

Knowledge of A/A'-dependencies on subject extraction with two types of infinitives in non-native Portuguese adult bilingualism

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Key words

Abstract

Within generative L2 acquisition research there is a longstanding debate as to what underlies observable differences in L1/L2 knowledge/performance. On the one hand, Full Accessibility approaches maintain that target L2 syntactic representations (new functional categories and features) are acquirable (e.g., Schwartz & Sprouse, 1996). Conversely, Partial Accessibility approaches claim that L2 variability and/or optionality, even at advanced levels, obtained as a result of inevitable deficits in L2 narrow syntax and conditioned upon a maturational failure in adulthood to acquire (some) new functional features (e.g., Beck, 1998; Hawkins & Chan, 1997; Hawkins & Hattori, 2006; Tsimpli & Dimitrakopoulou, 2007). The present study tests the predictions of these two sets of approaches with advanced English learners of L2 Brazilian Portuguese ($n = 21$) in the domain of inflected infinitives. These advanced L2 learners reliably differentiate syntactically between finite verbs, uninflected and inflected infinitives, which, as argued, only supports Full Accessibility approaches. Moreover, we will discuss how testing the domain of inflected infinitives is especially interesting in light of recent proposals that Brazilian Portuguese colloquial dialects no longer actively instantiate them (Lightfoot, 1991; Pires, 2002, 2006; Pires & Rothman, in press; Rothman, 2007).

1 Introduction

In the early history of generative approaches to adult successive bilingualism (the 1980s and early 1990s), accessibility to Universal Grammar (UG) was, more or less, understood in binary terms (see White, 1989, 1996). In accord with these views, adult second language (L2) acquisition was considered to either occur via the same interaction between input and domain-specific mechanisms available to children or via the interaction between input and domain-general learning mechanisms. Under the latter scenario, the processes and outcomes of adult L2 acquisition would be fated to be decidedly different from child L1 acquisition. In a seminal article building on previous global impairment argumentation – where global impairment refers to an inaccessibility to inborn linguistic mechanisms – Bley-Vroman (1990) provided 10 reasons (ranging from affective factors

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to incongruent outcomes) that, *prima facie*, adequately justified his conclusion that the processes of child L1 and adult L2 acquisition are *fundamentally* different. If UG were solely responsible for all facets of language acquisition, the observation that child and adult linguistic performance and competence are most often different, which no one denies, would be enough to sustain global impairment positions. However, this is not the case and such a steadfast position makes clear predictions for both developmental sequence and ultimate attainment that are amendable to experimental verification/falsification and thus must hold up to experimental scrutiny. Refined over the course of 20 years, global impairment approaches have always maintained that the underlying syntactic representation of new L2 parametric properties is necessarily distinct from the native/target mental representation. Since there is no question that some adult L2 learners perform like native speakers of the target language in many domains, such success, when it cannot result from L1 transfer, is assumed to reflect linear, frequency-based learning as opposed to implicit, biologically aided acquisition.

It is not always possible to empirically differentiate between modes of linguistic learning *a posteriori*. This is true since learning – taken to mean explicit learning – and acquisition – taken to mean implicit learning – of some properties can result in indistinguishable surface performance, although they necessarily result in different mental representations. Fortunately, this is not true of all properties. L2 properties that embody a *poverty-of-the-stimulus* (POS) learning problem provide a quintessential test case to epistemologically differentiate between competing L2 acquisition theories because such properties are predicted to never be acquired if adults are unable to access UG in its entirety or even partially (see Rothman & Iverson, 2008; Schwartz & Sprouse, 2000). In such cases, L2 learners would have no recourse to overcome instances of the *poverty-of-the-stimulus* precisely because domain-general learning cannot account for such competence.¹ Therefore, evidence of new L2 *poverty-of-the-stimulus* knowledge would question the tenability of any L2 theory claiming inaccessibility to UG. For more than a decade, evidence has amounted demonstrating that adults do acquire L2 POS knowledge (see Slabakova, 2006; White, 2003; for review of this body of literature). This fact effectively negates the assumption that normal L1 and adult L2 acquisition are truly fundamentally different (but see Bley-Vroman, *in press*).²

Recent advances in linguistic theory, namely minimalism (Chomsky, 1995, 2007³), have changed the landscape of formal studies of language acquisition. Benefiting from revised notions concerning the structural design of linguistic systems, L2 theorizing has

¹ *Poverty-of-the-stimulus*, the cornerstone of biolinguistic proposals, are properties of the grammar of particular languages that are argued to be insufficiently available from input or in many cases not evidenced at all in the input. The claim is that these properties obtain via the interaction of triggering properties in the input and Universal Grammar, which provides the learner *a priori* with such knowledge. The argument of the *poverty-of-the-stimulus* is not without controversy (see Rothman & Iverson, 2008; and works cited within).

² Despite evidence in favor of post-Critical Period parameter resetting, one cannot discount nor take lightly the fact that L2 learners continue to display non-native-like variability/optionality even at highly advanced stages of proficiency. Although there is slight variation in native performance as well, L2 variability occurs to a much greater extent and across virtually all linguistic domains. Any viable theory of L2 ultimate attainment must be able to account for these conflicting observations as many contemporary Full Access accounts are attempting to do (see Lardiere, 2007; Slabakova, 2008; White, *in press*; for superlative examples).

³ See Chomsky, 2007 for a review of the theory and its developments from its genesis through its most contemporary form and assumptions.

been able to offer more precise and empirically testable accounts of L1/L2 differences, not the least of which have been notable refinements to earlier theories of inaccessibility to UG – for example, Tsimpli and Dimitrakopoulou's (2007) modernization of Tsimpli and Roussou's (1991) account. Within minimalism, parametric differences are assumed to be located within the particular grammar functional lexicon, which varies in terms of the functional categories and features it instantiates (Chomsky, 1995). These language-to-language differences have syntactic consequences, seen on the surface as parameter values. Couched with current theoretical notions, contemporary Partial Accessibility (also known as Local Impairment or Representational Deficit) approaches argue that operations such as merge, move and agree continue to be accessible to adult L2 learners, but that features unspecified or valued differently in the L1 are subject to a maturational critical period (e.g. Beck 1998; Franceschina, 2001, 2005; Hawkins & Chan, 1997; Hawkins & Liszka, 2003; see Liceras & Díaz, 1999; for a related, yet different account). In other words, L2 learners have access to principles of grammar, but they are unable to modify L1 parameter settings and are therefore destined to have non-native syntactic representations whenever the parameter values of the L1/L2 diverge. Most recently, it has been argued that not all functional features become inaccessible in adulthood, whereby only uninterpretable features do⁴ (Hawkins, 2005; Hawkins & Hattori, 2006; Tsimpli, 2003; Tsimpli and Dimitrakopoulou, 2007). This is an important distinction insofar as it predicts asymmetric acquisition of particular L1/L2 parametric differences, depending on their relationship to interpretable and uninterpretable features respectively. In either case, however, the claim is that L2 variability/optionality is a consequence of inevitable, and thus, permanent deficits in L2 narrow syntax (to a greater or lesser degree) as compared to native target grammars.

