

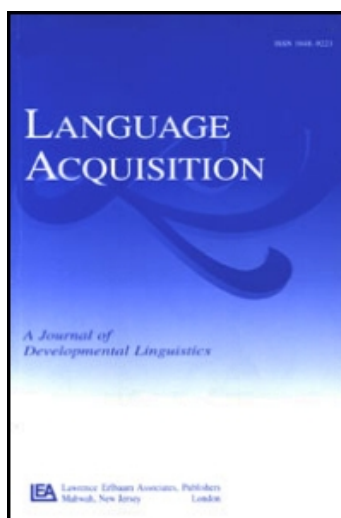
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Poverty-of-the-Stimulus and SLA Epistemology: Considering L2 Knowledge of Aspectual Phrasal Semantics

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Poverty-of-the-Stimulus and SLA Epistemology: Considering L2 Knowledge of Aspectual Phrasal Semantics

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Coupling a review of previous studies on the acquisition of grammatical aspects undertaken from contrasting paradigmatic views of second language acquisition (SLA) with new experimental data from L2 Portuguese, the present study contributes to this specific literature as well as general debates in L2 epistemology. We tested 31 adult English learners of L2 Portuguese across three experiments, examining the extent to which they had acquired the syntax and (subtle) semantics of grammatical aspect. Demonstrating that many individuals acquired target knowledge of what we contend is a poverty-of-the-stimulus semantic entailment related to the checking of aspectual features encoded in Portuguese preterit and imperfect morphology (see also Goodin-Mayeda and Rothman (2007), Montrul and Slabakova (2003), Slabakova and Montrul (2003)), namely, a [\pm accidental] distinction that obtains in a restricted subset of contexts, we conclude that UG-based approaches to SLA are in a better position to tap and gauge underlying morphosyntactic competence, since based on independent theoretical linguistic descriptions, they make falsifiable predictions that are amenable to empirical scrutiny, seek to describe and explain beyond performance, and can account for L2 convergence on poverty-of-the-stimulus knowledge as well as L2 variability/optionality (e.g., Lardiere (2007), Prévost and White (2000), Goad and White (2006), Slabakova (2008)).

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1. INTRODUCTION

Notwithstanding the complexity and endless production capacity of linguistic systems, all children, barring pathology, converge on a mature native grammar, more or less, by 5–7 years of age. This happens despite input that is finite, degenerate, and absent of some seemingly crucial evidence, irrespective of geographical location or the language in question, with or without correction, in an observably uniform manner and independent of the child's overall intelligence (see Guasti (2002), Snyder (2008)). Although all acquisition theories worthy of serious consideration must attempt to explain these observable facts, it is hardly to be expected that there would be only one such theory. In fact, the sustained emergence of competing theoretical accounts serves to highlight a long-standing controversial debate that defines as much as demarcates distinctive schools of linguistic thought: are languages learned entirely from experience or is part (perhaps much) of language innate?

In light of these facts, the generative paradigm of linguistic inquiry maintains that humans are born with a domain-specific genetic linguistic endowment. Universal Grammar (UG) provides a superset of functional features, access to which narrows the search space for linguistic hypotheses (i.e., delimiting what a possible grammar can and *cannot* be) and provides the child *a priori* with the abstract building blocks for his particular grammar (see Chomsky (2007)). According to this biolinguistic view of language, a major part of language learning is one of reducing this universal superset of features into the subset of these features instantiated in the particular grammar to which the child is exposed. This is accomplished by learning the target language lexicon, which determines the functional categories and features needed to account for the primary linguistic data. The generative view of linguistics is characterized by a tension of juxtaposed interests: descriptive adequacy versus explanatory adequacy (Chomsky (2000)). On the one hand, generative theory seeks to effectively describe what children must acquire and how this is accomplished. At the same time, description must reflect an unadorned system of mental computation to have explanatory value, which seeks to account in a minimal and maximal sense for what UG must supply the child learner.

Particular details aside, non-UG-based theories of child language acquisition maintain that languages are learned via an interaction of primary linguistic data and more general cognitive abilities, namely, domain-general learning mechanisms (e.g., Chouinard and Clark (2003), Christiansen and Charter (2001), Croft and Cruse (1999), MacWhinney (1999), O'Grady (1996; 2005), Slobin (1997), Tomasello (2000)). Such theories are not necessarily non-innatist insofar as they agree that the human brain is uniquely specialized to accomplish the task of language acquisition, including some type of universal guiding principles (such as discourse principles) which drive grammatical development. Differently, however, from UG-based theories, they maintain that linguistic learning

is accomplished without a highly differentiated mental subsystem specific for language—in other words, without UG.

In general, when comparing competing theories, the one with the least amount of variables/layers is epistemologically superior if both achieve the same level of descriptive and explanatory adequacy. The theory of UG, therefore, must explain beyond other theories of language acquisition to justify the necessity of an inborn language faculty. If it can do so, postulating linguistic nativism is justified; if not, theories that assume less inborn domain-specific linguistic structure should prevail. In principle, to do so is not fundamentally difficult. On the one hand, non-UG-based theories would need to demonstrate how complex syntax and semantics can be acquired devoid of an inborn linguistic system that fills in apparent gaps between what is available from input and what is instantiated in particular grammars or demonstrate that no such gaps actually exist. Conversely, UG-based theories would need to do the opposite, that is, demonstrate how such could not be accomplished without innate linguistic knowledge. This same explanation scenario applies to adult L2 acquisition theories. UG-based theories that claim continued access to UG past the so-called critical period¹ need to empirically justify their claims as much as non-UG-based SLA theories must account for the entire gamut of L2 knowledge via an interaction between domain-general learning and access to input alone.

Starting most notably with Dekydtspotter and colleagues in the mid 1990s, recent generative L2 research has demonstrated that adult L2 learners, even at intermediate levels of proficiency, but especially at high levels, come to have native-like intuitions of semantic reflexes that are argued to be true *poverty-of-the-stimulus* (POS) properties (see Slabakova 2006 for review of this and related literature). Knowledge of semantic reflexes—semantic properties of functional categories; that is, what meanings are made (un)available when a functional category is checked—is thought to provide insight into underlying L2 mental morphosyntactic representations. This is true because they often embody POS properties, they are seemingly subject to less confounding variables than morphological reflexes (see Lardiere (2007)), and they arguably provide more robust evidence than syntactic reflexes alone. Since syntactic reflexes often trigger overt movement (of course movement can also occur covertly after spell-out), domain-general learning cannot be entirely ruled out as the source of at least some L2 syntactic reflex knowledge (e.g., how Chinese learners of L2 English

¹Given the scope of the present discussion, we put aside important debates within generative SLA concerning accessibility to UG, for example, debates between representational deficit accounts (Beck (1998), Hawkins and Chan (1997), Franceschina (2001), Hawkins (2005), Hawkins and Hattori (2006), Tsimpli and Dimitrakopoulou (2007)) and full access accounts (Duffield and White (1999), Schwartz and Sprouse (1996; 2000), White (1989; 2003)). In doing so, we are only comparing full access or no impairment approaches to usage/experience-based approaches, in part because our data support such a position and also in light of the scope of the present article.

learn wh-movement by some accounts²). Morphological reflexes—target-like use of overt morphology—should arguably present the least amount of learnability difficulties insofar as overt morphology is amply available from the input.³ As is well known, however, despite an abundance of data, L2 morphological use is subject to significant variability. Although some UG-based approaches take this to indicate fundamental differences between L1 and adult L2 acquisition at the level of UG feature-accessibility (see, e.g., Beck (1998), Hawkins (2005), Hawkins and Hattori (2006)), full access approaches argue that L2 morphological inconsistency is conditioned upon peripheral variables such as L1 prosodic transfer (Goad and White (2006)), processing constraints, and/or form-to-meaning mapping difficulties as a result of a dissociation between syntax and morphology in adulthood (Haznedar and Schwartz (1997), Lardiere (1998; 2007), Prévost and White (2000), Schwartz (2003)). Crucially, L2 knowledge of semantic entailments should only occur in the case that the underlying morphosyntactic representations to which they are associated are target-like (i.e., precisely the type of gap between the input and the grammar that UG is purported to fill). For example, in a study related to the present one, Slabakova and Montrul (2003) showed that English L2 learners of Spanish were able to acquire L2 POS aspectual semantic reflexes of the functional category higher AspP, namely, a genericity effect resulting in an asymmetry of available pronominal subject interpretations between the preterit and imperfect. As is the case with child L1 learners, it is argued that L2 knowledge of such properties points to a direct, gap-filling role for UG in adult acquisition (e.g., Dekydtspotter, Sprouse, and Anderson (1997), Dekydtspotter and Sprouse (2001), Schwartz and Sprouse (2000), Slabakova and Montrul (2003), Song and Schwartz (2009), Sprouse (2004), White (2003)).

Conversely, usage/experience-based⁴ approaches to adult SLA take the position that post-critical period language learning is necessarily explicit, whether or not they work under the assumption that L1 acquisition employs some type of implicit acquisition (DeKeyser (2003), Long (2005), Paradis (2004), Ullman (2001)). Thus, insofar as one exists, they are unable to account for the *logical problem of L2 acquisition* (Gregg (1996), White (2003)) since learners should

²If this were the case, however, one would expect significant differences in the production and judgment of subjacency violations for Chinese learners that show knowledge of wh-movement in L2 English. Available data on this is interpreted differently by different research (see Hawkins and Hattori (2006) versus Lardiere (2007)).

³See Lardiere's (2007) feature assembly hypothesis, which suggests that language-specific morphological differences result in a true learning problem for adult L2 learners who must relearn how to organize L2 features into new (or distinctive) formal configurations or remap L1 features into new language-specific functional morpho-phonological forms.

⁴The term *usage/experience-based* herein refers to all theories (and granted there are many and they are varied in approach) that envisage the process of second language acquisition in adulthood as a problem-based task that the adult learner approaches equipped only with the same domain general problem-solving skills used to accomplish any learning task.

have no recourse to acquire properties that are unavailable from the target input and L1 transfer. Comparing and contrasting UG-based and usage/experience-based approaches to adult SLA, we examine the acquisition of [\pm perfective] aspect as seen in the preterit/imperfect morphological contrast of English learners of L2 Portuguese. In doing so, we seek to address the following research questions:

- (1) Can usage/experience-based approaches to adult SLA account for the gamut of available data including the present data on the adult acquisition of [\pm perfective] morphological aspect?
- (2) What are the broader implications of the answer to (1)?

Many studies on the adult L2 acquisition of [\pm perfective] morphological aspect have been realized for a range of L2 target languages, and from several different paradigmatic approaches to SLA such as cognitive-perceptual, generative, lexical/semantic, and narrative approaches, among others (e.g., Andersen (1986; 1991; 1994), Andersen and Shirai (1994; 1996), Bardovi-Harlig (1992; 1995; 2000; 2002), Camps (2000; 2005), Goodin-Mayeda and Rothman (2007), Hasbún (1995), Lafford (1996), Liskin-Gasparro (2000), Montrul and Slabakova (2003), Ramsay (1990), Rothman (2008), Salaberry (1999; 2000; 2002; 2003), Shirai (1999), Shirai and Andersen (1995), Shirai and Kurono (1998), Slabakova and Montrul (2003)). The vast majority of these studies follow aspect hypotheses that are largely functionalist, in the sense of ‘what forms acquire what functions and when’ on the interlanguage continuum. In what follows,⁵ we discuss these studies comparing them to L2 UG-based studies of similar scope and interest. We present new data in an effort to address the larger matter of comparing the explanatory adequacy of UG-based vs. usage/experience-based approaches to adult SLA as it relates to assessing L2 competence. The data from the current study couple with previous UG-based research in this domain (e.g., Montrul and Slabakova (2003), Slabakova and Montrul (2003)) to show that L2 learners acquire aspectual semantic entailments that cannot be accounted for under a functionalist, usage-based approach to SLA.

