicting an object with *estar* (Figure 4), or depicting an event with *ser* (Figure 5). The sentences targeted the specific location, such as *fuera* (outside) or *dentro* (inside), and not whether

the action referred to an object or an event, so attention to the predicate was needed, and not to the subject. On the Web platform participants were presented with 12 scenarios per page (24 pictures), counterbalanced for reading (event vs. object), and position (correct picture to the right or to the left). This order was arranged so that no pair of pictures would appear in the same page twice to prevent learners from scrolling down and comparing sentences that only differed in *ser* or *estar*.

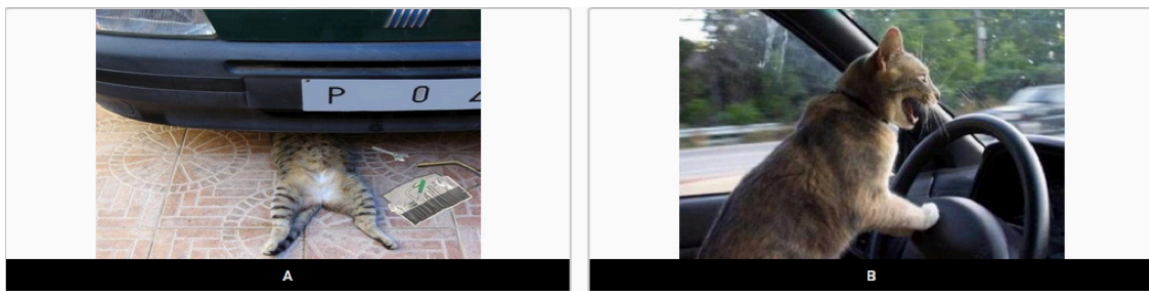


Figure 4: Example of Control Scenario in Picture Matching Task (object + *estar*)

Scenario A:

El gato está dentro del auto.

‘The cat is *estar* inside the car.’ (Target Response: Picture B)

Scenario B:

El gato está fuera del auto.

‘The cat is *estar* outside the car.’ (Target Response: Picture A)

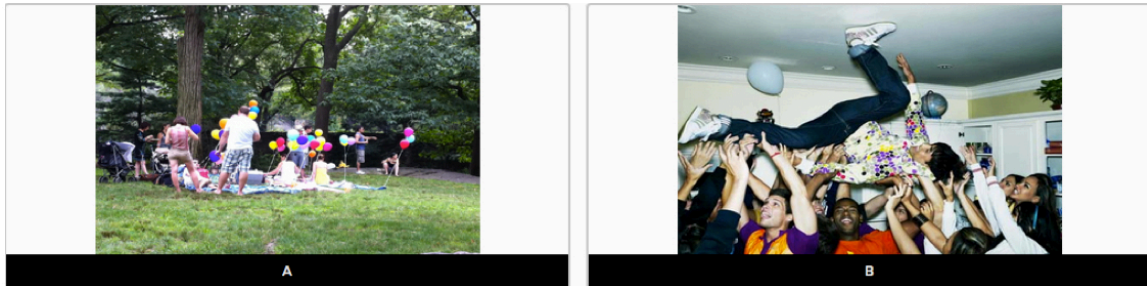


Figure 5: Example of Control Scenario in Picture Matching Task (event + ser)

Scenario A:

La fiesta de Pedro es dentro de su casa

‘Pedro’s party is<sub>ser</sub> inside his house.’ (Target Response: Picture B)

Scenario B:

La fiesta de Pedro es fuera de su casa

‘Pedro’s party is<sub>ser</sub> outside his house.’ (Target Response: Picture A)

## 5. Results

### 5.1. Results for written production task

The written responses elicited with the map task were coded according to the copular verb employed; produced verbs that were not *ser* or *estar* were not included in the calculation of the percentages. This fact affected particularly the results of the native speakers, since they produced a different verb or different structure 28% of the time in the event (targeting *ser*) condition, and 63% of the time in the object (targeting *estar*) condition; this resulted in a very low use of *estar* in the total use of copular verbs<sup>5</sup>. The L2 learners used the copular verbs much more frequently to complete the tasks, as the instructions indicated: In the intermediate group, only 9% of the event contexts and 18% of the object contexts were not completed with a copular verb expressing location; in the case of the beginner learners, these figures dropped even more, and only 5% of the event contexts and 9% of object contexts did not employ *ser* or *estar* with a locative meaning. Often times, these non-locative sentences also used *ser* or *estar*; these were not included in the final calculations presented in Table 1 below. We only found one instance of

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<sup>5</sup> Natives tended to create sentences that do not necessarily used the copular verb to indicate location, such as *Las palomitas del cine Avenida Corrientes están buenísimas / son muy caras* ('The popcorn from the Corrientes boulevard are<sub>estar</sub> very good / are<sub>ser</sub> very expensive), or used different verbs to indicate location, such as in *La fiesta se celebra en la discoteca* ('The party takes place in the disco') or *La sopa se sirve en el restaurante de la avenida Jujuy* ('The soup is served in the restaurant of Jujuy Blv'). These cases were not included in the overall calculation of *ser/estar* production in table 1.

copula omission by one participant in the low-intermediate group<sup>6</sup>, and it was with an event. So, VanPatten's (1987) first developmental stage, which predicts omission of the copula, is probably already overcome by our learners as it is not found in our results.