Conversely, contemporary Full Accessibility approaches maintain that the adult acquisition of new interpretable and uninterpretable features occurs in an unimpaired, uncomplicated manner (see White, 2003). Since no one denies that adult L2 grammatical knowledge is different and that L2 performance can be significantly different, such a position demands a complimentary account for L2 variability/optionality that is empirically tenable. There are several such hypotheses that account for different types of adult variability. For example, regarding the suggestion that morphological and syntactic acquisition are dissociated in, at least, adult L2 acquisition (Haznedar & Schwartz, 1997; Lardiere, 1998, 2000), the Missing Surface Inflection Hypothesis (Prévost & White, 2000) claims that adult variability in morphological production involves a mapping problem, whereby abstract syntactic features that are independently shown to have been acquired, are somehow not reliably mapped onto their morpho-phonological forms at the level of production. Others have offered an L1-conditioned prosodic transfer account for specific instances of missing L2 inflection, namely when specific functional morphemes require a prosodic structure unavailable from the L1 (Goad & White, 2006). Still others have focused on the acquisition of interfaced conditioned properties, shifting L2 variability/optionality out of the domain of narrow syntax to interfaces, where the level of formal complexity is arguably greater (see White, *in press*; and literature reviewed therein).

⁴ Interpretable features needed for the semantic computation are argued to remain available given their relative weight in the course of the derivation as opposed to uninterpretable features, which are only implicated in the syntactic computation.

One critical difference between Full Accessibility and Partial Accessibility approaches is that the former claims that L2 non-convergence is, at most, expected for particular L1-transferred properties (e.g. when L1 transfer is a superset and the L2 is a subset value, predicted by the subset principle Manzini and Wexler (1987), or when the prosodic L1 structure bears on L2 morpho-phonological processing/performance) and (some) interface-conditioned properties (see White, in press). In other words, only Full Accessibility accounts maintain that L2 variability and optionality are explained without resorting to claims of insurmountable deficits within the L2 narrow syntax. Alternatively, Partial Accessibility approaches envision L2 narrow syntax, to a greater or lesser degree depending on specific claims, as a locus for inevitable L1/L2 representational differences. Thus, only Partial Accessibility approaches predict that the adult L2 acquisition of inflected infinitives by learners whose L1 lacks this property is impossible. The present article endeavors to test between these two approaches to adult UG accessibility, attempting to determine empirically which approach's predictions for the acquisition of Portuguese inflected infinitives by native speakers of English is unsubstantiated.

Finally, it is worth mentioning that investigating this domain is especially interesting for several reasons. It has been argued that inflected infinitives are no longer part of colloquial Brazilian Portuguese grammars (see Pires, 2002, 2006; Pires & Rothman, forthcoming, and works cited within), despite the fact that educated Brazilian Portuguese monolinguals have full syntactic and semantic competence of them (e.g. Quicoli, 1996; Rothman & Iverson, 2007). This claim questions how any Brazilian Portuguese learner, native or non-native, could possibly acquire inflected infinitives. Since recent studies have demonstrated that monolingual Brazilian Portuguese children do not acquire inflected infinitives until the age of 12 years (Pires & Rothman, in press), it is safe to assume that inflected infinitives are not robust in everyday input in Brazilian Portuguese and are thus imparted via exposure to standard Brazilian Portuguese input, which is probably due to the context of schooling, access to the media and high registers of speech. This fact has immediate implications for L2 acquisition (and really all instances of Brazilian Portuguese acquisition, see Rothman, 2007), whereby the successful performance of these advanced learners is likely conditioned on the environment in which they learned Portuguese, that is, the context of a formal setting. However, it will be argued that one cannot take the position that formal instruction is necessary to acquire all properties of inflected infinitives since the A/A' dependencies for grammatical and ungrammatical subject extraction that differentiate inflected and uninflected infinitives are never explicitly taught to natives and L2 learners alike. As a result, despite access to formal instruction on inflected infinitives, the present L2 learners acquired the full range of their syntax and semantic properties implicitly, aided by direct access to UG. This will be taken up in greater detail in the conclusion.

This article is structured in the following manner. Section 2 presents Portuguese inflected infinitives, highlighting their distribution and what learners of Portuguese must acquire to converge on a grammar in which they are included. Section 3 reviews some previous studies. Finally, Sections 4 and 5 present the methodology, data, discussion and conclusion.

2 Inflected infinitives in Portuguese

Descriptive distribution

In the vast majority of the world's languages, Tense and Agreement go hand-in-hand, which is to say, if a verb has Tense, it is specified for agreement and if it has no Tense, then it has no agreement (i.e., standard Finiteness vs. Infiniteness). This is true of English, German, Spanish, French and Italian, for example. However, there are languages that have, in Cowper's (2002) terms, 'Pseudofiniteness', which she defines as a non-finite INFL that takes on the properties of the FINITE node during the course of the syntactic computation. Such a possibility results in the emergence of infinitives and gerunds that are inflected for agreement (person and number) with their nominative subject. Portuguese is one of few languages (also Romanian, some dialects of southern Italian and Galician; see Ledgeway, 1998) that have inflected/personal infinitives.

In standard Brazilian Portuguese (BP) only plural forms have corresponding overt morpho-phonological forms for person/number.⁵ Some authors conserve the terminological distinction (Cowper, 2002; Ledgeway, 1998) between inflected and personal infinitives. As they define them, the former are infinitives with overt person/number agreement morphology and the latter are infinitives with covert agreement morphology. This distinction is unnecessary for our purposes since we assume that the feature specification for inflected and personal infinitives is one and the same, the only difference being in the PF-spellout of the agreement morphology itself. Nevertheless, we conserve the terminology distinction in this section and provide examples of each type for clarification purposes.

A four-way distinction can be seen in (1) below, which gives a full paradigm for uninflected infinitives, inflected/personal infinitives and present indicative.

(1) Standard *Brazilian Portuguese Verbal Conjugations*

Uninflected Infinitive	Personal Infinitive	Inflected Infinitive	Present Indicative
PRO fal+a+r	eu fal+a+r+Ø você ele fal+a+r+Ø ela	(nós) fal+a+r+mo (vocês) (eles) fal+a+r+em (elas)	(eu) fal+(a)+o (você) (ele) fal+a+ Ø (ela) (nós) fal+a+mos (vocês) (eles) fal+a+m (elas)

⁵ Whether or not colloquial Brazilian Portuguese dialects instantiate inflected infinitives is an extremely important factor for L1 acquisition studies and diachronic linguistic proposals (see Pires & Rothman, in press). Nevertheless, this is less of a concern for the present study since there is no question as to whether or not standard Brazilian Portuguese provides input that exemplifies inflected infinitives. Since the input these learners receive is almost exclusively standard Brazilian Portuguese, the input is sure to provide the necessary trigger for relevant parameter resetting, should adult parametric reconfiguration be possible.