This article is structured in the following manner. In section 2, sentential aspect is presented as it pertains to the grammars of English and Portuguese.

⁵We do not intend to suggest that the Lexical Aspect Hypothesis (LAH) per se is a data-then-theory approach as opposed to a theory-then-data approach, as the LAH is a clearly theory-driven approach (and rooted in observations of the primacy of aspect in L1 acquisition and the developmental emergence of L1 morphology across aspectual classes). And so, we are not referring to the LAH itself, but many (crucially not all) of the studies that adopt it as a theoretical framework which are openly functionalist in their basis.

Since the POS argument is (i) crucial to our study and (ii) not without its controversy, section 3 offers a review of related debates, demonstrating how the semantic entailments we use in the empirical experiments qualify as true POS properties. Section 4 critically reviews in a general sense previous studies on the acquisition of [\pm perfective] aspect done under different theoretical approaches. In section 5, the present study's methodology and data are presented. In section 6, the data are discussed as they come to bear on the research questions.

2. ASPECT

As is well known, aspect exists independently of tense; there are languages that are said to be tenseless (e.g., Chinese, which anchors events in time via time adverbials), yet morphologically realize (a)telicity and/or (im)perfectivity. In general terms, the subsuming label *Aspect* refers to the internal temporal structure of an event and can be assessed at the lexical and sentential levels (Comrie (1976), Smith (1991)). Most studies on lexical aspect—the aspectual properties of verbal predicates—take Vendler's (1967) taxonomy as their point of departure, which divides verbs into four class types based on a combination of [\pm telic] and [\pm durative] features inherent to the meaning of the verb: states and activities are atelic and achievements and accomplishments are telic. Subsequent work has demonstrated that the *Aktionsart* value of verbal predicates is not a monolithic, steady notion, which is to say, lexical aspect is determined in part by the aforementioned features inherent to verbal predicates, but it is also conditioned on the arguments selected by the verb. Work by Verkuyl (1972; 1993) has demonstrated that the relationship between the verb and its direct object is deterministic in rendering aspectual class. For example, the verb *to run* can be either an activity, as in *I ran yesterday with Mary*, which is atelic, or an achievement predicate when it has a goal PP or a quantified DP, as in *I ran for five hours, I ran five laps*.

Sentential aspect relates to the concept of (un)boundedness in time of an event (Depraetere (1995)), often labeled perfective (bounded) and imperfective (unbounded) aspect. While sentential aspect is sometimes conflated with the notion of telicity, the two are clearly distinct, which is observable in many languages, such as Slavic languages (e.g., Bulgarian) that differentially mark perfectivity and telicity morphologically (Slabakova (2001)). Of particular interest to syntacticians is not only how sentential aspect serves the interpretative determination of an event, but also how and where it is represented within the clausal projection (e.g., Schmitt (1996), Giorgi and Pianesi (1997)). Although lexical and sentential aspects are distinct, sentential aspect is interdependent with lexical aspect in the sense that there exists a necessary and indivisible interaction between the two for determining the (un)boundedness in time of an

As such, imperfective aspect usually corresponds to a characterizing reading, as in (4).

- (4) Durante aquela temporada, O João falava
 during that time, João speak-3PSG-PAST-PERFECTIVE
 com a sua mulher muito.
 with his wife a.lot.
 ‘During that time, João used to speak with his wife often.’

Since perfectivity is driven by the situational context of an event, not the lexical semantics of the verb, every verb can express [+] or [-] perfective aspect depending on the context. Thus, while we classify verbs as being telic vs. atelic or as states vs. activities, achievements, and accomplishments, viewpoint aspect does not serve to divide verbs into restrictive classes, whereby verb X is always perfective and verb Y is always imperfective.

Unlike Portuguese, the simple morphological past of English can convey both episodic and habitual readings depending on the context, as seen in (5) and (6). Assuming initial L1 transfer, this is a source of possible confusion for the L2 learner of Portuguese since it is the preterit that most closely corresponds to the canonical use of the simple past in English. However, the Portuguese preterit can only support one of the two possible meanings of English’s simple past morphology, namely, an episodic interpretation (cf. Montrul and Slabakova (2003)).

- (5) We **went** to church last Sunday with my family.
 (*Nós fomos [+perf.] á igreja o domingo passado com a minha família.*)
- (6) We **went** to church every week when we were children.
 (*Nós iam [-perf.] á igreja cada semana quando eramos meninos.*)

Conversely, imperfect morphology is the form in Portuguese that supports more than one meaning. The fact that the imperfect allows for an opposition between the ongoing progressive and habitual interpretations confounds the learning task for English learners of L2 Portuguese even further, especially since Portuguese also has an alternative progressive form (*estar* ‘to be’ + gerund) that matches well in structure and meaning with the only past progressive of English. Crucially, the imperfective viewpoint cannot be collapsed to a singular tense in English: in part it is represented by the simple past as in (6), or by adding a modal verb such as *would/used to*, as well as the *to be* + gerund construction for progressive interpretations. Conversely, in Portuguese, the imperfective viewpoint is encapsulated neatly in the Imperfect tense. Figure 1, taken from Slabakova and Montrul (2003, 172), shows schematically the complexity of the form-to-meaning mapping problem for English learners of non-native Spanish, which shows the same pattern as Portuguese.

and imperfect morphology, English verbs are lexically marked as [+perfective].⁶ Therefore, English L2 learners of Portuguese must acquire the morpho-phonological forms of the preterit and imperfect and remap functions from their L1 that are not encapsulated under singular tenses to these morphological forms in order to attain native-like target language competence in this domain. If this can be done, then all related semantic entailments related to the [\pm perfective] distinction should obtain as a result. In section 2.2, we detail one of these entailments.

2.2. An Associated Semantic Entailment

In this section, we discuss the accidental/non-accidental semantically entailed distinction between the preterit and imperfect in adverbially quantified sentences (Lenci and Bertinetto (2000), Menéndez-Benito (2001; 2002)), knowledge of which we test for in the empirical part of this study. We take the position that such knowledge presents a POS learning problem for children and adult learners alike. Following Lenci and Bertinetto (2000) and Menéndez-Benito (2002), we assume that this aspectual semantic entailment distinction falls out from the morphological [\pm perfective] checking in the functional category higher AspP in Portuguese.

As discussed in section 2.1, the transparent readings of the preterit and imperfect are such that the preterit most naturally denotes a single-event reading and the imperfect a generalization or progressive. Bonomi (1997) accounts for the respective correlation between perfective/imperfective and the episodic/characterizing distinction, as seen in (7) and (8), in terms of a formal correlation between aspectual categories and quantificational structures. He argues that perfective aspect correlates to existential quantification over eventualities, while imperfective aspect correlates to contextually restricted universal quantification over eventualities.

(7) *Episodic*

Quando a gente foi á universidade,
 when the people go-3PSG-PAST-PERFECTIVE to the.university,
 a gente estudou na biblioteca.
 the people study-3PSG-PAST-PFV in the.library
 ‘When we went to the university, we studied in the library.’

⁶This claim only applies to eventive type verbs; Giorgi and Pianesi account for states via a generic operator. We should note that there are some important theoretical debates on the nature of aspectual distinctions. The fact that Giorgi and Pianesi’s claim that we adopt applies for eventive-type verbs only, and is thus problematic for states might very well be a major liability of a feature-based analysis in general, so we adopt it herein with this caution in mind. Nevertheless, we assume such an approach in which states are not considered as specified as perfective, noting that this can be reconciled in two ways: either the stative is specified as perfective, which is stipulative, or stative verbs are assumed to project a smaller structure in the sense of Kratzer (2000). We thank Maria Polinsky for her help in this regard.

(8) *Generalization*

Quando a gente ia á universidade,
 when the people go-3PSG-PAST-IMP to the.university,
 a gente estudava na biblioteca
 the people study-3PSG-PAST-IMPERFECTIVE in the.library
 ‘When we used to go to the university, we would study in the library.’

However, Bonomi’s theory faces a problem as it relates to adverbially quantified sentences, as in (9) and (10). According to Bonomi (1997), an overt adverb of quantification with universal force overrides the inherent existential quantification of perfective aspect. While sentences like (9) and (10) are thus correctly predicted to be generalizations, there is a further prediction that there would be no difference in interpretation. However, Lenci and Bertinetto (2000) have demonstrated for Italian, and Menéndez-Benito (2001; 2002) for Spanish that the perfective versus imperfective contrast is not neutralized in adverbially quantified sentences in Romance languages, since these forms are not interchangeable in context with, for example, expectative phrases such as in (9) and (10).

(9) Sempre que nós falamos da morte
 always that we speak-1PPL-PAST-PERFECTIVE about the death
 da Maria, eu comecei a chorar.
 of Mary, pro start-1PSG-PAST-PERFECTIVE to cry.
 ‘Whenever we spoke of Mary’s death, I ended up crying.’

(10) Sempre que nós falavamos da morte
 always that we speak-1PPL-PAST-IMPERFECTIVE about the death
 da Maria, eu començava a chorar.
 of Mary, pro start-1PSG-PAST-IMPERFECTIVE to cry.
 ‘Every time we spoke of Mary’s death, I would cry.’

It is maintained that the perfective/imperfective contrast is interpreted in adverbially quantified sentences in terms of an accidental/non-accidental distinction, whereby the truth-value of the preterit is semantically felicitous only in discourse contexts that create a sense of unintentionality. In support of this claim, Menéndez-Benito (2001; 2002) demonstrates that only imperfective sentences support the truth of counterfactuals (see Montrul and Slabakova (2003)), can be used to report laws and regulations, and can be paraphrased with the conditional. Conversely, she claims that only perfective sentences readily coerce individual predicates that express non-accidental generalizations into stage level ones. Additionally, she demonstrates that only perfective sentences with adverbial quantifiers block the kind-denoting reading of the subject DP, which is otherwise available as a choice with definite DPs along with a group-denoting reading.

Portuguese definite DPs can have either a kind-denoting or a group-denoting reading. For example, *Os homens estão loucos* ‘(The) men are crazy’, can

be understood as men are crazy in general (the kind-denoting reading) or a contextually determined group of individual men are crazy (the group-denoting reading). Whereas imperfective adverbially quantified sentences, as in (11), retain both types of subject DP readings, only a group-denoting reading is available for similar perfective sentences.

- (11) Sempre que os romanos precisavam de
 always that the Romans_i need-3PPL-PAST-IMPERFECTIVE of
 mais terra, a conquistavam.
 more land, it *pro*_i conquer-3PPL-PAST-IMPERFECTIVE.
 ‘Whenever the Romans needed more land, they would conquer it.’
- (12) Sempre que os romanos precisaram de mais
 always that the Romans_i need-3PL-PAST-PERFECTIVE of more
 terra, a conquistaram.
 land, it *pro*_i conquer-3PPL-PAST-PERFECTIVE.
 ‘When the Romans would come upon the need of more land, they wound
 up conquering more.’