Table 1: Tokens and percentages of *ser/estar* production in the Written Production Task

| Group<br>Verb   | Events        |                | Objects       |              | Total Use     |               |
|---|---------------|----------------|---------------|--------------|---------------|---------------|
|   | <i>Ser</i>    | * <i>Estar</i> | * <i>Ser</i>  | <i>Estar</i> | <i>Ser</i>    | <i>Estar</i>  |
| Native<br>speakers<br>(320 contexts)<br><i>n</i> = 20 | 113<br>98.26% | 2<br>1.74%     | 3<br>5.08%    | 56<br>94.92% | 116<br>66.66% | 58<br>33.33%  |
| Beginner L2ers<br>(416 contexts)<br><i>n</i> = 52     | 123<br>77.36% | 36<br>22.64%   | 101<br>63.92% | 57<br>36.08% | 224<br>70.66% | 93<br>29.33%  |
| Inter. L2ers<br>(384 contexts)<br><i>n</i> = 48       | 129<br>68.98% | 58<br>31.02%   | 81<br>56.64%  | 62<br>43.36% | 210<br>63.64% | 120<br>36.36% |

<sup>6</sup> There was also one low-intermediate participant that never produced a copula, neither with events or with objects. We believe s/he did not fully understand the purpose of the task and was removed from the overall calculation.

Table 1 shows the counts and percentages of *ser/estar* produced by condition and group.

With respect to frequency of use, if we observe the total use of copular verbs, regardless of the context provided, we discover that the L2 learners' use in the production task is in reality quite similar in rate of occurrence to the native speakers', with a significant overall higher use of *ser* in comparison with *estar*. Taking into account the contexts, the written production results generally show that the beginner learners are overgeneralizing *ser* for all locative contexts (71% of total copula use) although there is already a difference between the use of *estar* with objects (36%) compared to that with events (23%). Intermediate learners are also using *ser* (64%) more often than *estar* (36%) in both contexts. This overuse of *ser* by the two groups of learners in both contexts corroborates our hypothesized stage 1 in (6), and VanPatten's (1987) stage 2. We further observe in the data a steady increase in the use of *estar* in both contexts, as we hypothesized in our stage 2. These trends are clearly seen in figures 6 and 7.