‘(PRO) /I/ you sg., he, she/ we/ you pl., they (to) speak (- AGR) + AGR’

(1) Standard Brazilian Portuguese Verbal Conjugations

As can be seen in (2a) and (3a), inflected infinitives can take lexical subjects or null subjects, unlike non-inflected infinitives, which must have a controlled PRO subject. Personal infinitives must have overt nominative subjects as in (2b) and (3b).

(2) **Inflected Infinitive**

a. *A Maria lamenta não irem à festa.*

Maria regret-pres-3sg we/pro not go-inf-1pl to the party
‘Maria regrets our not going to the party.’

Personal Infinitive

b. *Eles_i lamentam [eu_j/*pro_{ij}/*PRO_i não ir+Ø] à festa.*

They regret-pres-3pl I/*pro/*PRO_i not come-inf-1sg to the party
‘They regret my having not gone to the party.’

(3) **Inflected Infinitive**

a. *É provável [nós/pro chegarmos tarde].*

Be-pres-3sg probable we arrive-inf-1pl late

‘It is probable that we will arrive late.’

Personal Infinitive

b. *É provável [você/*pro chegar+Ø tarde].*

Be-pres-3sg probable you/*pro arrive-inf-3sg late.

‘It is probable that you’ll arrive late.’

Inflected infinitives display properties similar to both non-inflected infinitives and finite verbs. They act somewhat like normal embedded finite clauses, as in (2) and (3). Unlike normal finite verbs, however, inflected/personal infinitives must have a higher Case-assigning licenser. As a result, unlike normal finite verbs, they cannot occur as matrix predicates, as in (4).

(4) **Inflected Infinitive**

a. **Elas chegarem em uma ora.*

They arrive-inf-3pl in an hour.

‘They to arrive in an hour.’

Finite Verbal conjugation (future indicative)

b. *Elas chegarão em uma hora.*

They arrive-fut-3pl in an hour.

‘They will arrive in an hour.’

Further unlike finite verbs, inflected/personal infinitives cannot occur after the complementizer *que* and are ungrammatical as embedded questions or relative clauses (unlike finite forms and uninflected infinitives), as in (5) and (6).

- (5) a. **Inflected Infinitives**
 *É importante que nós sermos fortes.
 Be-pres-3sg important that we be-inf-1pl strong
 'It is important that we are strong.'
- b. **Inflected Infinitives**
 É importante nós sermos fortes.
 Be-pres-3sg important we be-inf-1pl strong
 'It is important that we are strong.'
- c. **Finite Verbal Conjugation (present subjunctive)**
 É importante que nós sejamos fortes.
 Be-pres-3sg importante that we be-subj-1pl strong
 'It is important that we are strong.'
- (6) a. **Inflected Infinitives**
 *Não sabemos o que fazemos nesta situação.
 Not know-pres-1pl the what pro_i do-inf-1pl in this situation
 'We do not know what to do in this situation.'
- b. **Uninflected Infinitives**
 Não sabemos o que fazer nesta situação.
 Not know-pres-1pl the what PRO_i do-INF in this situation
 'We do not know what to do in this situation.'
- c. **Finite Verbal conjugation (future indicative)**
 Não sabemos o que faremos nesta situação.
 Not know-pres-1pl the what pro_i do-fut-1pl in this situation
 'We do not know what we will do in this situation.'

Like uninflected infinitives, but unlike finite verbs, prepositions can license inflected infinitives, serving as yet another higher Case-assigning element, as in (7).

- (7) a. **Inflected Infinitives**
 O problema é para nós resolvermos.
 The problem is for we resolve-inf-1pl
 'The problem is for us to resolve.'
- b. **Uninflected Infinitives**
 Nós devemos pensar muito para resolver o problema.
 We must-pres-1pl PRO_i think-inf a lot to PRO_i resolve-inf. the problem
 'We must think hard to solve the problem.'
- c. **Finite Verbal Conjugation (present indicative)**
 *O problema é para nós resolvemos.
 The problem is for we resolve-pres-1pl
 'The problem is for us to resolve.'

Quicoli (1996) further demonstrated that inflected infinitives are similar to finite verbs, which both differ syntactically from non-inflected infinitives with respect to movement

of embedded subjects. As can be seen in (8)–(11), inflected infinitives, like finite clauses but unlike non-inflected infinitives, are possible with A'-movement – for example, *wh*-movement (8) and topicalization (9). Unlike non-inflected infinitives and like finite clauses, they are not possible with A-movement – subject raising (10) and passives (11).

(8) **A'-movement (*wh*-movement)**

a. **Uninflected Infinitive**

**Que professores você lamenta que professores ter se jubilado?*

Which professors you regret-pres-3sg which professors have-inf retired

b. **Inflected Infinitive**

Que professores você lamenta que professores terem se jubilado?

Which professors you regret-pres-3sg which professors have-inf-3pl retired

c. **Finite Verbal Conjugation (present subjunctive)**

Que professores você lamenta que que professores tenham se jubilado?

Which professors you regret-pres-3sg that which professors have-subj-3pl retired

'Which professors do you regret that they have retired?'

(9) **A'-movement (topicalization)**

a. **Uninflected Infinitive**

**As árvores, pro_{exp} parecia as árvores dançar durante a tormenta.*

The trees, it appeared the trees dance-inf during the storm.

b. **Inflected Infinitive**

As árvores, pro_{exp} parecia as árvores dançarem durante a tormenta.

The trees, it appeared the trees dance-inf-3pl during the storm.

c. **Finite Verbal Conjugation (imperfective past)**

As árvores, pro_{exp} parecia que as árvores dançavam durante a tormenta.

The trees, it appeared that the trees dance-imp-3pl the storm.

'The trees, it appeared that they were dancing in the storm.'

(10) **A-movement (subject raising)**

a. **Uninflected Infinitive**

Os estudantes graduados parecem os estudantes graduados ter estudado muito.

The graduate students appear-pres-3pl the graduate students have-inf studied a lot.

b. **Inflected Infinitive**

**Os estudantes graduados parecem os estudantes graduados terem estudado muito.*

The students graduate appear-pres-3pl the graduate students have-inf -3pl studied a lot.

c. **Finite Verbal Conjugation (perfective past)**

**Os estudantes graduados parecem que os estudantes graduados estudaram muito.*

The students graduate appear-pres-3pl that the graduate students study-perf-3pl a lot.

'The graduate students appear to have studied a lot.'

(11) **A-movement (passives)**

a Uninflected Infinitives

Os meninos foram vistos chegar.

The boys were seen arrive-inf.

b Inflected Infinitives

**Os meninos foram vistos chegarem.*

The boys were seen arrive-inf-3pl.

c Finte Verbal Conjugation (perfective past)

**Os meninos formam vistos chegaram.*

The boys were seen *pro* arrive-pret. 3pl.

'The boys were seen arriving.'

Additionally, Portuguese non-inflected and inflected infinitives differ significantly in syntax-semantic interface properties. For example, Portuguese non-inflected infinitives conform to properties of obligatory control (see Hornstein, 1999; Landau, 2003) like infinitives in English, French and Italian. Inflected/personal infinitives, however, display properties of non-obligatory control (Pires, 2001, 2006; see Rothman & Iverson, 2007; for successful L2 acquisition of these properties).