Sentence (11) can indicate the actions of a contextually determined group of specific Romans or Romans in general, whereas sentences like (12) can only refer to a particular group of Romans. The possible group-denoting interpretation of (11) supports the counterfactual in (13), whereas the available alternative kind-denoting reading supports the counterfactual in (14).

- (13) Se os romanos tivessem
 if the Romans_i have-3PPL-IMPERFECT SUBJUNCTIVE
 precisado de mais terra durante aquele tempo,
 need-PAST.PARTICIPLE more land at that time,
 se teriam apoderado dela.
*pro*_i have-3PPL-CONDITIONAL seize-PAST PARTICIPLE of.it.
 ‘If the Romans had needed more land at that time, they would have
 seized it.’
- (14) Se você fosse romano e
 if you_i be-2PSG-IMPERFECT SUBJUNCTIVE Roman and *pro*_i
 tivesse precisado
 have-2PSG-IMPERFECT SUBJUNCTIVE need-PAST PARTICIPLE
 de mais terra, você a conquistaria.
 of more land, you_i it conquer-2PSG-CONDITIONAL.
 ‘If you were Roman and had needed more land, you would have taken
 some.’

The blocking of the kind-denoting reading in adverbially quantified perfective sentences is accounted for by Menéndez-Benito's generalization, which is to say, it follows from the accidental nature of these types of sentences. That is, 'in all the instances *x* needed more, *x* seized it' can be expected of a regular individual or group of individuals, but is not easily predictable of an entire kind. She suggests that this accidental/non-accidental distinction might be explained if, like NPs, one envisages VPs as being able to denote either kinds of events or specific sets of events. Accordingly, the same VP could either denote a kind or a set, and in Romance languages this distinction is grammatical, mediated by the alternation of [\pm perfective] morphology as it interacts with adverbial quantification.

The claim is that these semantic entailments need not be learned specifically, as it is unclear how such subtleties could be learned anyway, but rather obtain from the checking of [\pm perfective] features of the functional category higher AspP and its interaction with adverbial quantifiers. In the next section, we support this position by reviewing both sides of the POS debate and demonstrating, in light of this debate, how this accidental/non-accidental distinction qualifies as a POS learning problem.

3. POS: DEBATE AND RESOLUTION

The POS argument and its empirical importance is the cornerstone of UG-based theorizing (see Chomsky (1981; 1995; 2007), Wexler (1991; 1999), Lasnik and Uriagereka (2002), Schwartz and Sprouse (2000), Thomas (2002)). The claim is that available linguistic input does not provide all of the positive evidence needed to arrive at the full range of linguistic properties and knowledge children inevitably attain. In light of this logical problem of language learning, it is reasonable to deduce that linguistic knowledge obtained despite an absence of positive evidence from the ambient input must derive from the innate language faculty, and therefore, is part of UG. Nevertheless, POS claims cannot just be stated or assumed; they must be proven theoretically tenable and corroborated empirically. It would be disingenuous to suggest that the POS argument is an uncontroversial notion, which is to say, there is an important body of research that questions the very existence of POS (e.g., Cowie (1999), Pullum and Scholz (2002), Sampson (2002), Scholz and Pullum (2002)). Since the main goal of this article is to demonstrate that true POS effects continue to characterize adult L2 acquisition and that this fact challenges the explanatory adequacy of usage/experience-based approaches to adult SLA, a necessarily related concern of this article is that of defending the notion and functional value of the POS argument. To make the claims we wish to make, we will have to establish that knowledge of the specific semantic entailments we investigate cannot result from general constraints on human mental constitution, but rather new UG-specific knowledge must be accessed before these entailments can reliably obtain in

L2 competence. To do so, this section is dedicated to reviewing both sides of the POS debate and demonstrating how the properties we claim to be POS in our experiments are in fact POS, even under the most restrictive guidelines for inclusion (see Pullum and Scholz (2002)).

As previously mentioned, claims of the existence of POS phenomena are not uncontroversial. Some posit that data-driven learning can account for the ultimate linguistic knowledge a person attains (e.g., O'Grady (1996; 2005), Cowie (1999), Chouinard and Clark (2003), Lappin (2005), Pullum and Scholz (2002), Sampson (2002), Scholz and Pullum (2002)). Upon this view, POS-type evidence simply does not exist, and therefore neither does the need for a domain-specific language faculty. Pullum and Scholz (2002) challenge generative linguists to provide more robust, convincing evidence for POS phenomena. They devise a series of criteria that, in their view, must be met in order for a phenomenon to truly provide empirical support as POS evidence (Pullum and Scholz (2002, 19)):

- (i) Acquirendum characterization: Describe in detail what is alleged to be known;
- (ii) Lacuna specification: Identify a set of sentences such that if the learner had access to them, the claim of data-driven learning would be supported;
- (iii) Indispensability argument: Give reason to think that if learning were data-driven then the acquirendum could not be learned without access to sentences in the lacuna;
- (iv) Inaccessibility argument: Support the claim that tokens of sentences in the lacuna were not available to the learner during the acquisition process;
- (v) Acquisition evidence: Give reason to believe that the acquirendum does in fact become known to learners.

They go on to review the extent to which four canonical contributions to the POS debate meet these criteria, examining one morphological case and three syntactic ones: plurals in noun-noun compounding (Gordon (1986)), auxiliary sequences (Kimball (1973)), anaphoric *one* (Baker (1978)), and auxiliary-initial clauses (first noted in Chomsky (1965)). They ultimately conclude that under more rigorous scrutiny, namely, the guidelines provided above, these cases fail to provide empirical support for the POS argument. The point where many of these studies allegedly fail is their appeals to inaccessibility of the data in question: Pullum and Scholz contend that the necessary data are in fact present in the linguistic environment, and subsequently are available to drive the acquisition process.

Pullum and Scholz's (2002) claims did not come without critique. One recurring criticism, noted by the authors themselves (see Scholz and Pullum (2002)), was that the supposed 'available data' they found as evidence against the inaccessibility argument for the cited POS studies, found in such places as

the literary canon and *The Wall Street Journal*, were not suitable because they did not represent typical sources of input in L1 acquisition (but see Sampson (2002)). Pullum and Scholz also fail to address how speakers can come to have knowledge about ungrammaticality in their language in light of the absence of any consistent negative evidence (but see Chouinard and Clark (2003)). Both Lasnik and Uriagereka (2002) and Legate and Yang (2002) point out that positive evidence alone, in the absence of *a priori* linguistic knowledge, can yield any number of hypotheses about the language in question and therefore is not sufficient to lead the speaker to the conclusion that only one such hypothesis is correct. Conversely, given the existence of an innate grammar, the search space of logical options could be greatly reduced and arriving at the correct linguistic hypothesis/structure (and knowing that it is the only option) would be the only possibility. So, while the extent to which they are able to refute the instances of POS evidence in the cases they cite is debatable, Pullum and Scholz do establish a more systematic way to investigate this phenomenon. The criteria they provide seem to reasonably qualify syntactic and morphological cases as POS phenomenon (or not). However, as we will detail later, they do not serve in the case of semantic entailments, which are what this study investigates.

Although the above-mentioned arguments and rebuttals for/against POS evidence and its implications for linguistic nativism are in reference to L1 acquisition, they apply to adult L2 acquisition as well. That is, adult learners also receive asymmetrical exposure to the language in question—limited positive evidence and little negative evidence of the type needed to converge on native-like intuitions—but can ultimately end up with native-like knowledge of both (un)grammaticality and semantic nuances. Furthermore, there are more confounding variables involved: adults have a fully developed cognitive system, have already acquired a language, and oftentimes receive explicit instruction when learning a second language. Assuming a data-driven approach and positing that domain-general learning strategies are responsible for (adult) language acquisition, having a fully developed cognitive system would likely seem to be a distinct advantage. The first language of the learner can both aid and impede in L2 acquisition, depending on typological similarity of the L1 and L2. Explicit instruction is generally thought to facilitate the acquisition process; however, research has shown that overgeneralizations made in pedagogical grammars (often necessary for efficient classroom instruction) can actually inhibit performance (see Anderson (2007), Rothman (2008)).

Data-driven approaches have an additional burden when explaining the facts of L2 acquisition. By these accounts, L2 learners should have more mastery of what is more frequent in the data, and have less determinate knowledge of that which is less frequent. Some more salient aspects could reasonably include pronunciation, common sentence structure, and morphology. However, as is widely attested to, L2 learners' production of morphology, for example, is highly variable and often falls short of target-like use, even at advanced levels

of proficiency (see Lardiere (2007)) despite the fact that morpho-phonological forms are abundantly available in input. At the same time, L2 learners are able to demonstrate native-like knowledge of properties not salient in (and arguably absent from) the input, such as semantic entailments (see Slabakova (2006) for a review of relevant studies).

For the sake of thoroughness, we evaluate here how the semantic entailments we investigate in this study and claim as POS knowledge stand up to the criteria put forth by Pullum and Scholz (2002):

- (i) *Acquirendum*: Speakers/learners ultimately, albeit unconsciously, know that in adverbially quantified sentences, the use of [+perfective] aspect yields an accidental characterizing interpretation, while conversely [−perfective] aspect yields a non-accidental characterizing or habitual reading. Furthermore, they must also have related knowledge that in these types of sentences, [+perfective] aspect restricts the interpretation of subject DPs to a group-denoting interpretation only.
- (ii) *Lacuna*: Adverbially quantified sentences in both the preterit and imperfect.
- (iii) *Indispensability argument*: Even with access to sentences in the lacuna, which we do not deny (although it should be noted that access to these sentences in any case is rare, but it is even rarer in the input of intermediate L2 learners) deriving the implicit subtle interpretive nuances entails that the context situation be salient to the learner and that not only is the nuance interpreted, but that failure to interpret the event as such is non-target-like. With respect to DP restricted interpretations, they must not only learn from limited input that the preterit confers a group-denoting reading, but that unlike the imperfect that can take both readings, the preterit *cannot* support a kind-denoting reading.
- (iv) *Inaccessibility argument*: Herein lies the complications with Pullum and Scholz's criteria—while the speakers/learners of a language that morphologically denotes perfectivity may have exposure to the syntax of sentences of these types, the subtle nuances entailed in these sentences (i.e., 'accidentalness' and subject-DP restrictions with adverbial quantification) are not salient and interpretative restrictions are not guaranteed from mere exposure.
- (v) *Acquisition evidence*: The data we report here show that intermediate learners show a trend towards the correct interpretations and that advanced learners' performance is native-like in this regard.

While the semantic entailments examined in this study do not conform to the norms set forth by Pullum and Scholz, they offer even better evidence for linguistic nativism. As Anderson (2007, 182) states, for the learner to gain such knowledge from the discourse, the input would have to do the following:

(i) represent all possible contexts for use (unlikely at the intermediate level); (ii) provide evidence such that learners notice that a certain construction is possible in one context but not another; and (iii) be devoid of any interference or noise. We can refute point (iii) directly since explicit instruction with the imperfect/preterit contrast is a source of noise that further confounds the task of the L2 learner. Not only are the specific semantic properties we test for not taught in any textbook (that the authors are aware of), learners are explicitly taught that adverbs of universal force (e.g., *diariamente* ‘daily,’ *sempre* ‘always’) are to be used with the imperfect exclusively. Such explicit knowledge should favor their rejecting all sentences with the preterit and adverbial quantification (with universal force) irrespective of the context, but this, the data will show, is not the case, even at the intermediate level, where these sentences are permitted depending on the context type. This acquisition task is further complicated by the fact that not deriving (or intending) the relevant subtlety in meaning would not impede discourse exchanges in that it would not be immediately clear that there is a semantic anomaly (to either interlocutor). In other words, it would hardly be consequential if an L2 learner did not understand or even intend to express in speech that ‘*sempre que fui à biblioteca, Maria esteve*’⁷ must have a sense of unintentionality for natives, meaning ‘every time I happened to go the library, Maria happened to be there.’ This is true since the truth-value of the event is supported whether or not the obligatory accidental sense is intuited or intended.