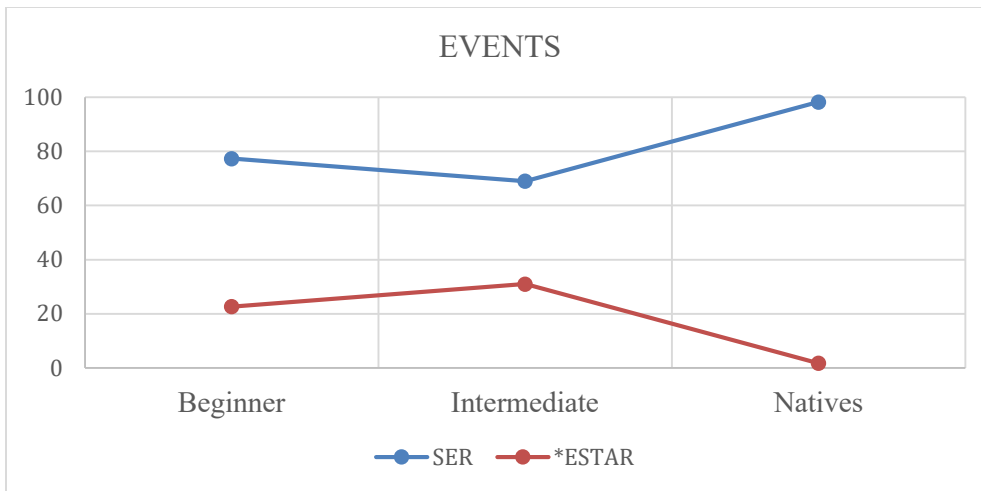


Figure 6: Mean percentages of production of *ser/estar* with events by groups

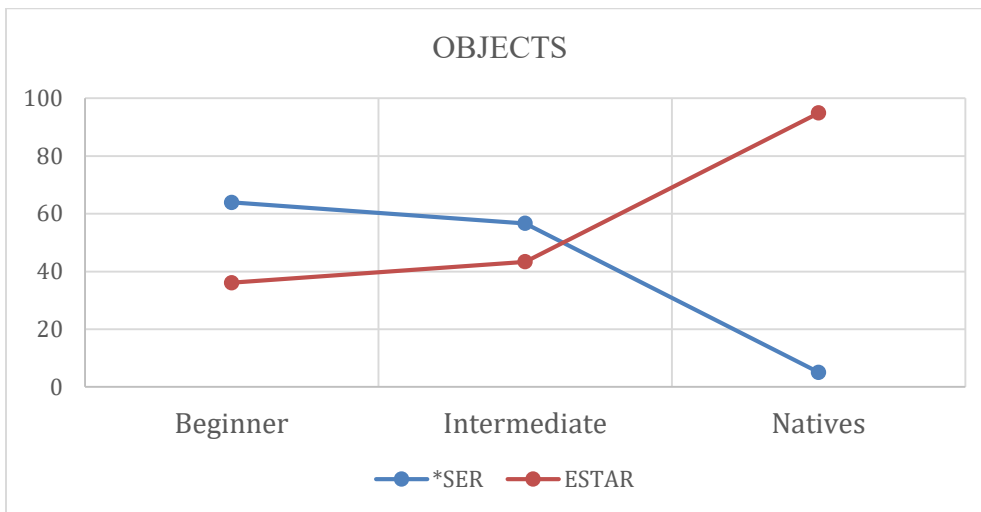


Figure 7: Mean percentages of production of *ser/estar* with objects by groups



A GLMM was run with Accuracy in the production (Binomial distribution, Logit link) set as the dependent variable. A random intercept was set for subject<sup>7</sup> (not significant:  $\beta = .207, p = .094$ ), and the residual effect was also taken into account (significant:  $\beta = .917, p < .001$ ). Group (Spanish Control, L2 Beginner, L2 Intermediate), Dynamicity (event, object) and their paired interaction were set as fixed factors. The results indicated significant effects for all fixed factors. Group,  $F(2, 849) = 22.061, p < .001$ , whose pairwise contrasts indicated that the control group were more accurate than both the Beginner ( $\beta = .391, p < .001$ ) and the Intermediate group ( $\beta = .350, p < .001$ ), with no significant differences between the two groups of L2 learners ( $\beta = .041, p = .359$ ). Dynamicity was significant,  $F(1, 849) = 13.939, p < .001$ , indicating that participants were more accurate with events than with objects ( $\beta = .184, p < .001$ ), that is, with *ser* than with *estar*. Finally, the interaction Group  $\times$  Dynamicity,  $F(2, 849) = 22.061, p < .001$ , can be interpreted in two different ways. First, the intermediate group surpassed the beginners' group in the location of objects ( $\beta = .187, p = .001$ ), but not of events ( $\beta = -.082, p = .095$ ), the control group always being more accurate than both L2 learners' groups (always  $p < .001$ ). Second, the accuracy in the location of events was significantly higher to that of objects for beginner ( $\beta = .416, p < .001$ ) and intermediate learners ( $\beta = .147, p = .003$ ), but not for the Spanish native speakers ( $\beta = .033, p = .272$ ), which indicates that the control group is equally accurate in both structures, whereas the L2

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<sup>7</sup> Item was also included as a random intercept, but finally discarded by the fitness of the model.

learners present an asymmetry: their production is more accurate with events (*ser*) than with objects (*estar*).

We further calculated the frequencies of use per item and group for the L2 learners, so we could follow the development for specific lexical items. Percentages of accurate responses are shown in Figure 8. This figure clearly shows how all L2 learners were better at locating events than objects, being that the beginner group more accurate than the low-intermediate group in events (*ser*), as the statistics indicated. The graph also shows that the low-intermediate group is systematically more accurate than the beginner group in the location of objects (*estar*), with a clear asymmetry across lexical items: *Estar* is correctly used an average of 29% of the time in the beginners group and 46% in the intermediate group with the items *doctor*, *sopa*, and *palomitas*; whereas *estar* is correctly used 58% of the time in the beginners group and 77% in the intermediate group with the item *estudiantes*.

Finally, the individual analysis indicates that 17/48 (35.4%) of the beginner learners and 12/53 (22.6%) of the low-intermediate learners did not produce a single instance of *estar* in the Written Task, whereas only 3/48 (6.2%) of the beginner learners and 2/53 (3.8%) of the intermediate learners did not use *ser* in any of the sentences they provided to express location.

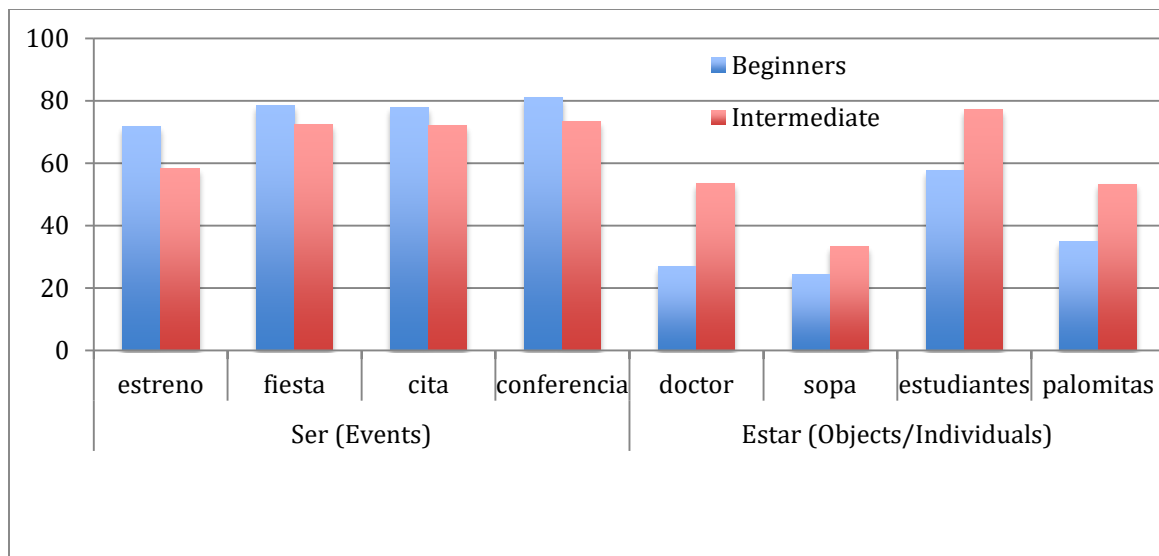


Figure 8: Percentages of accurate responses per item and experimental group in the Written Production Task

### 5.2. Results of picture selection task

In the sentence comprehension task, the coding was as follows: 1 was assigned to the selection of the appropriate image according to the sentence provided, whereas selection of the inappropriate image was coded with 0. The mean proportions and standard errors of accurate responses in the target condition were calculated and are displayed in Figure 9<sup>8</sup>; those from the control responses are displayed in Figure 10. Overall, the general trend

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<sup>8</sup> Inaccurate responses are not explicitly reported here as these are, for the most part, the remaining proportions up to 1. This means that if there is a .38 of accuracy in choosing an object when a sentence with

is that both L2 groups are better with events than with objects, particularly in the target condition, and there is no progression in accuracy as proficiency advances.