Syntactic analysis

In earlier work, Haegeman (1985) and Raposo (1987) independently concluded that [+AGR] of INFL for inflected infinitives is insufficient to assign nominative Case to its subject (see Haegeman, 1985; and Raposo, 1987; for empirical evidence). Raposo states that 'a tenseless INFL positively specified for Agr can only assign nominative Case to a lexical subject only if it is itself specified for Case' (1987, p. 107). Verbal agreement is a set of ϕ -features for number, person and optionally Case, mapped to a morpho-phonological form in null-subject languages only (Chomsky, 1981; Alexiadou & Agnostopoulou, 1998). It follows that inflected infinitives can only obtain in null-subject languages,⁶ but there must be another parameter involved to make the choice of [\pm Tense] free of the choice

⁶ Brazilian Portuguese's status as a true [+null-subject] language is questionable (see the chapters in Kato & Negrão, 2000; for discussion). It is clear, however, that Brazilian Portuguese permits null embedded subjects in line with a syntactic null-subject language and, although debatable as well, it seems to conform to restrictions on interpretation in line with the Overt Pronoun Constraint (Rothman, Iverson, & Judy, 2008; Kato, 2000) as would be expected of a null-subject grammar. Equally clear, however, is that the frequency (and therefore the discourse distribution) of overt and null-subject pronouns in Brazilian Portuguese is very different than other Romance null-subject languages, such as Spanish and Italian and that the increase in overt subjects in almost all contexts can be traced to historical changes in the verbal paradigms; a weakening of the morphological system (see Duarte, 2000). Therefore, the crucial question is whether or not the changes to Brazilian Portuguese are currently fixed at the level of pragmatics or whether the language had actually shifted syntactically to a non-null-subject language. These issues, while extremely important, are not crucial for the present study since the L2 learners are exposed to standard Brazilian Portuguese in which null-subject properties are fully productive, inclusive of inflected infinitives despite what their status might be in (some) colloquial dialects of Brazilian Portuguese.

Agr [\pm Case] (Raposo, 1987). Independently, Raposo (1987, 1989) and Quicoli (1988, 1996) offer what they respectively label the Inflection Parameter and the I-Parameter. With Raposo (1987), Quicoli (1996), Cowper (2002) and others, it is assumed that inflected/personal infinitives in Portuguese have Case and Agreement properties *vis-à-vis* their relationship with a higher Case-assigning element and the above-mentioned special nature of INFL in null-subject languages.

The question then becomes how to update these observations into minimalist terms. In order to explain these syntactic phenomena in modern terms, the first variable to be determined is how the AGREE relation between the probe (in this instance, the Case-assigning head) and the constituent headed by INFL is established. Standard assumptions stipulate that Case-assigners bear uninterpretable ϕ -features. Therefore, they must match a goal with uninterpretable Case and interpretable ϕ -features. As mentioned, originally Raposo (1987) claimed that inflected/personal infinitives can only occur in null-subject languages because, following Chomsky (1981), he argued that INFL itself can be specified for Case in null-subject languages only (see Raposo, 1987; Haegemann, 1985; for empirical evidence with respect to inflected infinitives). In minimalist terms, this means that in null-subject languages only INFL can have the same uninterpretable Case feature that nominals (and finite morphology in null-subject languages) usually have. Cowper (2002) suggests this feature is optionally added to INFL in the numeration, independently of the feature FINITE. In the case INFL is non-finite, the derivation crashes unless the Case feature enters into an AGREE relation with a probe. When the AGREE relation is established, the uninterpretable Case feature can be deleted and INFL acquires the ability to check nominative Case on a subject and to spell-out agreement ϕ -features on infinitives in null-subject languages that are positively valued for the Inflection Parameter (e.g. Portuguese and Galician, but not Spanish and Italian).

Cowper's approach updates Quicoli's (1996) account for non-inflected infinitives vs. inflected infinitives/finite verb asymmetries with respect to embedded subject extraction from A/A' positions, as in examples (8) through (11). Since the inflected infinitival embedded INFL has its own uninterpretable Case feature that upon entering into an AGREE relationship with a higher Case-assigner and being checked acquires the ability to value and delete the Case feature of the subject, inflected infinitives are possible with A'-movement, as in (8b) and (9b), much like finite verbs are in light of the FINITE feature of their INFL. Conversely, the INFL of non-inflected infinitives have no Case feature, as in (8a) and (9a), and so the uninterpretable Case feature of the embedded subject cannot be valued and deleted, causing the derivation to crash. The opposite situation holds for subject extraction from an A-position, as in (10) and (11), thus explaining the asymmetry. In (10) and (11), the Case-assigning probe of the higher clause needs to AGREE with an active DP. In (10a) and (11a), the embedded subject has an uninterpretable Case feature, which makes it visible to the higher clause probe. Conversely, in (10b), (10c), (11b) and (11c) the uninterpretable Case feature is deleted, rendering the embedded subject invisible to the higher clause probe.⁷ For

⁷ For reasons of space and scope of the present article, the details of (10c) and (11c) are put aside (see Cowper, 2002, p. 27).

inflected infinitives, however, as in (10b) and (11b), the uninterpretable Case feature of the embedded INFL satisfies the probe, thus impeding the establishment of an AGREE relationship between the embedded subject (whose Case feature was already valued and deleted by the embedded INFL) and the probe.

3 The learning task: (Re)setting the Inflection Parameter

Turning to the (re)setting of the Inflection Parameter itself, here we primarily focus on the aspect of the parameter that yields the possibility of inflected infinitives. Borrowing from Pires' (2006) account of inflected infinitives, we assume that infinitives in general lack a feature specification for mood, different from subjunctives and indicatives (following Zanuttini, 1997, p. 127), as here in (12a):⁸

- (12a) Feature specification for mood (infinitives):
[_C [-mood]]

In order for learners to acquire a grammar that distinguishes inflected from non-inflected infinitives (children and adults alike), they need to identify whether the grammar carries agreement features (verbal inflection or phi-features), which are possible with inflected infinitives but not with non-inflected infinitives. Thus, in scanning the input at their disposal, learners need to be able to identify feature specifications for infinitival forms carrying either the feature specification in (12b) or in (12c). In the case of (12b), uninterpretable phi-features for person and number map to overt inflectional morphology, which can also be found separately from the main verb, in an auxiliary or a modal verb (in periphrastic, complex verb forms):

- (12b) Feature specification for agreement (inflected infinitives):
[_T [+μ-phi]]
Where [+μ-phi] corresponds to a set of uninterpretable phi-features (or in Pires, 2006; terms non-defective phi-features) for person and/or number.
- (12c) Feature specification for lack of agreement (non-inflected infinitives):
[_T [-phi]]
Where [-phi] represents T without phi-features for person and/or number.