With respect to Anderson’s other two points, let’s take the case of restrictions on subject DPs (reviewed in section 2.2), for example: sentence (12), repeated here as (16), would be acceptable in a context referring to a specific group of Romans; however, it is not the only option in this case—sentence (11), repeated here as (15), is also felicitous.

⁷A reviewer pointed out the possibility that L2 knowledge of the subtle semantics of sentences of this source sort could simply, perhaps more accurately, be derived from simple positive transfer from English since iterativity is expressed in English with the simple past. We will remain neutral with respect to whether or not the concept of iterativity is transferred from English or not, although we suspect it is not in light of evidence offered by Slabakova and Montrul (2002; 2007). But assuming hypothetically that it were, we still do not believe such transfer could result in the subtle semantic nuances at play here for several reasons. First, the distinction implicit to preterit and imperfect minimal pair sentences of this sort is not simply one of iterativity, but one of intentionality. We note that an English translation of these sentences using the simple past would only capture an iterative interpretation, but it would not capture the accidental nature that is understood in Romance-type languages, which—given the design of the experiments—was the controlled variable. In English, one must use a periphrastic construction consisting of a subset of phrasal verbs and the main verb such as *end up + verb*, *wind up + verb*, *happen + verb* to capture this subtle semantic nuance. Moreover, if transfer were at the core of explaining why advanced L2 learners correctly interpret/produce the preterit in these types of contexts, then we could expect the preterit to be chosen/used more in [– accidental] contexts where the simple past would also be used in English. As the experimental data show, however, this is not the case.

- (15) Sempre que os romanos precisavam de
 always that the Romans_i need-3PPL-PAST-IMPERFECTIVE of
 mais terra, a conquistavam.
 more land, it *pro*_i conquer-3PPL-PAST-IMPERFECTIVE.
 ‘Whenever the Romans needed more land, they would conquer it.’
- (16) Sempre que os romanos precisaram de mais
 always that the Romans_i need-3PL-PAST-PERFECTIVE of more
 terra, a conquistaram.
 land, it *pro*_i conquer-3PPL-PAST-PERFECTIVE.
 ‘When the Romans would come upon the need of more land, they wound
 up conquering more.’

For a learner to speculate that [+perfective] sentences such as (16) are only permissible in group-denoting contexts, the learner would have to receive unambiguous input in which sentences such as (16) are used only in this context (which is to be expected) and those such as (15) only in a kind-denoting context (and crucially, the learner would have to be aware of the context). However, sentences of the type (15) can support both a group- and a kind-denoting reading, and so the input does not supply binary evidence that one form exclusively correlates to kind-denoting readings and the other to group-denoting ones. Moreover, the fact that input does not provide examples of the preterit in kind-denoting/adverbial quantified contexts does not ensure that the learner will preclude them as a viable option. That is to say, based solely on the input, there is no reason to conclude that a kind-denoting interpretation with adverbially quantified sentences in the preterit is impossible.

Oftentimes when discussing POS phenomenon, the question arises whether the input is truly impoverished or whether it actually affords sufficient evidence for learners to form linguistic hypotheses. Here, we see that in the case of semantic entailments, even access to lacuna sentences does not give language learners unambiguous evidence on related interpretation restrictions; there is *no* guaranteed accessibility to the semantic properties in the input.⁸ When learners show knowledge in spite of an absence of complete/unambiguous evidence in the input, a theory that posits biologically endowed linguistic properties remains the only tenable option. Therefore, demonstrating this in post-puberty, second-language learners not only strengthens the argument for the existence of UG, but also for continued access to it after the so-called critical period, in line with full access approaches (Duffield and White (1999), Schwartz and Sprouse (1996), White (1989)).

⁸Acquiring these particular semantic subtleties in light of limited input, as is the case with the intermediate learners, could be evidence of overcoming a true bankruptcy of the stimulus, in the sense of Sprouse (2004).

4. PREVIOUS RESEARCH ON L2 ACQUISITION OF [±PERFECTIVE] ASPECT

All acquisition measures, whether they employ spontaneous speech/written data or controlled psycholinguistic experiments, are of a performance type. However, the ultimate goal of L2 assessment is to tap underlying knowledge (competence). As it relates to linguistic properties that are examined via morphological use, the aforementioned is of no small consequence (see, e.g., Lardiere (2007), Rothman (2007)). In the present case, limiting analyses to the use of preterit and imperfect morphemes in L2 production (whether written or oral) only really gives us insight into L2 learners' use of (in)appropriate morpho-phonological forms in any given particular moment. While interesting in its own right to study, the aforementioned may not accurately depict underlying morphosyntactic competence related to morphology. Knowing the [±perfective] distinction in Portuguese entails three types of reflexes: morphological, syntactic, and semantic (Slabakova and Montrul (2003)). In native systems, all three types of reflexes observably correlate; however, it is not clear that all must correlate in adult L2 acquisition to show that the distinction, at the level of abstract syntactic and semantic knowledge, has been acquired. The morphological reflexes of the [±perfective] distinction in Portuguese should entail target use of preterit and imperfect morphology. Notwithstanding, there are several issues related to the *use* of morphology for adult learners that might contribute to variability while underlying competence is target-like. For example, Goad and White (2006) have shown that the transfer of L1 prosodic systems can impede the productive use of morphology, in the sense of Portuguese speakers not always producing the past allomorph [t] as in walked [wakt] in L2 English simply because Portuguese does not allow for complex codas (CCVVC is the maximum syllable structure of Portuguese).⁹ Such an approach would explain why Portuguese speakers are like Chinese L2 English speakers in this respect, even though Portuguese has a [+past] feature available for transfer unlike Chinese. Lardiere (2007) has also shown that morphological competence in an L2 is much more complex than might be assumed. The task involves the acquisition of new morpho-phonological forms on the one hand, and the mapping of new L2 features onto these forms. Perhaps most difficult is the re-mapping of existing L1 information (features) onto new target morphological forms. As schematized in Figure 1, section 2.1, this (re)mapping of L1 information onto preterit and imperfect morphology in L2 Portuguese is quite complex when English is the L1.

⁹This is Bisol's (1989) contention, which is not uncontroversial (see, e.g., Santos (1998)). In any case, if there are some complex codas permitted in BP, they always consist of a C/s/ sequence (/rs/ /ls/ /ns/) and occur with a non-branching nucleus, often pretonically (Mateus (1993)). By all accounts, BP does not permit the type of complex coda needed to form the past tense in the English example given.

As if these issues were not enough, one cannot disregard the power of pedagogical intervention when one examines the L2 use of morphology. Pedagogical rules of preterit vs. imperfect morphological distribution do not always concord with the linguistic notion of perfectivity, and thus are ultimately not always accurate. Let us consider the following Portuguese sentence: *Eu sempre soube que o João faria isso* 'I always knew-PRET that John would do that.' In context, this is a perfectly grammatical and appropriate Portuguese sentence. However, pedagogical conventions/rules for English speakers of L2 Portuguese would not permit the production of this sentence, on two different grounds. First, the adverb *sempre* 'always' has universal force, and is thus taught as a default indicator of the imperfect (as discussed, this fact has important implications for the specific semantic entailments we look at). Moreover, students are taught that the verb *saber* 'to know' has one meaning in the imperfect, 'to know' and that it has another distinct meaning, 'to find out,' in the preterit. However, this is an oversimplification, which is captured perfectly well by the linguistic notion of [\pm perfective] aspectual viewpoint. The verb *saber* 'to know,' which is stative in the imperfect (and thus atelic), becomes an achievement (and thus is telic) in the preterit (in the same sense that 'to walk,' an activity, can become an achievement depending on possible complements). And so, *saber* in preterit and imperfect forms always means 'to know,' except that the preterit is inchoative in nature and marks the beginning point of 'knowing' (i.e., from that point on), which happens to correlate to the English phrasal verb 'to find out' with greater frequency, but not exclusively so as in the sentence above.¹⁰ Comparing advanced classroom learners vs. proficiency-matched naturalistic learners, Rothman (2008) has demonstrated that pedagogical explanations of the preterit and the imperfect of these two types in L2 Spanish have lasting effects on L2 production (absent from naturalistic learners), but have negligible effects on interpretation and semantic judgments, suggesting that what is produced is not always indicative of what one knows.

Even if some L2 learners were to show in a given production measurement that they reliably use L2 aspectual morpho-phonological forms, it could not be assumed that such performances would provide unassailable evidence of target competence in this domain either. The important point to be understood is that morphological use alone, whether seemingly target-like or non-target-like, cannot even circuitously indicate that L2 learners have or have not acquired the syntactic and semantic reflexes of the morphology, which one would need

¹⁰Slabakova and Montrul (2002; 2007) argue that adverbials represent a case of pragmatic coercion and thus the effect of adverbials is not regarded as part of grammatical knowledge. Given their results, which demonstrate that L2 learners fail to transfer the concept of iterativity from their native language, there are important theoretical questions that emerge. For instance, should we include adjuncts in our computation of the lexical aspectual meaning of verbs? We remain neutral on this point acknowledging the implications, which remain outside the scope of the argumentation of the present article.

to demonstrate to support claims of either kind. In light of the possibility that morphological production may not accurately indicate underlying competence, generative studies maintain that knowledge of associated semantic entailments, whose surfacing is conditioned upon target acquisition of the [\pm perfective] distinction, provides a clearer view of L2 morphosyntactic competence than the descriptive analysis of morphological use alone (Goodin-Mayeda and Rothman (2007), Montrul and Slabakova (2003), and Slabakova and Montrul (2003)). With this in mind, the following section reviews previous studies on the L2 acquisition of sentential aspect.

4.1. A Review of Studies

Research on the adult L2 acquisition of the [\pm perfective] aspect distinction has received much attention in the SLA literature (e.g., Andersen (1986; 1991; 1994), Andersen and Shirai (1994; 1996), Bardovi-Harlig (1995; 2000; 2002), Bardovi-Harlig and Bergström (1996), Bardovi-Harlig and Reynolds (1995), Camps (2000; 2005) Goodin-Mayeda and Rothman (2007), Hasbún (1995), Lafford (1996), Liskin-Gasparro (2000), Montrul and Slabakova (2003), Salaberry (1998; 1999; 2000; 2002; 2003), Shirai and Andersen (1995), Slabakova and Montrul (2003), Ramsay (1990)). A good portion of this work examines the acquisition of Romance languages, most notably Spanish, by English-speaking L2 learners. Although Spanish and Portuguese differ in some verbal paradigms—most saliently the present perfect, which cannot take an episodic reading in Portuguese—the syntax and discourse use of the preterit and the imperfect are essentially parallel, rendering previous data on L2 Spanish comparable to the less studied case of L2 Portuguese. The above studies have investigated the acquisition of the preterit and imperfect from several different theoretical perspectives (e.g., generative approach, lexical-semantic approach, content-based perspectives approaches). Notwithstanding, the majority of available studies employ aspect hypotheses.