A GLMM was run with Accuracy in the target condition of the picture-matching task (Binomial distribution, Logit link) set as the dependent variable. A random intercept was set for subject (not significant:  $\beta = .064, p = .313$ ), and the residual effect was also taken into account (significant:  $\beta = .975, p < .001$ ). *Group* (Control, Beginner, Intermediate), *Dynamicity* (event, object) and their paired interaction were set as fixed factors. Results indicated significant effects for the main effects only. *Group*,  $F(2, 1466) = 51.040, p < .001$ , whose pairwise contrasts indicated that the Control group were more accurate than both the Beginner ( $\beta = .427, p < .001$ ) and the Intermediate group ( $\beta = .391, p < .001$ ), with no significant difference between the two learners' groups ( $\beta = .037, p = .240$ ). Also *Dynamicity*,  $F(1, 1466) = 8.303, p = .004$  was significant, indicating that participants were more accurate in events than in objects ( $\beta = .099, p = .004$ ). The interaction *Group*  $\times$  *Dynamicity* was not found to be significant,  $F(2, 1466) = .656, p = .519$ , though their pairwise contrasts showed that the preference for events over objects was not found in the native speakers ( $\beta = .024, p = .548$ ), while it existed for the beginner ( $\beta = .157, p < .001$ ) and the intermediate groups ( $\beta = .108, p = .005$ ).

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*estar* is presented, then, approximately 62% of the time, these participants inappropriately selected the image that depicted an event when presented with *estar*.

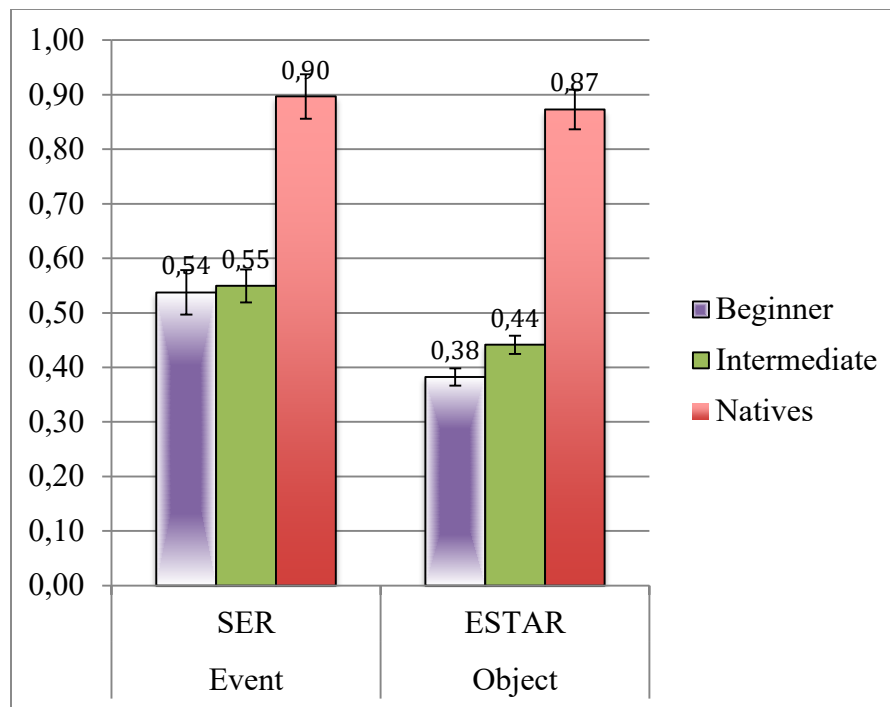


Figure 9: Mean proportions of accurate responses in the target condition in the Picture Selection Task

As for the control scenarios, a GLMM was also run with Accuracy in the picture-matching task (Binomial distribution, Logit link) set as the dependent variable. A random intercept was set for subject (significant:  $\beta = .939, p < .001$ ), and the residual effect was also taken into account (significant:  $\beta = .724, p < .001$ ). *Group* (Control, Beginner, Intermediate), *Dynamicity* (event, object) and their paired interaction were set as fixed factors. Results indicated a significant effect for Group and for the paired interaction

Group  $\times$  Dynamicity. Group,  $F(2, 1468) = 13.754, p < .001$ , whose pairwise contrasts indicated that the native group was more accurate than both the beginner group ( $\beta = .153, p < .001$ ) and the intermediate group ( $\beta = .085, p < .001$ ), with the intermediate group also surpassing the beginner group ( $\beta = .069, p = .017$ ). The main effect for Dynamicity was not found to be significant,  $F(1, 1468) = 2.287, p = .131$ . Finally, the interaction Group  $\times$  Dynamicity,  $F(2, 1468) = 3.085, p = .046$ , can be interpreted in two different ways. First, Intermediate learners surpassed Beginners in objects ( $\beta = .136, p = .001$ ), but not in events ( $\beta = .023, p = .376$ ), the native group always being more accurate than both L2 learners' groups (always  $p < .001$ ). Second, the preference for events over objects was found to be significant only for the beginner learners ( $\beta = .144, p < .001$ ), but not for the intermediate learners ( $\beta = .031, p = .111$ ) or the native speakers ( $\beta = .000, p = 1.000$ ).