The feature specification of inflected infinitives in (12b), combined with the [-mood] specification of infinitives in general (12a) produces the possibility of inflected infinitives discussed in this section. For instance, the occurrence of overt subject and non-obligatory control *pro* in inflected infinitives is directly dependent upon their [+μ-phi] feature specification. Such a position corresponds directly to the [+AGR] setting of Quicoli (1988, 1996) and Raposo (1987, 1989), and is an alternative way to represent Pires' (2001,

⁸ This is supported in both English and Portuguese where infinitives do not allow an overt complementizer. If an overt complementizer carries a [+mood] feature, it is arguably incompatible with infinitives, since they do not allow a specification for mood, explaining also the impossibility of inflected infinitives with the complementizer *que*.

2006) approach in terms of a full set of non-defective ϕ -features on T of an inflected infinitive. Given any of these specifications, only inflected infinitives (and not their uninflected counterparts) trigger Case checking/valuation on a full DP or null *pro* in Brazilian Portuguese (and in European Portuguese, although the issue of inversion yields further complications here) as the result of Agree and valuation of uninterpretable ϕ /Case on T/DP respectively.

Portuguese learners, adults and children alike, must first converge on a null-subject grammar for Portuguese and then acquire the difference in feature specification of Portuguese T (full set of uninterpretable ϕ -features) for INFL to be able to have its own uninterpretable Case feature thus converging on a target grammar that includes inflected/personal infinitives. If L2 learners cannot acquire new L2 features, both steps would be impossible. Recalling recent refinements to Partial Accessibility approaches, even in the instance that only uninterpretable features (i.e., interpretable ones are unproblematic) are argued to be unacquirable in adulthood, then English learners of L2 Portuguese should still be unable to acquire inflected infinitives (i.e., reset the Inflection Parameter). If, however, they do fully acquire inflected infinitives, then they must be able to acquire new uninterpretable features, thus providing evidence *in contra* Partial Accessibility approaches in general.

4 Previous studies and the novelty of the present study

There are two previous studies on the adult acquisition of inflected infinitives by English L1 learners of L2 Brazilian Portuguese (Iverson & Rothman, 2008; Rothman & Iverson, 2007). Rothman and Iverson (2007) examined adult advanced learners of L2 Portuguese testing for some properties of the syntactic distribution differentiating between inflected and non-inflected infinitives that we test for in test one as well as syntax-semantic properties related to control. Importantly, they demonstrated that English and Spanish/English bilingual adult learners of Brazilian Portuguese reliably differentiated between inflected and uninflected infinitives for properties of non-obligatory and obligatory control respectively (e.g., differences in readings under ellipsis and the availability of split antecedent subjects). It was concluded that although inflected infinitives are lacking in their native language(s), they are acquired by advanced L2 learners and that the Spanish/English bilingual group did not confer any advantage under the assumption that the bilinguals' knowledge of Spanish, a null-subject language, might provide them an advantage. Iverson and Rothman (2008) reported data from the same population. This time they showed that these L2 learners also demonstrated a sharp sensitivity to a semantically entailed genericity effect with inflected infinitive compliments of epistemic matrix predicates (Ambar, 1998). A criticism of these previous studies rests in the fact that while they provide convincing evidence that adult learners can acquire inflected infinitives insofar as they seem to differentiate them correctly and reliably from non-inflected ones, there was no attempt to demonstrate that in addition to differentiating between non-inflected and inflected infinitives, L2 learners differentiate the latter from finite verbs as well. Although each of the studies tacitly provides evidence that the learners do make a three-way distinction, there is no such discussion. Demonstrating such a three-way distinction is crucial since in its absence one could argue that inflected

infinitives are simply being analyzed as a finite form. The present methodology seeks to demonstrate that the L2 learners clearly make this three-way distinction.

Herein, we provide novel syntactic evidence to support previous findings based on L2 knowledge of A/A'-dependency on grammatical embedded subject extraction that distinguishes inflected from uninflected infinitives. We maintain that such knowledge of restrictions on movement that differentiates inflected and uninflected infinitives constitute a classic example of the *poverty-of-the-stimulus* argumentation applied to L2 acquisition (see Rothman & Iverson, 2008). This is true since no transfer in this regard is possible from previously acquired language; the input that adult learners are exposed to is extremely unlikely to exemplify these movements (and importantly the ensuing restrictions) with any level of significant frequency (the same is also true for native language acquisition) and these restrictions are never taught in the classroom setting. In accord with the learning task presented in the previous section, such knowledge simply falls out from the proper mental representation of the syntax of inflected infinitives. If the learners analyze inflected infinitives as finite verbal forms that the relevant A/A'-dependency can be transferred, hence the importance of demonstrating that they have a three-way distinction within their Portuguese grammar. Since the data to be presented clearly shows that they have a three-way distinction that differentiates inflected infinitives from finite forms, the knowledge demonstrated on movement restrictions means the syntactic representation of inflected infinitives is accurate. Since only Partial Accessibility approaches anticipate L2 variability and optionality with these A/A'-dependency movement properties, such evidence will be particularly helpful in determining which type of approach adequately explains all of the data.

5 The Study

Methodology

Participants

We report data from two experimental groups: an advanced group of English L2 learners of Portuguese ($n = 21$) and a group of adult educated native Brazilian Portuguese speakers as a basis of comparison ($n = 20$). The L2 group was recruited from several summer study abroad programs in Salvador, Brazil. The learners were assigned to the advanced level group in accord with scores from a placement examination administered by the study abroad programs, which included both written (cloze) and oral assessments of grammar, lexicon and spoken fluidity.⁹ Proficiency testing was composed of two written parts, equaling a total of 80 points, and an oral interview worth 20 points. Part one of the written section, worth 60 points ($n = 60$ or one point per question,) examines grammatical properties relating to verbal and nominative morphological agreement, use of verbal tense, aspect and modality as well as the extent of vocabulary knowledge. The second part, worth 20 points is an essay with a limit of 300 to 400 words relating to the

⁹ Although subjects came from programs administered by different US institutions, all of these programs are housed at the same locality in Salvador, Brazil. This foreign institute, the Associação Cultural Brasil-Estados Unidos (ACBEU), administers the battery of proficiency tests, which they have standardized over the course of 20 years. Thus, all of the participants took the same proficiency measures and are subject to the same instruction and relative equal amounts of exposure to native input during their time in Brazil.

students' goals, desires and motivation for studying in Brazil. Finally, the oral interview consists of five topical questions designed to elicit particular grammatical knowledge. The open-ended written and oral interview sections are graded by native professors of Brazilian Portuguese at ACBEU who are instructed to rate 15 of the 20 points on grammatical accuracy and 5 points on overall fluidity (which in the oral interview includes pronunciation). To qualify as an advanced speaker, one must score at least 80 of 100 overall, and no less than 50 of 60 on part one, 15 of 20 for the written part 2 and the oral interview. This means it is possible to get a score (slightly) higher than 80 and not be considered 'advanced'. The median score 91.9 with a range of 80–97.