The LAH (see Bardovi-Harlig (2000) and Salaberry (2000) for discussion of relevant literature), initially proposed by Andersen (1986; 1991), is a hypothesis of so-called aspectual primacy in L2 acquisition—a correlate theory to L1 aspect-first models—whereby verbal morphology (the preterit and imperfect) is purported to initially mark inherent (lexical) aspect distinctions only. Andersen proposed eight stages for the emergence of preterit and imperfect morphology usage associated with the *Aktionsart* value of the lexical verb such that the preterit or imperfect morphology emerges predictably and gradually, used exclusively with particular verbal classes initially (e.g., the preterit emerges first with punctual verbs and last with statives). Studies that use/test the LAH have observed the so-called acquisition of aspect via preterit and imperfect morphological production with different verb classes (stative vs. eventive) in particular discourse contexts throughout interlanguage (IL) development. These studies have examined the use of aspectual morphology in different linguistic

mediums. For example, Camps (2005), Hasbún (1995), Liskin-Gasparro (2000) and Salaberry (2003) examine morphological use in written language while others like Ramsay (1990), Lafford (1996), and Salaberry (1999) use guided narrative speech productions. The whole of these studies has provided discrepant results as to the accuracy of the LAH. The more contemporary studies have provided evidence suggesting that the role of lexical aspectual categories is conceivably narrower than the LAH claims. As Salaberry (2000) has pointed out, this fact may very well be more indicative of the varied methodologies of the relevant studies than the actual tenability of the hypothesis itself. However, it is also possible that the pattern of L2 morphological use is more a reflection of the manner in which the paradigms are taught to L2 learners (Goodin-Mayeda and Rothman (2007)).

Other significant approaches have examined the possibility that narrative structure (see Bardovi-Harlig (2000; 2005)) as well as distributional bias effects on aspectual marking imposed by different discursive contexts (e.g., Andersen (1994), Andersen and Shirai (1994; 1996)) come to bear on L2 acquisition. As with most non-UG-based approaches to aspect acquisition in SLA, they each assume—explicitly or implicitly¹¹—some type of functionalist approach in the sense that morphological production alone is sufficient to examine linguistic competence, whereby the semantic value L2 learners assign to preterit and imperfect morphemes is inferred based on performance. As previously discussed, this assumption is problematic insofar as generative research has highlighted the fact that L2 learners tend to use morpho-phonological forms variably, despite an underlying morphosyntactic competence that is otherwise demonstrably native-like (e.g., Lardiere (1998; 2007), Prévost and White (2000)). If syntax-before-morphology models are tenable, which is not uncontroversial (see Hawkins (2005)), the validity of studies that steadfastly and exclusively correlate the acquisition of aspect to production of overt morphology is uncertain. While usage/experience-based approaches to aspect acquisition in the adult learner tell

¹¹ Although, in our view, it seems to follow from a functionalist view that production is considered to be a ‘sufficient’ means to gauge knowledge in the sense that it provides a window through which an underlying system can be tapped, this is not overtly stated in most of these studies. Nevertheless, many (not all) of these studies focus on the use of morphology in an array of experimental modalities (cloze tests, elicited and spontaneous oral production, elicited narratives, etc.), but do not couple this procedure with an examination of related subtle semantic entailments that fall out from the acquisition of the syntactic structure that the morphology represents. This seems to suggest one of three possibilities: (a) they are unaware of such semantic subtleties that must correlate with the target mental representation of the morphology, (b) they believe their measure to be sufficient to make the claims about competence they make, or (c) a combination of (a) and (b). We acknowledge that our semantic tests also tap a type of performance as well (since there is no direct way to tap competence), but we are tapping a different type of performance that we believe to more directly indicate underlying competence. Despite any shortcomings of functionalist methodologies, their usefulness is not in question. Insofar as they highlight native vs. L2 contrasts in how semantic distinctions are put to use, such studies draw attention to the need of, at a minimum, accounts that explain processing constraints that would affect L2 learners and not natives.

us a great deal about the production of relevant inflectional morphology throughout interlanguage development, they are unable to tell us very much about the interpretive capacity in the same domain for the same learners. More specifically, in claiming that aspectual assignment is determined lexically (at least initially), they are, for example, unable to account for correct L2 interpretation of stative verbs in the preterit. The prediction is that beginning learners would also not be able to interpret such uses based on the fact that they do not produce them. This, however, has not been empirically proven. Moreover, usage/experience-based approaches are not able to address L2 knowledge of POS semantic entailments associated with the acquisition of sentential aspect.

Conversely, assuming a generative approach to investigating the same topic, Goodin-Mayeda and Rothman (2007), Montrul and Slabakova (2003), Rothman (2008), and Slabakova and Montrul (2003) have looked at the L2 acquisition of preterit and imperfect in L2 Romance as it relates to the feature-checking of associated functional categories and their semantic entailments. Looking at initial and intermediate stages of interlanguage development and beyond, this work has demonstrated that L2 learners are able to acquire the [\pm perfective] distinction in a native-like manner. Via knowledge of POS semantic reflexes, which they claim English learners of L2 Spanish must access via the acquisition of [\pm perfective] feature-checking in higher AspP, they account for the full range of L2 interpretations in this domain.

Despite possible L1/L2 differences in use of morpho-phonological forms in performance, if L2 learners have sensitivity to semantic entailments like the accidental/non-accidental dichotomy between perfective and imperfective sentences discussed in sections 2.2 and 3, this would provide evidence in support of native-like L2 underlying morphosyntactic competence. Thus, we argue that UG-based studies of L2 aspect, which seek to demonstrate knowledge beyond the patterns of morphological use, are in a better position to address and account for the full range of L2 knowledge in this domain.

5. CURRENT STUDY

The present study couples the results of two sentence-conjunction judgment tests and a sentence-context matching test, all of which test for L2 knowledge of the accidental/non-accidental semantic entailment properties discussed in section 2.2. In line with previous research that explores semantic entailments in L2 acquisition (e.g., Dekydtspotter et al. (1997), Dekydtspotter and Sprouse (2001), Slabakova and Montrul (2003), Slabakova (2006)), it is assumed that convergence or lack thereof on this target semantic knowledge provides an indirect, yet practical, means to gauge underlying morphosyntactic knowledge in this domain. We report data from two groups of native English learners of Portuguese: (i) an intermediate group ($n = 14$) and (ii) an advanced group ($n = 17$). Additionally, we report data from a native control of Brazilian Portuguese speakers ($n = 19$).

5.1. Participants

All of the intermediate learners as well as 14 of the 17 advanced L2 learners in this study were American university students (undergraduate and graduate) enrolled in a summer language program in Salvador, Brazil, at the time of data collection. The other three advanced L2 learners were naturalistic (that is, untutored) learners who had acquired Portuguese by living in Brazil. In the case of the participants enrolled in the summer language program, they were divided into intermediate and advanced levels based on a battery of language proficiency tests administered to the students upon their arrival in Brazil. The language proficiency assessment included a cloze test examining various grammatical structures (a maximum score of 25), a vocabulary assessment task (a maximum score of 15), an elicited contextual writing task (a maximum score of 10), and an oral interview (a maximum score of 10) conducted by native Brazilian Portuguese language instructors for a total maximum score of 60. A score ranging from 45–60 was considered advanced (range 46–57, mean = 49.6) while a score ranging from 30–45 was considered intermediate (range 32–43, mean = 36.6). Each of these participants had previously studied Portuguese, prior to their 6-week course in Brazil, at their home university. All advanced learners had at least 2 years of college-level instruction in Portuguese (range 2–4 years, mean 2.53 years). The intermediate learners had at least 1 full year of college-level instruction (range 1–4 years, mean = 1.86). The data were collected after the fourth week of residency in Brazil. The proficiency of the naturalistic learners was assessed by topical oral interview only, conducted by a native speaker and then rated by three native speaker judges (scores were averaged) on a scale of 1–10 for three areas (total score possible being 30) for grammatical accuracy, perceived pronunciation, and overall fluency (the composite scores were 23, 24, 27).¹² Several of the participants, $n = 6$ (four were advanced speakers and two were intermediate) reported having studied another Romance language (five for Spanish, one for French); however, no native bilingual speakers of other Romance languages were included in the reported data. The native Brazilian control group consisted of age-matched native speakers of Brazilian Portuguese from the Brazilian state of Bahia.

¹²These three learners did not skew the picture of the advanced aggregate data report, which we confirmed by running the same statistical measures on a subset group of the other 14 for which no change was noted. We do not separate out the data of naturalistic learners to report them as a separate group since a group of three would not be amenable to meaningful statistical comparison with the other groups. Nevertheless, since they pattern like the other advanced learners at the individual level and because we believe their presence is significant, adding credence to the notion that the crucial semantic subtleties under investigation cannot be reduced to linear learning nor explicit instruction, we leave them in the larger advanced group, acknowledging the possible perceived confound.

5.2. Test 1: Sentence-Conjunction Judgment Test

The first test was a sentence-conjunction judgment test (Montrul and Slabakova (2003)), which asked the participants to rate the appropriateness of a given sentence as it related to the context with which it was provided. The scale ranged from -2 to 2 . They were instructed that -2 represented absolute knowledge that a sentence is semantically odd, -1 represented less absoluteness, but the fact that they were pretty sure, 0 represented that they did not know, 1 represented they were almost positive that the sentence was semantically felicitous, and 2 was used to indicate absolute knowledge. There were three types of sentences, which tested for participants' knowledge of the accidental/non-accidental distinction that underlies the difference between preterit and imperfect adverbially quantified sentences, as in (17) below;

- (17) a. O professor Oliveira era o melhor na universidade. Todos os estudantes queriam estar nos cursos dele. Por isso, era muito difícil poder se matricular nas aulas dele. Felizmente, durante meus anos universitários eu cursei três classes dele.
 'Professor Oliveira was the best at the university. All the students wanted to be in his classes. Because of this, it was very difficult to enroll in them. Happily, during my years at the university I was able to take three of his classes.'

Sempre que ia a classe do Prof. Oliveira, eu aprendia muito.
 'Every time I took-IMP a class from Professor Oliveira, I learned-IMP a lot.'

-2 -1 0 1 2

- b. Eu gosto muito de ver filmes com os meus amigos. No mês passado eu não tinha que trabalhar. Queria fazer muitas coisas durante essa temporada livre. Mais do que nada queria ver muitos filmes com os meus amigos. Eu suponho ter má sorte, pois, eu não vi nenhum filme durante todo aquele tempo.
 'I really like to go to the movies with my friends. During the past month I didn't have to work. I wanted to do a lot of things during this free time. More than anything I wanted to see movies with my friends. I suppose I have bad luck, since I didn't see even one movie during that time.'

Meus amigos e eu planejamos muitas vezes ir ao cinema mais sempre que chegou o momento de ir ao cinema os amigos disseram não poder.

‘My friends and I planned-PRET many times to go to the movies but every time the moment arrived-PRET, my friends ended up saying-PRET they couldn’t go.’