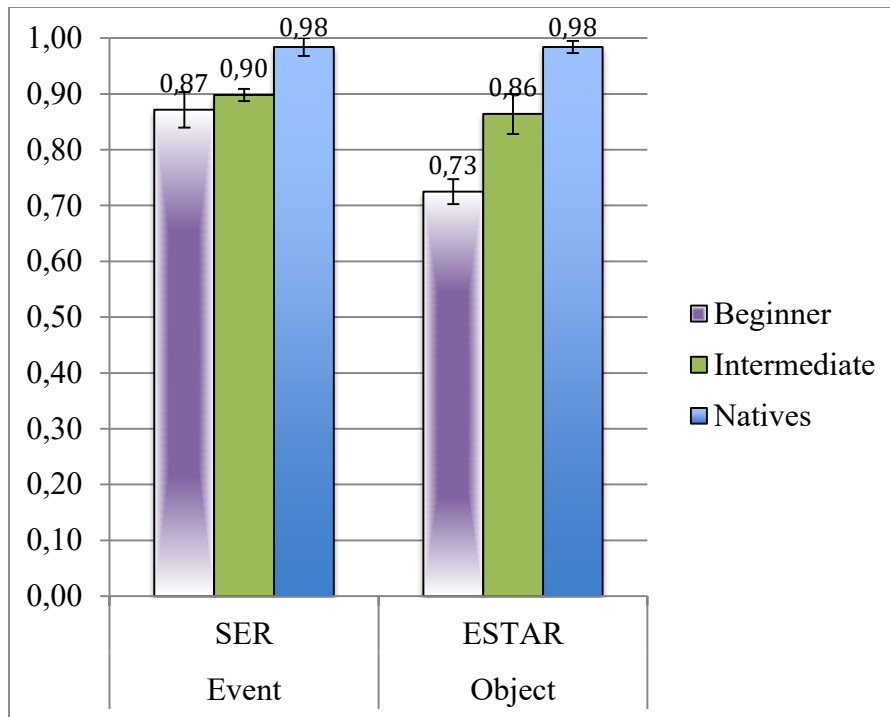


Figure 10: Mean proportions of accurate responses in the control condition in the Picture Selection Task

## 6. Discussion

Generally speaking, our L2 participants behaved better with events than with objects in both tasks, written production and sentence interpretation. We found an overextension of *ser* in *estar* contexts in the written task, particularly in the beginners' results, as predicted by H1. We interpret these results as the initial overgeneralization of a default copula, in this case in the form of *ser*. This is VanPatten's (1987) stage number 2, and our first hypothesized developmental stage, since we do not have evidence of omission of the

copulas in our data (VanPatten's stage 1). Furthermore, we believe that the default copula takes the form of *ser* as a result of Full Transfer (Schwartz & Sprouse, 1996), since we believe that English-speaking learners of Spanish univocally associate *ser* with *to be* in initial stages of acquisition. Unlike in previous studies that investigated the Spanish copulas expressing location with objects and events whose L2 learners were at more advanced stages than those depicted here, we are able to capture this initial overgeneralization of *ser* also in event contexts, which just happens to be the correct option. Indeed, 35% of our beginner learners and 23% of the intermediate learners did not produce a single instance of *estar*, suggesting that some L2 learners have not realized yet that Spanish has two copulas, at least not productively. Prévost & White (2000) proposed that until the full lexical paradigm is available and the functional categories properly acquired, we can find performance default forms, which we find here in the form of *ser*. It remains for further research whether *ser* will always be the default copula, or whether it depends on the L1 of the L2 learners. Geeslin and Guijarro-Fuentes (2005) did not find an L1 effect in their study with L2 learners whose L1 lacks the copula contrast such as German, English or French, all of them having only one copula; however, in other L2 Spanish studies in which the speakers' L1 has a copula contrast, albeit a different one, such as L1 Dutch (Pinto & Guerra Rivera, 2015), L1 Portuguese (Geeslin & Guijarro-Fuentes, 2006); L1 Catalan (Perpiñán, 2015), L1 Italian (Perpiñán & Marín &, 2018), some selective L1 effects have been found. It is our intention that the proposal of a detailed aspectual analysis helps researchers pinpoint the selectivity of these attested L1 effects, or the lack thereof.



We also found a general preference for eventive readings over the objective readings of the ambiguous nominals. This could deceitfully indicate that location with *ser* is acquired earlier than location with *estar*, and that the latter is delayed, as VanPatten (2010) generally proposes. Nonetheless, the production and comprehension results showed a significant improvement in the development of *estar* with objects as proficiency increases, whereas there was not a developmental improvement in *ser* with events. A developmental improvement in *estar* but not in *ser*, displayed in Figure 7, was also found in previous studies in which L2 learners did not show any refinement in their judgments (Pérez-Leroux et al., 2010) or production (Dussias et al., 2014) in the location of events while improving in the location of objects. A positive effect of proficiency in the development of *estar* but not in the development of *ser* was also found in adjectival contexts (Geeslin, 2001; Geeslin and Guijarro-Fuentes, 2006). However, if we observe the results in Figure 6 and compare them to those in Figure 7, we realize that the increase in use of *estar* and decrease in use of *ser* occurs across the board, in both location of objects and location of events. Thus, our intermediate learners, who are already reducing the use of *ser* and increasing the use of *estar*, are at the beginning of the stage in which *estar* is generalized for prototypical [+temporally bounded] contexts. This is our second developmental stage for locative contexts, not predicted in VanPatten's (1987) hierarchy. Correctly enough, these intermediate learners realize that all locative contexts, eventive and non-eventive ones, imply the temporal anchorage of the situation, that is, they are [+temporally bounded] and hence, would require *estar*. Data from Pérez-Leroux et al. (2010) and Dussias et al. (2014) show that the association of temporal boundedness and