We excluded child bilinguals of English and Spanish from this group since their native knowledge of a null-subject language makes the non-native Portuguese initial state different from that of English learners and this could possibly come to bear on the results obtained (but see Rothman and Iverson 2007), since they would be able to transfer and possibly redeploy necessary features that the English monolinguals lack. All L2 learners started learning Brazilian Portuguese as a second language after the age of 17 with the average length of study being approximately 4.5 years. The ages of the participants ranged from 21 to 37.

Experiments

There were two experiments. The first was a traditional grammaticality judgment task (GJT) with correction, which tested for several of the properties related to the syntactic distribution of inflected infinitives as compared to both non-inflected infinitives and finite verbal forms. The second was also a GJT with correction that tested for knowledge of A/A'-dependencies on felicitous embedded subject extraction that differentiate inflected from non-inflected infinitives. For both tests, participants were instructed to correct the sentences they deemed to be ungrammatical. As is standard, the test sentences were randomized and there were several versions of each task administered randomly such that the order of presentation of the stimuli within each task and the presentation order of the tasks themselves did not confer any performance confound. Fillers testing for DP morphological accord (noun-determiner, noun adjective) and word order violations were used in both experiments, although they are not reported here for space limitations.

Task 1: Grammaticality Judgment/Correction Task

The purpose of the first GJCT was to test the L2 learners' knowledge of the grammatical distribution of inflected infinitives in their own right as well as in comparison to non-inflected infinitives and, crucially, to finite forms since, despite some overlap, there is a clear three-way distinction. Learners could demonstrate target knowledge by reliably identifying and correcting only the ungrammatical uses of inflected infinitives. The GJCT consisted of eight sentence types, as in (13) through (20). There were five of each sentence type for a total of 40 target test sentences. Although not reported here, there were an equal number of filler exemplars examining the properties mentioned earlier.

(13) **Inflected infinitives as complements of factive matrix predicates**

Ela lamenta os seus pais não terem ido à celebração.

She regrets-pres-3sg his parents not have-inf-3pl gone to the celebration

'She regrets that her parents did not come to the celebration.'

- (14) **Inflected infinitives as complements of declarative matrix predicates**
O João afirma não conhecermos a cidade como ele a conhece.
 João claims-pres-3sg not know-inf-1pl the city like he knows it
 'John claims that we do not know the city like he knows it.'
- (15) **Inflected infinitives in matrix clauses**
**Eles falarem o espanhol em casa.*
 They speak-inf-3pl Spanish at home
 'They speak Spanish at home.'
- (16) **Inflected infinitives with the complementizer 'que'**
**Eu penso que elas saberem a verdade.*
 I think-pres-1sg that they know-inf-3pl the truth
 'I think that they know the truth.'
- (17) **Inflected as embedded questions/relative clauses**
**A gente ainda não sabe quem convidarmos ao concerto.*
 The people still not know-pres-3sg who *pro* invite-inf-1pl to the concert
 'We still do not know who we should invite to the concert.'
- (18) **Non-inflected as embedded question/relative clause**
Os pais sempre sabem quem culpar para as coisas destruídas na casa deles.
 The parents_i always know-pres-3pl who PRO_i blame-inf for the broken things in their house
 'Parents always know who to blame for the broken things in their house.'
- (19) **Inflected Infinitives after prepositions**
Mais informação ajudaria antes de decidirmos.
 More information help-cond-3sg before decide-inf-1pl
 'More information would help before we decide.'
- (20) **Finite forms after prepositions**
**Após de falamos, eu me sentia melhor.*
 After talk-pres-1pl, I feel-pret.1sg better
 'After we spoke, I felt better.'

The participants were instructed to first indicate which examples were ungrammatical and then to fix the ungrammatical sentences so that they would become grammatical. Sentences (13), (14) and (19) exemplify felicitous uses of the inflected infinitive and should therefore be judged accordingly. Sentences like (15), (16) and (17) are all ungrammatical since inflected infinitives must be in embedded contexts, although they never take the complementizer *que* and are ungrammatical as embedded questions or relative clauses. Sentences like (18) and (20) serve as counter balances, but also help us to ensure that the learners do differentiate between inflected, non-inflected infinitives and finite forms. If the L2 learners have knowledge of inflected infinitives they should only accept sentence types (13), (14) and (19), but that alone will not tell us if they properly differentiate between inflected and non-inflected infinitives. To demonstrate such knowledge, they must also reject and correct sentence type (17)

– as well as perform well on task 2; see next section – which is a position in which an uninflected infinitive could occur. Accepting (19) already indicates that they also differentiate inflected infinitives from true finite forms, but this is confirmed if they reject its counter balance, sentence type (20), and they reject and correct sentence types (15), (16) and (17) despite the fact that a true finite form would be perfectly acceptable in these latter three environments.

Task 2: Grammaticality Judgment/Correction Task for A/A'-dependencies

This GJCT tested specifically for knowledge that differentiates non-inflected from inflected infinitives (here a three-way distinction cannot be made; see section 2.2) in terms of restrictions on embedded subject extraction from A/A'-positions. Quicoli (1988, 1996) demonstrated that inflected infinitives are grammatical only with A'-embedded subject extraction, while non-inflected infinitives are only grammatical with subject movement from an embedded A-position. If Partial Accessibility approaches are correct and the L2 narrow syntax is destined to be deficient, then this is precisely the type of property for which we would expect L2 learners to demonstrate indeterminate knowledge or optionality since such restrictions are not specifically taught, related to new syntactic competence and the frequency of these structures in the input is quite low. Crucially, the L2 learners must reliably show the three-way distinction in Task 1, so that we can be assured that success on this second experiment does not obtain because they are analyzing inflected infinitives as finite forms, which experience the same type of A/A'-movement asymmetries. There were eight types of sentences, which can be divided into two types of embedded subject extraction: A-movement and A'-movement. For A-movement, we tested knowledge of subject raising and passives; for A'-movement we tested *wh*-movement and topicalization. There are an equal number of correct and incorrect sentences since only an inflected or non-inflected infinitive is possible with each type of movement. Success on this task assumes reliable rejection and correction of inflected infinitive sentences with A-movement – (21) and (23) – acceptance of sentences with A'-movement – (25) and (27) – rejection and correction of non-inflected infinitive sentences with A'-movement – (26) and (28) – and acceptance of uninflected infinitive sentences A-movement – (22) and (24). Examples can be seen in (21) through (28). Since contexts help to ensure a salient difference between subject raising and topicalization, small contexts preceded all of the exemplars so that each token would be similar in structure although they are not reported here for space reasons.

A-movement

(21) **Subject raising with inflected infinitives**

**As meninas_i parecem gostarem do filme.*

The girls appear-pres-3pl *pro_i* like-inf-3pl the film

'The girls appear to like the film.'

(22) **Subject raising with non-inflected infinitives**

Os cachorros parecem estar com fome; eles precisam comer.

The dogs_i appear-pres-3pl be-inf. PRO_i hungry; they_i need PRO_i eat-inf

The dogs appear to be hungry; they need to eat.