–2 –1 0 1 2

- c. Quando eu era menino eu morava em Salvador na Bahia. Lá, eu tinha muitos amigos e juntos íamos a praia com frequência. Quando tinha 13 anos a minha família decidiu ir ao Canadá, onde o meu pai conseguiu um bom trabalho. Antes de ir a universidade, eu retornava todos os verões a Salvador para passar tempo com os amigos. Como sempre, nós passávamos muito tempo na praia, pois, todos nós gostávamos de nadar.

‘When I was a child I lived in Salvador, in Bahia. There I had many friends and together we often went to the beach. When I was 13 my family decided to go to Canada, where my father found a good job. Before attending university, I went to Salvador every summer to spend time with my friends. Like always, we spent a lot of time at the beach, since we all liked to swim.’

Durante a adolescência, sempre que fui a Salvador durante o verão, eu e os meus amigos fomos a praia.

‘During my adolescence, every time I went-PRET to Salvador during the summer, my friends and I ended up going-PRET to the beach.’

–2 –1 0 1 2

Contexts like (17a) present a general context of repetition in the past. As a result the generality is a non-accidental one, and as such the use of the imperfect is not only semantically felicitous, but the only option. Native/native-like responses for these sentence types should favor acceptance of these sentences. Contexts like (17b) are also generalities, but ones that occur as a result of unforeseen or unexpected events. As a result, they are accidental generalities. As such, the preterit is the only choice and, therefore, native/native-like answers should favor acceptance of these sentences as well. Contexts like (17c) are similar to contexts like (17a) in that they both present contexts of non-accidental generalities. However, the accompanying sentence in (17c) is in the preterit, which is semantically anomalous. Therefore, the judgments should favor its rejection. There were eight examples of each sentence type. In addition to judgments, we asked the participants to correct the sentences they deemed semantically odd so that they would fit the context better.

5.3. Test 2: Context-Sentence Match Test

This test consisted of 20 context-sentence matches of four different types ($n = 5$ each), as in (18). The four contexts consisted of: non-accidental generaliza-

tions (a), episodic events (b), accidental generalizations with adverbial quantifiers of universal force (c), and non-accidental generalizations with adverbial quantifiers of universal force (d). Learners were given a context followed by two similar sentences, one using the imperfect and one using the preterit. The learners were to choose which sentence was a better option based on the context.

- (18) a. A adolescência é uma etapa difícil. Para mim, foi especialmente dos 13 aos 15 anos. Uma coisa boa da minha adolescência era poder contar com a família. Pra mim, o meu irmão era a pessoa que mais me ajudava.

‘Adolescence is a difficult time. For me, it was especially difficult from when I was 13 to 15 years old. One good thing about my adolescence was that I could count on my family. For me, my brother was the person who helped me the most.’

1. Eu falava muito com meu irmão, o qual sabia a resposta para todas as minhas dúvidas.

‘I talked-IMP a lot with my brother, who knew the answer to all my problems.’

2. Eu falei muito com meu irmão quem soube a resposta para todas as minhas dúvidas.

‘I talked-PRET a lot with my brother, who knew the answer to all my problems.’

- b. Eu e o meu irmão sempre fazíamos tudo juntos. Nós crescemos juntos e sempre nos apoiamos. Frequentemente, jogávamos futebol e assistíamos televisão. Na verdade, foram grandes momentos. Como agora estou morando fora do país, sinto muito a falta dele e por isto, tento vê-lo pelo menos uma vez ao ano. Por este motivo, no ano passado ele estava planejando vir me visitar. Naturalmente, . . .

‘My brother and I always did everything together. We grew up together and always supported each other. Often, we played soccer and watched television. Truthfully, those were great moments. Now that I am living out of the country, I miss my brother a lot and because of this, I try to see him at least once a year. Last year he was planning to visit me. Naturally . . .’

1. quando o meu irmão chegava, eu dava um grande abraço nele.

‘when my brother arrived-IMP, I gave-IMP him a big hug.’

- 2. quando o meu irmão chegou, eu dei um grande abraço nele.**

‘when my brother arrived-PRET, I gave-PRET him a big hug.’

- c. Tem uma garota na minha classe que conversa muito. O nome dela é Jimena. O problema com ela é que, como fala tanto, ela nunca me deixa prestar atenção. Então, trato de ir á biblioteca em horários não

muito comuns para não encontrar ela. Mesmo assim, às vezes nao dou sorte e na semana passada ...

‘There’s a girl in my class who talks a lot. Her name is Jimena. The problem with her is, as she talks so much, she never lets me pay attention. Therefore, I try to go to the library at strange times so I don’t see her. Even so, sometimes I don’t have luck and last week ...’

1. sempre que eu ia á biblioteca, eu encontrava com ela.
‘every time I went-IMP to the library, I saw-IMP her.’
- 2. sempre que eu fui á biblioteca, eu encontrei com ela.**
‘every time I went-PRET to the library, I ended up seeing-PRET her.’

- d. Lorenzo ama produtos lácteos. De fato, ele os cosome todos os dias. Ele gosta desde o queijo *camembert* até o iogurte sem sabor. No ano passado ele ficou na minha casa para uma visita e ...
- ‘Lorenzo loves dairy products. In fact, he has them every day. He likes everything from camembert cheese to unflavored yogurt. Last year he stayed in my house while visiting and ...’

- 1. sempre que eu servia pão, ele pedia queijo.**
‘every time I served-IMP bread, he asked for-IMP cheese.’
2. sempre que eu servi pão, ele pediu queijo
‘every time I served-PRET bread, he asked-PRET for cheese.’

Contexts (a) and (b) represent the most basic, salient difference between perfective and imperfective, that being episodic versus characterizing interpretations. As such, native/native-like sentence matches should favor the imperfect in contexts like (a) and the preterit in (b). Contexts like (c) and (d) embody the same accidental/non-accidental semantic entailment tested for in Test 1.¹³ As such, (c), which presents an accidental context, should favor a preterit response. Conversely, contexts like (d) should favor an imperfect sentence match. The favored sentences are shown in bold in the examples above.

¹³A reviewer noted that s/he was not entirely convinced that sentences of the type (c1) are, necessarily, to be rejected with accidental generalizations with adverbials of universal force. That is, the fact that (c2) becomes possible in this context might not preclude (c1) as opposed to the case of (d) where only the imperfect is possible. In truth, we had some reservations as well, despite the fact that this is exactly what Menéndez-Benito (2001, 2002) claims and correlates, more or less, to the native speaker judgments we obtained (see Table 5 which shows that the native speaker range was 3–5, meaning that some natives allow the imperfect in (c) contexts 2 out of 5 times ($n = 2$) and still others 1 out of 5 times ($n = 6$)). It is for this reason that we use language like “should favor” as opposed to “permit” and “prohibit.”

5.4. Test 3: Sentence-Conjunction Judgment Test for Subject DP Interpretations

Using the same scale from Test 1, this sentence-conjunction judgment test examined L2 knowledge of restrictions on available subject DP readings in perfective/imperfective sentences with adverbial quantification. As we discussed previously, in these contexts adverbially quantified perfective sentences lose the otherwise available kind-denoting reading of the subject DP, retaining only the group-denoting reading (Menéndez-Benito (2001; 2002)). In other words, these perfective sentences are simply incompatible with contexts that denote a kind-denoting reading. On the other hand, similar imperfect sentences retain the possibility of both the group-denoting and kind-reading. This test contained 20 contexts, as in (19), subdivided into four types ($n = 5$ each): contexts presenting a kind-denoting reading with the preterit (a), contexts presenting a group-denoting reading with the preterit (b), contexts presenting a kind reading with the imperfect (c), and contexts presenting a group-denoting reading with the imperfect (d).

- (19) a. Nunca acreditei que todas as mulheres brasileiras fossem loucas. Meu pai sempre me contava os casos sobre as namoradas que tinha quando ele era jovem. Mais eu nunca acreditava. Agora que tenho 30 anos e todos me contam exatamente os mesmos casos, eu sei que a mulher brasileira é louca mesmo.

‘I never believed that all Brazilian women were crazy. My father always told me about the girlfriends he had when he was young. But I still never believed him. Now I’m 30 and everyone tells me the exact same stories, I know that the Brazilian woman is crazy.’

Por exemplo, sempre que as brasileiras pensaram que o namorado as enganavam, os perseguiram.

‘For example, every time Brazilian women thought-PRET that their boyfriend was cheating-IMP on them, they followed-PRET him.’

–2 –1 0 1 2

- b. Soldados são pessoas que geralmente merecem respeito. Entretanto, alguns não valem nada. Por exemplo, quando eu era menina, havia um grupo de cinco soldados que moravam na minha cidade que eram terríveis, ou seja, pessoas muito má. Todos nós evitávamos encontrá-los.

‘Soldiers are people that generally deserve respect. However, some aren’t worth anything. For example, when I was a girl, there was a group of five soldiers that lived in my city who were horrible, that is, very bad people. We all avoided them.’

Sempre que os soldados toparam com a gente, nos roubaram.
 ‘Whenever the soldiers ran into-PRET us, they ended up robbing us-PRET.’

–2 –1 0 1 2

- c. Os homens brasileiros são fortes, entretanto, podem ser muito mimados por suas mães. A situação é muito melhor hoje em dia, pois, durante os tempos dos meus pais, o homem brasileiro só saía da casa para casar ou para morrer. As mães continuavam fazendo tudo para eles. Agora, bendito seja Deus, as coisas não são mais assim.
 ‘Brazilian men are strong; however, they can be very spoiled by their mothers. The situation is better today, but during my father’s time, the Brazilian man only left the house to marry or die. The mothers would continue doing everything for them. Now, thank God, things aren’t like that anymore.’

Por exemplo, sempre que os homens brasileiros não casados moravam com as suas mães, elas preparavam todas as comidas para eles.
 ‘For example, whenever unmarried Brazilian men lived-IMP with their mothers, the mothers cooked-IMP all the meals for them.’

–2 –1 0 1 2

- d. Comparados com meninas, os meninos em geral são mais destrutivos. Mas os meninos da minha irmã eram as piores das crianças. Eles arruinavam tudo o que tocavam, era incrível. Não existia coisa que eles não tivessem destruído. Por isso, não queria que viessem a minha casa, mas era inevitável porque são meus sobrinhos. Por isso, quando iam vir, eu passava horas e horas escondendo as coisas frágeis.
 ‘Compared with girls, boys are generally more destructive. But my sister’s boys are the worst of children. They ruined everything they touched, it was incredible. There was nothing they hadn’t destroyed. Due to this, I didn’t want them to come to my house, but it was inevitable because they were my nephews. Therefore, whenever they would come, I would spend hours hiding the fragile things.’

Ainda assim, sempre que os meninos encontravam as coisas escondidas, as quebravam por usá-las sem motivo.
 ‘Even so, every time the kids found-IMP the hidden things, they broke-IMP them by using them carelessly.’

–2 –1 0 1 2

The only context type for which the sentence presented after it is semantically anomalous is (a) since a kind-denoting reading is blocked in such a context.