*estar* is very strong and produces overgeneralization of locative predicates with *estar*, as L2 learners fail to reject the ungrammatical location of events with *estar* even at advanced stages of acquisition, when they have properly acquired *estar* with adjectives. This produces a long-standing period of indeterminacy or optionality, as predicted by H3. This goes against VanPatten's last developmental stage, since "*estar* for conditions" is acquired earlier than *ser* with events. Pérez-Leroux et al. (2010) as well as Bruhn de Garavito and Valenzuela (2008) crucially showed that advanced L2 learners still had problems locating events with *ser* when they had already acquired the copulas in combination with adjectives. We interpret these results also as signs of overproduction of *estar* for [+temporally bounded] contexts, and the subsequent decrease of *ser*, predicted by H2, and summarized in our proposed second developmental stage.

We believe that L2 learners systematically fail at realizing that [+dynamic] subjects require *ser*, precisely because these predicates are also [+temporally bounded]. We claim that it is this double aspectual specification that makes them difficult to acquire: events are, by definition [+temporally bounded], hence, *estar* would be needed, but at the same time they are [+dynamic], which exceptionally calls for *ser*. It is this multiple specification of *ser*, as it can be combined with [ $\pm$  temporally bounded] predicates and [ $\pm$  dynamic] subjects, a mapping of many-to-many, that makes *ser* the difficult copula to acquire in locative constructions. We further argue that the integration of diverse aspectual layers, particularly if the information is coded in different

grammatical domains within the sentence (subject vs. predicate) increases the complexity of the structure and hinders its acquisition.

To sum up, the *dynamicity* encoded in the eventive subject is overlooked for a long period of time; as a result, this is the last aspectual feature acquired in the acquisition of location expressed with *ser/estar* in Spanish. This conclusion partially contradicts VanPatten's idea regarding the learner's job in acquiring the copulas. Contrary to his proposal claiming that the main learnability task for the L2 learner is to acquire *estar* given its marked aspectual properties (VanPatten, 2010), we showed that *ser* also produces serious difficulties and its acquisition is not automatic but indeed delayed in cases in which *dynamicity* is involved. This arrested development of the acquisition of *ser* has also been found in eventive passives (Bruhn de Garavito & Valenzuela, 2008), and we claim it is also due to their dynamic nature and the complexity of the integration of multiple aspectual layers coded within different parts of the utterance. That is, as H4 predicted, problems are persistent and long-lasting in dynamic contexts, such as location of events, eventive passives, and mostly likely also with eventive adjectives, which have yet to be investigated.

The results of the Picture Matching Task in which L2 learners were forced to interpret the subject by paying attention to the copular verb show that our learners have not detected yet the fact that event nominals represent a distinct aspectual class in Spanish, which has consequences for the selection of the copula in locative contexts. That is, they have not been able to reassemble the features [+ temporally bounded] [+

dynamic] into a feature bundle in the Spanish grammar, and therefore, they have not mapped them yet together onto the copula *ser*. As explained before, this is to be expected given the pervasive association of *estar* with [+temporally bounded] contexts and the rarity of the combination of a typically stative verb such as *ser* with [+dynamic] traits. Thus, we believe that these L2 learners do not particularly struggle with events or their aspectual interpretation, as it had been proposed, but with the mapping between the morphology and the semantics, and in particular, with the reassembly of features which can, at a first sight, seem contradictory. This produces a long-standing ambiguity in the interlanguage grammar with the semantic entailments of copular verbs in locative contexts. Thus, double reading nominals such as *dinner* remain ambiguous in the grammar of these L2 learners for a long period of time. This difficulty resembles the selection of past morphology in Spanish, which is also regulated by aspectual features and remains indeterminate for a long period of time, although it is acquirable (Montrul & Slabakova, 2003), or the auxiliary selection determined by the unaccusativity of the predicate, which Sorace (1993a, 1993b) extensively investigated. She found that near-native speakers of L2 Italian had a divergent or incomplete grammar, depending on the L1 of the learners, who presented indeterminacy even in advanced stages of development. The data available from advanced L2 learners indicate that this indeterminacy is long-lasting and that the proper copula selection and their semantic interpretations for these nominal contexts are acquired late in the developmental path, later than the copula distribution in attributive contexts.

In summary, despite the fact that *estar* has typically been perceived as the difficult copula for English-speaking learners of Spanish (VanPatten, 2010), when it comes to location, *ser* is the problematic verb. Building on preceding work by VanPatten (1987), we propose a revised order of acquisition of the copulas in Spanish taking into account the previously overlooked aspectual feature *dynamicity*. In particular, these modifications concern his proposed 4<sup>th</sup> and 5<sup>th</sup> stages (4<sup>th</sup>: *estar* for location; 5<sup>th</sup>: *estar* for conditions); this study will not particularly discuss VanPatten's stages 1-3 as our experiment did not directly assess them, although we explained his stage 2 as a default generalization and/or a L1 transfer phenomenon.