- (23) **Passives with inflected infinitives**
**Nós fomos vistos entrarmos tarde pelos pais.*
 We be-pret-1pl seen enter-inf-1pl late by the parents
 'We were seen returning late by our parents.'
- (24) **Passives with non-inflected infinitives**
As mulheres foram ouvidas falar sobre o crime.
 The women be-pret-3pl heard speak-inf the crime
 'The women were heard speaking about the crime.'

A'-movement

- (25) **Inflected infinitives with *wh*-movement**
Que meninos você acha serem os mais inteligentes do grupo?
 Which boys you think-pres-2sg be-inf-3pl the most intelligent of the
 group
 'Which boys do you think are the most intelligent from the group?'
- (26) **Non-inflected infinitives with A'-movement *wh*-movement**
**Que mulheres você lamenta ir embora?*
 Which woman you regret-pres-3sg PRO go-inf away
 'Which woman do you regret that left?'
- (27) **Inflected infinitives with topicalization**
As nuvens parecia dançarem no céu.
 The clouds, *pro_{exp}* appear-imp dance-inf-3pl in the sky
 'The clouds, it appeared they danced in the sky.'
- (28) **Non-inflected infinitives with topicalization**
**Os cachorros parecia falar.*
 The dogs, *pro_{exp}* appear-imp speak-inf
 'The dogs, it appeared that they were speaking.'

6 Results

In this section, the results of both experiments are presented and discussed. To show differences/similarities in native speaker/L2 group performance, the results for each task were statistically analyzed using t-tests: two-sample t-tests were used for intergroup comparisons and paired t-tests were used for intragroup comparisons. The alpha was set at 0.05 for a 95% confidence level.¹⁰

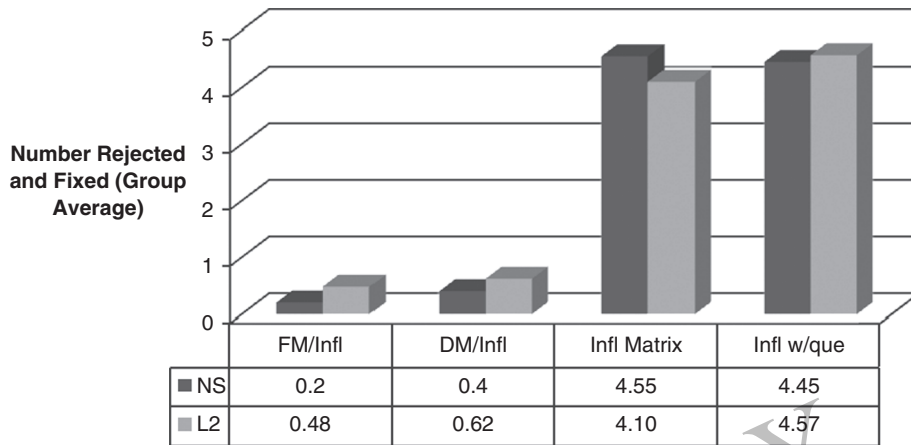
Task 1: Quantitative analysis

Task 1 was a Grammaticality Judgment/Correction Task (GJCT) designed to test for a three-way syntactic distinction between inflected and non-inflected infinitives and

¹⁰ One of the reviewers suggested that in addition to those statistical analyses we provide that we might want to do a mixed model ANOVA. We elected not to do so for the following reasons, we are only comparing two groups and at any given time we are comparing one factor across the performance of two groups, therefore an ANOVA type analysis is unnecessary.

Figure 1a

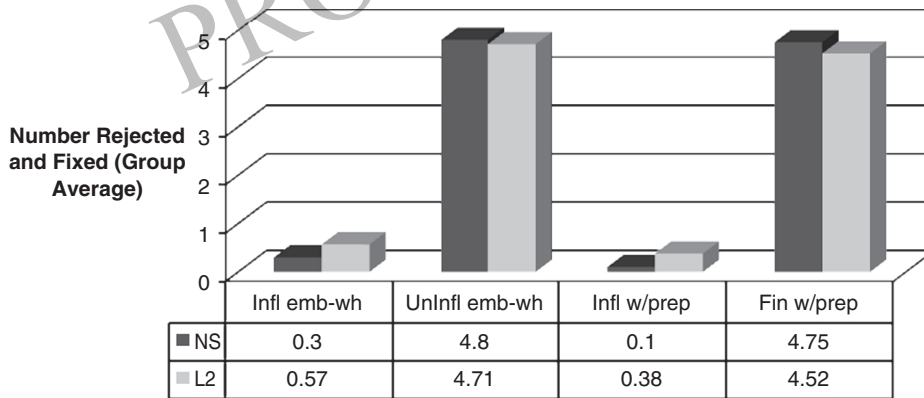
Task 1 results



FM/Infl = Factive matrix predicate with inflected infinitive complement; DM/Infl = Declarative matrix predicate with inflected infinitive complement; Infl Matrix = inflected infinitive matrix predicate; Infl w/que = inflected infinitive used after the complementizer *que*

Figure 1b

Task 1 results continued



Infl emb-wh = inflected infinitive as embedded question/relative clause; UnInfl = un(non)-inflected infinitive as embedded question/relative clause; Infl w/prep= inflected infinitive after preposition; Fin w/prep = finite form after preposition

finite forms as described in Section 2.1. Figures 1a and 1b show the average number of sentences rejected and fixed for each sentence type.

Table 1

Task 1 Results (Intergroup Comparison)

FM/Infl			DM/Infl			Infl Matrix			Infl w/que		
<i>T</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>P</i>	<i>Df</i>	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>
1.58	0.123	33	1.11	0.273	35	2.0	0.053	38	0.65	0.522	38
Infl emb-wh			NonInfl emb-wh			Infl w/prep			Fin w/prep		
<i>T</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>P</i>	<i>Df</i>	<i>t</i>	<i>p</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>
1.62	0.114	37	0.63	0.534	38	2.19	0.036	33	1.37	0.178	36

Table 2

Task 1 Results (Intragroup Comparisons)

	Infl emb-wh vs. NonInfl as emb-wh		Infl w/prep vs. Fin w/prep	
	<i>T</i>	<i>P</i>	<i>T</i>	<i>p</i>
NS	29.24	< 0.001	42.50	< 0.001
L2	33.12	< 0.001	29.00	< 0.001

As is evident in Figures 1a and 1b, there is little variation between the NS group and the L2 group. To determine if this variation is statistically significant, we analyzed the data for each sentence type, comparing the NS group to the L2 group to determine if the L2 group accepted or rejected and fixed sentences as the native baseline. The L2 group performed native-like in all sentence types except for inflected infinitives with prepositional clauses. However, upon further inspection of individual data, it was found that this was due more to virtual lack of native-speaker variation than to L2 deviation from native-speaker performance norms. These results are summarized in Table 1 below.

In order to determine if both the L2 group and NS group made distinctions between categories, specifically between inflected infinitives and non-inflected infinitives in embedded questions and inflected infinitives and finite forms after prepositions, further statistical analyses were conducted. The results shown in Table 2 below demonstrate that both groups distinguish between the two categories listed earlier in a statistically significant manner.