6. RESULTS

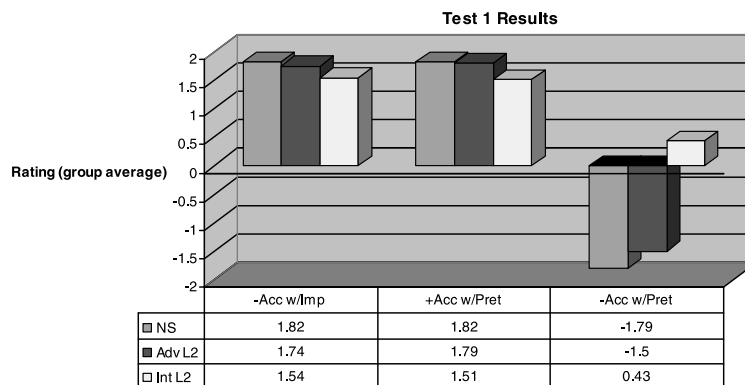
This section is divided into five parts, with the first three parts corresponding to each of the three tests; the fourth takes a closer look at individual results of the two non-native groups; and the last is a discussion of the significance of the aggregate data. The first three parts are each divided into two subsections: (i) a descriptive analysis of the results and (ii) a statistical analysis of the results. The relevant comparisons are the performance of the native speaker (NS) group to the advanced L2 (Adv L2) group and the NS group to the intermediate L2 (Int L2) group. For the statistical analyses, Fisher's LSD method was used: a one-way ANOVA was used to compare the three groups (NS, Adv L2, Int L2); only when these tests revealed significant differences between the three groups, Tukey follow-up tests were done to see where those differences manifested. For all statistical tests, alpha was set at 0.05 for a 95% confidence level. Statistics were computed using group means as described in the following sections. The significance of the results is discussed in section 6.5.

6.1. Test 1—Sentence-Conjunction Judgment Test

6.1.1. Descriptive Analysis

The group data presented in Figure 3 represent the average group acceptability rating of a preterit or imperfect sentence after a given context.

As seen from Figure 3, all three groups accept adverbially quantified imperfect sentences after non-accidental contexts, rating them somewhere between 1 (almost positive knowledge that the sentence was semantically felicitous) and 2 (absolute knowledge). Additionally, all three groups accepted adverbially quantified preterit sentences after accidental contexts, again rating them between 1



-Acc w/Imp = non-accidental context followed by imperfect sentence; +Acc w/Pret = accidental context with preterit sentence; -Acc w/Pret = non-accidental context with preterit sentence

FIGURE 3 Results of sentence conjunction judgment task (Test 1).

and 2. It is important to note that although the native and L2 group averages are less than 2, they are significantly above 1, indicating a clear knowledge of the acceptability of the imperfect and preterit, respectively, in these first two context types. Turning to context type 3, preterit adverbially quantified sentences corresponding to non-accidental contexts, only the NS and Adv L2 groups, as a whole, consistently rejected these preterit sentences, rating them between -1 (almost positive knowledge that the sentence was not semantically felicitous) and -2 (absolute knowledge). The intermediate L2 group rated these same sentences between 0 (no knowledge of the semantic felicity) and 1, which indicates that as a group, they have somewhat less determinate knowledge of their ungrammaticality.

6.1.2. *Statistical Analysis*

The one-way ANOVA showed that there were some significant differences in all three environments. Further analysis revealed that for the Adv L2 group, there were no statistically significant differences from the NS group in grammatical test items ($-Acc$ w/Imp, $+Acc$ w/Pret), while there was a difference with the ungrammatical ones ($-Acc$ w/Pret). The Int L2 group showed statistical divergence from the native speakers in all contexts. The statistical results are given in Table 1.

6.2. Test 2—Context/Sentence Match Test

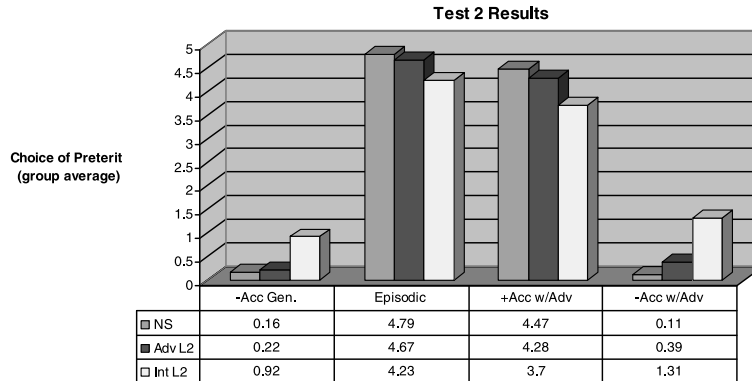
6.2.1. *Descriptive Analysis*

In this test, knowledge of perfective/imperfective use was tested with respect to four different sentence types, each type lending itself to either the preterit or imperfect: non-accidental contextually determined generalizations (i.e., non-adverbially quantified sentences) (imperfect), episodic events (preterit), accidental generalizations with adverbial quantifiers of universal force (preterit), and non-accidental generalizations with adverbial quantifiers of universal force

TABLE 1
Statistical Results from Test 1

	<i>-Acc w/Imp</i>			<i>+Acc w/Pret</i>			<i>-Acc w/Pret</i>		
	<i>t(f)</i>	<i>p</i>	<i>df</i>	<i>t(f)</i>	<i>p</i>	<i>df</i>	<i>t(f)</i>	<i>p</i>	<i>df</i>
ANOVA	(6.87)	.002	49	(5.89)	.005	49	(13.21)	<.001	49
NS v. Adv	1.17	.257	20	0.61	.548	34	3.59	.001	28
NS v. Int	3.72	.002	14	2.36	.033	14	3.40	.005	12

$-Acc$ w/Imp = non-accidental context followed by imperfect sentence; $+Acc$ w/Pret = accidental context with preterit sentence; $-Acc$ w/Pret = non-accidental context with preterit sentence.



-Acc Gen. = non-accidental generalizations; Episodic = episodic events; +Acc w/Adv = accidental generalizations with adverbial quantifiers of universal force; -Acc w/Adv = non-accidental generalizations with adverbial quantifiers of universal force

FIGURE 4 Results of context/sentence match task.

(imperfect). The data in Figure 4 represent the average number of times a preterit sentence was chosen or the context/sentence matches (X out of 5) for each sentence type.

Figure 4 shows a definite trend: use of preterit when making non-accidental generalizations (with or without an adverbial quantification) is highly dispreferred, while there appears to be a much stronger preference for preterit in both episodic and accidental generalization sentence types. However, this preference is much more polarized in the NS and Adv L2 groups than in the Int L2 group.

6.2.2. Statistical Analysis

The one-way ANOVA showed that there were statistically significant differences between the groups for all sentence types. Further analysis revealed that there were no significant differences between the NS and Adv L2 groups for any sentence type. The Int L2 group, however, showed significant differences from the NS group for all sentence types. The statistical results from Test 2 are given in Table 2.

6.3. Test 3—Sentence-Conjunction Judgment Test for Subject DP Interpretations

6.3.1. Descriptive Analysis

This test examined kind- vs. group-denoting readings of subject DPs within adverbially quantified preterit and imperfect sentences. In these sentences, the 'kind' reading should be disallowed with the preterit, while both are allowed

TABLE 2
Statistical Results from Test 2

	-Acc Gen.			Episodic			+Acc w/Adv			-Acc w/Adv		
	t(f)	p	df	t(f)	p	df	t(f)	p	df	t(f)	p	df
ANOVA	(6.61)	.03	49	(4.42)	.017	49	(3.94)	.026	49	(9.49)	<.001	49
NS v. Adv	0.49	.631	33	0.82	.417	33	0.82	.417	34	1.77	.089	25
NS v. Int	2.55	.023	14	2.51	.023	17	2.54	.019	20	3.23	.007	12

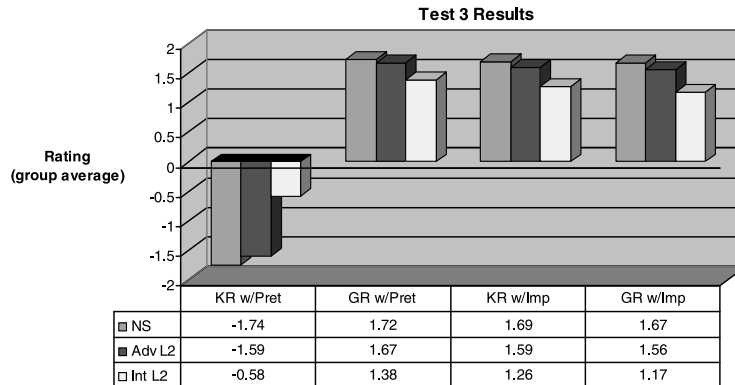
-Acc Gen. = non-accidental generalizations; Episodic = episodic events; +Acc w/Adv = accidental generalizations with adverbial quantifiers of universal force; -Acc w/Adv = non-accidental generalizations with adverbial quantifiers of universal force.

with the imperfect. The sentences were judged on the same -2 to 2 scale used in Test 1. Figure 5 reflects the average group ratings for sentences of each type.

As seen in Figure 5, the kind-reading interpretation with the preterit is strongly rejected by both the NS and Adv L2 groups, with average ratings between -1 and -2, and moderately rejected by the Int L2 group as a whole, with an average rating between 0 and -1. The group reading with the preterit and both readings with the imperfect are reliably accepted by all three groups, with average ratings between 1 and 2.

6.3.2. Statistical Analysis

A one-way ANOVA showed that there were statistically significant differences somewhere between the three groups for all sentence types. Further analysis revealed that there were no significant differences between the NS and Adv L2



KR w/Pret = kind-reading interpretation with the preterit; GR w/Pret = group-reading interpretation with the preterit; KR w/Imp = kind-reading interpretation with the imperfect; GR w/Imp = group-reading interpretation with the preterit

FIGURE 5 Average group ratings for sentences of each type.

TABLE 3
Statistical Results from Test 3

	<i>KR w/Pret</i>			<i>GR w/Pret</i>			<i>KR w/Imp</i>			<i>GR w/Imp</i>		
	<i>t(f)</i>	<i>p</i>	<i>df</i>	<i>t(f)</i>	<i>p</i>	<i>df</i>	<i>t(f)</i>	<i>p</i>	<i>df</i>	<i>t(f)</i>	<i>p</i>	<i>df</i>
ANOVA	(17.67)	<.001	49	(9.18)	<.001	49	(9.17)	<.001	49	(15.60)	<.001	49
NS v. Adv	1.85	.074	32	0.67	.508	30	1.43	.164	30	1.32	.196	34
NS v. Int	3.91	.002	12	4.26	<.001	21	3.51	.003	15	5.74	<.001	29

KR w/Pret = kind-reading interpretation with the preterit; GR w/Pret = group-reading interpretation with the preterit; KR w/Imp = kind-reading interpretation with the imperfect; GR w/Imp = group-reading interpretation with the preterit.

group for any context/sentence pair. Conversely, there were differences between the NS group and Int L2 group for each type. The statistical results from Test 3 are given in Table 3.

6.4. Individual Results

The averaging of group data is not necessarily indicative of the performance of each member of the group. In fact, it is equally possible that aggregate averages might reflect: (i) an accurate depiction of each individual's performance; (ii) the average of the performance of two or more subgroups; or (iii) the average of random, uncorrelated data. For this reason, we analyzed the individual data to see how it related to the group data.

Both the Adv L2 and Int L2 groups were examined to see if there were any subgroups in either group. Since no clear subgroups were present, we examined the range of individual averages (for each question type), comparing them to the individual averages of the native speakers. This can be seen in Tables 4, 5, and 6, which represent Tests 1, 2, and 3, respectively.