(6) Revised and expanded order of acquisition of *ser/estar* in English-speaking learners of L2 Spanish, based on VanPatten (1987):

- 4- *estar* in [+temporally bounded] constructions: with adjectives and all locative predicates (some overgeneralization of *estar*).
- 5- *ser* in [+dynamic] constructions, in eventive constructions.
- 6- rejection of *estar* for eventive constructions.

VanPatten (1987) proposed that *estar* appears later with adjectives than with location, whereas Ryan & Lafford (1992) found that *estar* appears later with locatives. Our theoretical proposal roughly predicts that *estar* would appear simultaneously with S-

L adjectives and location, as both constructions are regulated by the same semantic feature [+temporally bounded], even though it is encoded in different grammatical domains (PP vs. adjectives). This prediction is corroborated by the experiments in which eventive contexts were tested together with copula choice with adjectives (Bruhn de Garavito & Valenzuela, 2008; Pérez-Leroux et al, 2010). These studies found that when the L2 learners were already mastering copula choice with adjectives, they still had problems in the location of events, and in eventive passives. These results, which are accounted for by our theoretical proposal, show that the mastering of *estar* with adjectives is not the last developmental stage in the acquisition of Spanish copulas, against what VanPatten (1987) argued.

Hence, the last developmental stage that we propose is the use of *ser* in [+temporally bounded, +dynamic] contexts. This is a new stage that VanPatten did not consider. There are several reasons why this bundle of features is difficult to map onto *ser*: in this context, *ser* is in a situation of many-to-many mapping, since it can be mapped onto [- temporally bounded] predicates as well as [+ temporally bounded] predicates. Another reason for its protracted acquisition would be the late incorporation of the feature *dynamicity* into the selection of copular verbs, and the reassembly of features this implies. These explanations are not mutually exclusive and can act in combination.

Finally, the item analysis tentatively corroborates the idea that learning of *estar* is lexically-driven, as proposed by Perez-Leroux et al. (2010). It is very plausible that a

lexical item such as *estudiantes*, which is allegedly a very frequent word in the L2 classroom context, is acquired earlier in its proper verbal environment given its frequency and familiarity. Thus, and along the lines with the broad lexical item results, we could conclude that the L2 acquisition of *ser/estar* is influenced to a certain extent by frequency effects of subjects, of copular verbs, and probably also of type of complement that anchors the predicate (spatial, temporal, physical).

Taken all together, these findings indicate that after the initial overgeneralization of *ser*, L2 learners associate the feature [+ temporally bounded] with *estar* and apply it to the location of both objects and events (our proposed stage 4). Recall that both, objects and events are temporally bounded in locative contexts. The feature [ $\pm$  dynamic] is selected later than the feature [ $\pm$  temporally bounded] in the interlanguage grammar of English-speaking learners of Spanish. This feature also seems to be mapped onto *ser* later than the [ $\pm$  definiteness] feature, investigated in locative contexts by Perpiñán (2015) in comparable participants. We believe that another reason why the feature [ $\pm$  dynamic] is acquired later in the interlanguage grammar of the learners is its location in the grammar. Whereas most of the cues that indicate the use of *ser* or *estar* are located in the predicate of the sentence, including the temporal, spatial or physical information, the eventive nature of the sentence is determined by its subject. Thus, L2 learners need to pay attention to the external argument of the sentence to rightly choose *ser* or *estar* only in eventive contexts; this was also the case in the generic/specific interpretation of eventive passives, the phenomenon that Bruhn de Garavito & Valenzuela (2008) investigated.

Similarly to what was found in that study, our participants were not able to interpret the semantic entailments coded in the subject of the sentence, and these are the last ones to be mastered. Therefore, we deduce that the precise position of the relevant features in the syntax of the second language is a central factor in its acquisition.

To sum up, if go back to our initial research questions, we confirm the idea that the aspectual properties of the copulas guide their acquisition, and in particular the [+temporally bounded] property of the location. We have also shown that the aspectual properties of the copulas are more complex than typically assumed (i.e.: VanPatten, 2010), and need to agree with the aspectual information provided not only by the predicate but also by the subject. Indeed, the *dynamicity* of the subject is a late learned property that delays the acquisition of location with copular verbs in Spanish.

## 7. Conclusions

The present study has investigated the semantic interpretation and written production of the Spanish copulas *ser/estar* in locative predicates by English-speaking learners of Spanish. These locative constructions can locate an object or an event, and the nature of the subject determines the morpho-lexical appearance of the copula: *estar* appears in the location of objects, whereas *ser* locates events. First, we have proposed a novel theoretical account of the copulas based on their aspectual nature in terms of features and feature bundles. Specifically, we explain how two aspectual features, *temporal*



*boundedness* and *dynamicity*, determine the selection of the copula in locative constructions. Then, we have laid out the feature bundles associated with each copula for each context, in particular, the bundle [+temporally bounded, -dynamic] maps onto *estar*, and the bundle [+temporally bounded, +dynamic] maps onto *ser*. This supposes a reassembly of features in the Spanish interlanguage of English-speaking learners, since the English copula is featureless (Schmitt, 2005). Thanks to this feature analysis, we have been able to propose a detailed developmental path for the acquisition of location with copulas as we believe that L2 learners are sensitive to these features in different stages of the acquisition process. This new developmental path builds on VanPatten (1987) proposal and, because it is more precise, it adds two stages to the learning process. In particular, we have generally observed that *ser* is initially used as a default copula, as previously proposed. Later, after necessary exposure and instruction about the general distribution of *ser* and *estar*, they exclusively associate the feature [+temporally bounded] with *estar*. This overgenerates locative constructions with *estar*, in particular, in the location of events, which exceptionally require *ser*. This stage, which was not predicted by VanPatten (1987) is long-lasting and difficult to recover from. Thus, the proper location of events, and we anticipate also, the proper use of the copulas with eventive passives and eventive adjectives, -all with *ser* and [+dynamic]-, come later in the acquisition process, after *estar* + adjective construction has been acquired (VanPatten's last stage). In other words, the feature *dynamicity* and its proper strength in the copulas is acquired late, probably because of its position in the utterance (this feature resides in the subject of the locative construction and not in the predicate). In short, we have proposed