Generally, there was a greater range of responses in the Int L2 group than in the Adv L2 group, and some of the responses to all question types were

TABLE 4
Ranges of Ratings in Test 1

	<i>-Acc w/Imp</i>	<i>+Acc w/Pret</i>	<i>-Acc w/Pret</i>
NS	1.6 to 2	1.6 to 2	-2 to -1.4
Adv L2	1.2 to 2	1.6 to 2	-2 to -0.8
Int L2	1.2 to 2	0.4 to 2	-1.8 to 2

-Acc w/Imp = non-accidental context followed by imperfect sentence; *+Acc w/Pret* = accidental context with preterit sentence; *-Acc w/Pret* = non-accidental context with preterit sentence.

TABLE 5
Acceptance Ranges in Test 2

	<i>-Acc. Gen.</i>	<i>Episodic</i>	<i>+Acc. w/Adv</i>	<i>-Acc. w/Adv</i>
NS	0 to 1	4 to 5	3 to 5	0 to 1
Adv L2	0 to 1	4 to 5	3 to 5	0 to 2
Int L2	0 to 3	3 to 5	2 to 5	0 to 3

-Acc Gen. = non-accidental generalizations; Episodic = episodic events; +Acc w/Adv = accidental generalizations with adverbial quantifiers of universal force; -Acc w/Adv = non-accidental generalizations with adverbial quantifiers of universal force.

outside the range of native speaker responses. Additionally, no one Int L2 learner performed within native speaker range for all tests. We can therefore conclude, due to the lack of any clear subgroups and the range seen in the responses, that the statistical analyses performed on the group data presented in the subsections above reflect a comparison of the individual performances of the Int L2 group to the group performance of the native speakers. That is to say, no one in this group performed in an entirely target-like fashion.

As previously stated, the Adv L2 group showed narrower ranges of responses than the Int L2 group. The ranges were much closer to the ranges demonstrated by the NS group, and sometimes coincided. Again, due to the lack of any clear subgroups and the narrow ranges of the Adv L2 individual data, we can conclude that individual performances are reflected in the group averages presented earlier in this section.

6.5. Discussion of Results

Now that we have seen that the comparisons of the group results are indicative of performance at the individual level, we can now make generalizations from the data. The Adv L2 group’s performance was native-like in all categories of all

TABLE 6
Ranges of Ratings in Test 3

	<i>KR w/Pret</i>	<i>GR w/Pret</i>	<i>KR w/Imp</i>	<i>GR w/Imp</i>
NS	-2 to -1.4	1.4 to 2	1.4 to 2	1 to 2
Adv L2	-2 to -1	1 to 2	1 to 2	1 to 2
Int L2	-1.8 to 1	0.8 to 1.8	0.2 to 1.8	0.8 to 1.6

KR w/Pret = kind-reading interpretation with the preterit; GR w/Pret = group-reading interpretation with the preterit; KR w/Imp = kind-reading interpretation with the imperfect; GR w/Imp = group-reading interpretation with the preterit.

tests except for items in Test 1 testing a non-accidental reading with adverbially quantified sentences in the preterit. The fact that these Adv L2 learners showed no significant difference in 10 of the 11 areas tested is strong evidence for underlying native-like competence. However, even the deviation from native-like behavior mentioned can be accounted for. Although the difference is statistically significant, these learners still show a strong tendency to reject adverbially quantified sentences in the preterit given a non-accidental context. This is evident when the group means are compared (NS = -1.79 , Adv L2 = -1.5). Qualitatively, Adv L2 learners as a group rated these sentences between almost positive knowledge that the sentence was not semantically felicitous (-1) and absolute knowledge of this (-2). Furthermore, quantitatively, the Adv L2 group crucially makes a significant intra-group distinction between the imperfect and preterit in non-accidental contexts with adverbially quantified sentences (paired t -test: $t = 28.22$, $p < .001$) and in judgments of the preterit in depending on whether or not the context situation creates an accidental vs. non-accidental interpretation (paired t -test: $t = 37.42$, $p < .001$).

The case of the Int L2 learners is more opaque. These learners demonstrated non-target performance on all tasks. This may lead one to believe that for these learners, the choice between preterit and imperfect is arbitrary. However, using paired t -tests to do an intra-group comparison of preterit vs. imperfect judgments/choices showed statistically significant differences in all relevant (counter-balanced) cases in Test 1, Test 2, and Test 3, summarized in Table 7.

Whenever the context only supported the use of either the preterit or imperfect or whenever the choice between the preterit and imperfect yielded a difference in grammaticality, the difference in the rate of acceptability or aspectual choice of the Int L2 group was not random. So, although the distinction between the preterit and imperfect in sentences with adverbial quantification (i.e., related semantic consequences) may not be as polarized as in the case of the NS group, the distinction clearly exists for the Int L2 learners as well.

If this distinction exists for these L2 learners, why do they not perform like the natives? This could be due to extralinguistic factors. In Test 1 and Test 3, for example, these speakers were asked to make judgments about sentences on a -2 to 2 scale. However, it could be the case for the majority of the learners

TABLE 7
Relevant Differences Within Int L2 Group

	<i>Test 1</i>	<i>Test 2</i>		<i>Test 3</i>
	+Acc w/Pret v. -Acc w/Pret	-Acc Gen v. Episodic	+Acc w/Adv v. -Acc w/Adv	KR w/Pret v. KR w/Imp
<i>t</i>	4.53	7.70	4.09	5.69
<i>p</i>	.001	<.001	.002	<.001

at this level that they lack the assurance in the L2 to confidently assign either extreme (−2 or 2) as a judgment on a given sentence. Additionally, L2 learners may be even more hesitant to assign complete unacceptability to a sentence than to accept it completely, reminiscent of some type of ‘yes effect.’ This would effectively reduce the scale to ratings between −1 and 1. In light of this possibility, it is important to highlight that while 0 was available to indicate ‘I do not know’ this option was chosen very infrequently by intermediate learners, similar to the frequency of this choice for the other two groups.

Despite some differences, however, we can claim that all three groups meaningfully differentiate between the preterit and imperfect in all the appropriate contexts, and critically in the ones that are not explicitly taught to them (i.e., after adverbial quantifiers, depending on context). Additionally, all three groups demonstrate knowledge that subject DPs of preterit sentences with adverbial quantification lose the otherwise available kind-denoting reading, whereas similar sentences with the imperfect retain both the group-denoting and the kind-denoting reading. Notwithstanding, the data demonstrate a positive correspondence between proficiency and target-like behavior.

7. CONCLUSION

We have presented data from three interpretive tests which provide evidence in favor of adult UG-continuity theories (e.g., Duffield and White (1999), Schwartz and Sprouse (1996), White (1989; 2003)) and although not the focus of the present discussion, *contra* generative representational deficit hypotheses (e.g., Beck (1998), Franceschina (2001; 2005), Hawkins and Chan (1997), Hawkins and Liszka (2003)). Via L2 POS semantic reflex knowledge associated with the checking of [\pm perfective] features in the functional category higher AspP, we demonstrated that L1 English-speaking adults who were advanced learners of L2 Portuguese performed in an almost completely native-like fashion. Conversely, while the intermediate learners performed differently from the native controls on all relevant items of each test, we demonstrated that their differentiation between the preterit and imperfect in all contexts, crucially in the relevant (non)-accidental interpretive contexts with adverbial quantification, is statistically significant. For reasons previously discussed, we take this tendency to be indicative of an underlying L2 grammar that has the target morphosyntax for [\pm perfective] viewpoint aspect.

Demonstrating that intermediate L2 learners have this sentential aspect-related POS knowledge is especially interesting in light of the motivating questions for this study, which sought to compare and contrast the explanatory adequacy of UG-based versus usage/experience-based approaches to SLA. In terms of production, it is well documented that native English-speaking intermediate L2 learners of languages with morphological sentential aspect do not use the target aspectual morpho-phonological paradigms consistently well. Despite the

variable use of morphology, if target-like interpretation of these morphemes can be established at this level, especially in terms of semantic reflexes that are not explicitly taught nor readily intuited from available input, this would then support the notion that the underlying grammatical representation is target-like, even at a stage where L2 learners typically continue to make abundant surface errors in morpho-phonological production. What are the implications of the present findings? The data establish the fact that English-speaking intermediate L2 learners of Portuguese understand the difference between the preterit and the imperfect, inclusive of extremely fine-grained semantic intricacy. If we assume that this population is comparable to the intermediate learner populations of the usage/experience-based studies discussed in section 4, which demonstrate that at this level L2 learners do not use preterit and imperfect morphology like native-speakers, then how do we make sense of these juxtaposing observations?

Lardiere (1998; 2007), among others, has demonstrated that underlying morphosyntactic knowledge can be quite native-like despite impoverished use of target-language inflectional morphology on the surface. We take seriously the possibility that this is just another one of these cases in which morphological production underdetermines linguistic competence. We consider the following explanations for the L1/L2 discrepancy in morphological use: (i) there is an L2 mapping problem such that the aspectual features, although represented syntactically in the L2 grammar (and checked in higher AspP), are not reliably/properly mapped to their overt morpho-phonological forms; (ii) there is (are) a distributional and/or pedagogical bias(es) affecting the performance use of preterit and imperfect morphology with certain verbs and verb classes, and this declines as proficiency rises; or (iii) a combination of (i) and (ii). In any case, all theoretical approaches to L2 acquisition must explain both interpretation and use. Insofar as it is justified to assume that target-like interpretation provides better evidence for assessing underlying competence than looking at morphological production alone (in light of, for example, the Missing Surface Inflection Hypothesis (Prévost and White (2000)), the Feature Assembly Hypothesis (Lardiere (2007)), the Prosodic Transfer Hypothesis (Goad and White (2006))), it is fair to claim that generative approaches are better equipped to diminish the inherent opaqueness of determining linguistic competence. Since morpho-phonological forms are the phonological representation of semantic properties represented syntactically, associated semantic knowledge (or lack thereof) of the checking of the features they encode should be the ultimate criterion for claiming that the grammar is (or is not) fundamentally the same in its mental representation. Looked at differently, proponents of theories that assume morphological use is always indicative of underlying mental representation (generative and usage/experience-based alike) are obliged to answer how L2 learners can acquire POS semantic reflexes associated with morphology that, on the surface, they observably misuse, if their underlying representation is truly non-target-like.

There is important literature on the acquisition of [\pm perfective] aspect in adult SLA from a range of usage/experience-based approaches. These studies are significant as they give us insight into the development/discourse use of target L2 morphology. It would be misleading to suggest that all of these researchers do not consider or assume some type of innatism (even if it is not UG *per se*) inasmuch as this literature inspired by Vendler's work assumes that there are structures (categories as well as principles of discourse) that constrain/drive emerging interlanguage grammars. In fact, most might be agnostic with regard to the question of UG. Nevertheless, insofar as they employ a functionalist view of morpho-phonological use (i.e., necessarily representative of L2 mental representation) they face an explanation problem since, in line with others, our data showed robust semantic properties of target competence in this L2 domain even at the intermediate level where learners have been shown to exhibit considerable deviation from the target in linguistic performance.¹⁴ In light of the data from the present study, which confirms previous findings in this domain by Montrul and Slabakova (2003), Slabakova and Montrul (2003) and others, we conclude that evidence of this type suggests that UG-based approaches which examine beyond the production of morphology are in the best position for tapping and gauging underlying competence.

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¹⁴Generative approaches that claim L2 acquisition is accomplished via domain-general learning also face the same problem of explanation in light of data of this type.

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