that the dynamic nature of the subject, and the complexity of integrating several aspectual layers coded in different parts of the utterance (subject vs. predicate) is the reason why location of events with *ser* is acquired late in the interlanguage grammar of L2 learners. This led us to propose that location of events (with *ser*) is the last stage acquired in the developmental path for the acquisition of copulas in L2 Spanish, even later than the copulas with adjectives. Thus, despite the fact that *estar* has typically been described as the difficult copula to acquire by English-speaking learners of Spanish (VanPatten, 2010), when it comes to location, *ser* is the difficult verb. As a result of these new conclusions, we have revised accordingly the influential developmental path advanced in VanPatten (1987). Finally, this study has shown that L2 learners are sensitive from very early on to (some of) the aspectual information that the copulas convey, and that the copulas' aspectual nature guides their acquisition.

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## EVENTS (Students, WHOLE SURVEY)

PAGE ONE

Selecciona la fotografía más apropiada.

Next, you will have pairs of related pictures and a sentence. You need to select the picture that best describes the sentence provided.

**26. La hoja está dentro de la botella**

A



B

**27. La película es en el salon**

A



B

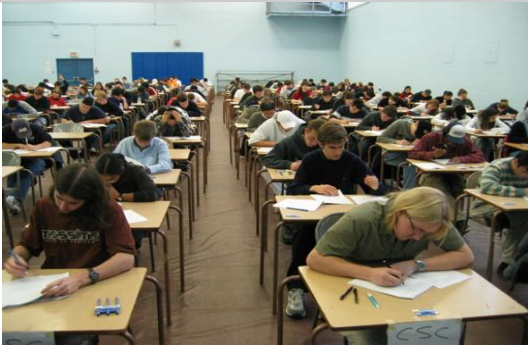
**28. La boda es en el jardín.**

A



B

29. El examen final está en el aula 205.



A



B

30. El discurso es en la Casa Blanca



A



B

31. La obra de Shakespeare está en el teatro.



A



B

32. El maratón del próximo mes es en Nueva York.



33. Los fuegos artificiales son en el parque



34. El gato está debajo del auto

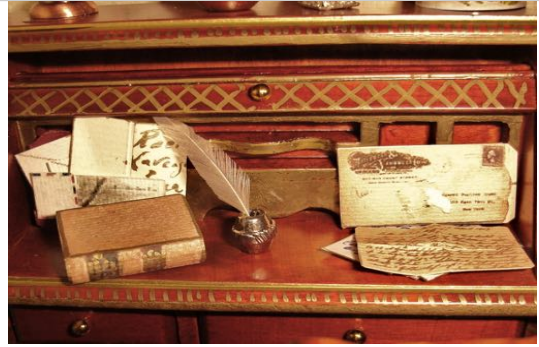


35. Las cartas están encima de la mesa





A



B

36. La cena está en el comedor.



A



B

37. La fiesta de Pedro es adentro de su casa.



A



B

Back

Next

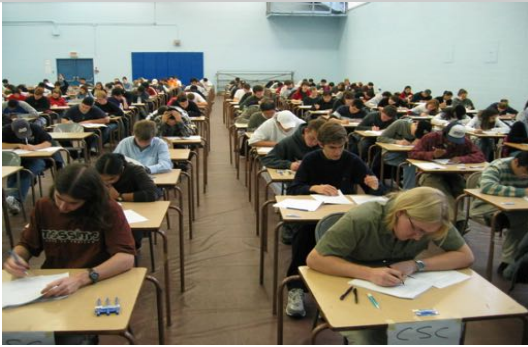
15%

# EVENTS (Students, WHOLE SURVEY)

Page two

Select the picture that best describes the sentence above.

38. El examen final es en el aula 205



A



B

39. El gato está adentro del auto



A



B

40. Los fuegos artificiales están en el parque



A



B

41. La cena es en el comedor



A



B

42. La hoja está sobre la botella



A



B

43. La película está en el salón



A



B

44. La fiesta de Pedro es afuera de su casa.



A



B

45. El discurso está en la Casa Blanca



A



B

46. La boda es en la playa.



A



B

47. La obra de Shakespeare es en el teatro

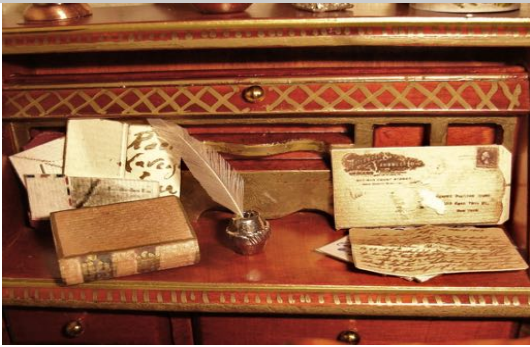


A



B

48. Las cartas están dentro del correo



A



B

49. El maraton del proximo mes es en Paris.



A



B

Back

Next

23%