To determine if the distinction yielded by the L2 group was native-like, an additional statistical analysis was conducted. We compared the numerical difference the NS group yielded between each of the sentence sets in Table 2 to the same numerical difference of the L2 group. That is to say, we compared the numerical difference the NS group yielded between rejection/correction of inflected infinitives in embedded question/relative clause contexts and non-inflected infinitives in embedded question/relative clause sentences with that of the L2 group. The same comparison was made using the difference between rejection/correction of inflected infinitives after prepositions and

Table 3

Task 1 Results (Intergroup Comparisons)

Infl emb- <i>wh</i> – NonInfl emb- <i>wh</i>			Infl w/prep – Fin w/prep		
<i>T</i>	<i>P</i>	<i>Df</i>	<i>T</i>	<i>p</i>	<i>df</i>
1.80	0.080	37	2.82	0.008	36

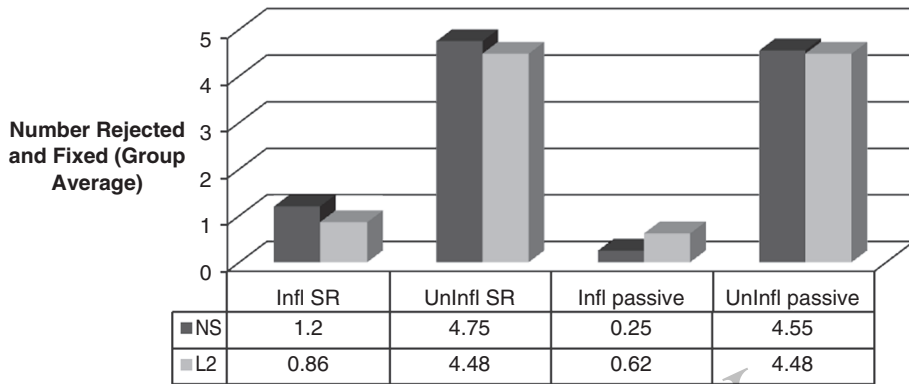
finite forms after prepositions. Only in the case of prepositional environments was there a statistically significant difference between the performance of the NS group and the L2 group. This is summarized in Table 3.

Discussion

L2 speakers performed with no statistically significant difference to the native speakers in seven of the eight areas examined. They consistently accept inflected infinitives in grammatical contexts (as complements to factive and declarative matrix-clause predicates) and reject them in ungrammatical ones (as matrix predicates and when used with the complementizer *que*). In both of the former cases only true finite forms would be acceptable after the complementizer *que*. In both latter cases, finite verbs would be acceptable; however, the L2 learners consistently reject and correct the sentences. Further demonstrating that they properly differentiate between inflected infinitives and finite verbs, the L2 learners reliably accept inflected infinitives but reject finite forms after prepositions. Although the L2 group statistically deviates from the NS group in this one area (inflected infinitives after prepositions) and their distinction between inflected infinitives and finite forms is not exactly native-like, it is important to note that the L2 learners do make a highly significant distinction between the two when compared to themselves (see Table 2). Taken together, this pattern suggests that these L2 learners make a clear distinction between inflected infinitives and true finite forms, an important observation since Task 2 serves to ensure that they also properly differentiate inflected infinitives from non-inflected infinitives and, thus, have acquired a target-like three-way distinction between finiteness, infiniteness, and pseudofiniteness.

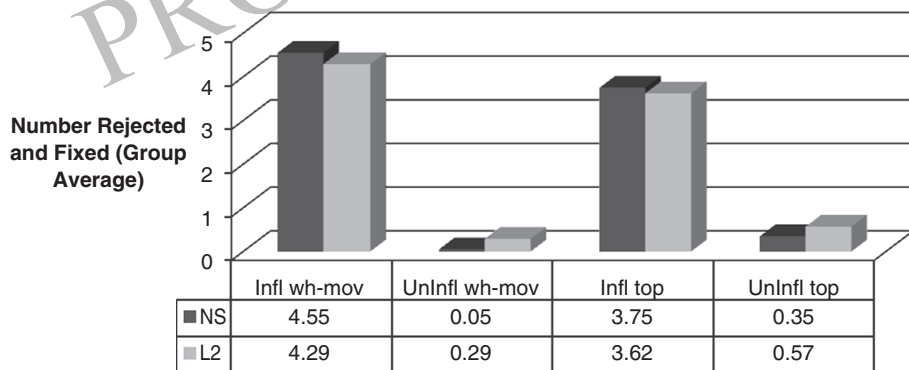
Already, we have evidence that the L2 learners make this three-way distinction insofar as they reliably rejected/corrected inflected infinitives but accepted non-inflected ones in embedded questions/relative clauses. Given the fact that L2 learners have knowledge of both grammatical and ungrammatical uses of inflected infinitives, make robust distinctions between inflected infinitives and finite forms and provide provisional evidence that they properly differentiate between inflected and non-inflected infinitives, it is reasonable to conclude that L2 learners differentiate between non-inflected infinitives, inflected infinitives and finite forms in their mental grammar. Task 2 will serve to confirm that the L2 learners properly distinguish between inflected infinitives and non-inflected ones, turning the provisional evidence with the single measure in Task 1 to robust evidence.

Figure 2a
A-Movement



Infl SR = inflected infinitives with subject raising; UnInfl SR = uninflected infinitives with subject raising; Infl passive = inflected infinitives in passives; NonInfl passive = non-inflected infinitives in passives

Figure 2b
A'-Movement



Infl wh-mov = inflected infinitives with *wh*-subject extraction; UnInfl *wh*-mov = uninflected infinitives with *wh*-subject extraction; Infl top = inflected infinitives with topicalization; NonInfl top = non-inflected infinitives with topicalization

Task 2: Quantitative analysis

Task 2 was a separate GJCT, testing for the knowledge of the (un)grammaticality asymmetries between inflected and non-inflected infinitives with different types of embedded

Table 4

Task 2 Results

Infl SR			NonInfl SR			Infl Pass			UnInfl Pass		
<i>t</i>	<i>p</i>	<i>t</i>	<i>P</i>	<i>t</i>	<i>P</i>	<i>t</i>	<i>P</i>	<i>df</i>	<i>t</i>	<i>P</i>	<i>df</i>
1.47	0.151	38	1.53	0.134	34	2.27	0.029	38	1.53	0.134	34
Infl <i>wh</i> -mov			NonInfl <i>wh</i> -mov			Infl top			UnInfl top		
<i>t</i>	<i>p</i>	<i>df</i>	<i>T</i>	<i>p</i>	<i>Df</i>	<i>t</i>	<i>P</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>df</i>
1.29	0.207	34	2.09	0.045	29	0.55	0.585	38	1.42	0.163	38

subject extraction from A- (subject raising and passivization) and A'-positions (subject *wh*-extraction and topicalization). Again, Figures 2a and 2b show the average number of sentences rejected and fixed for each sentence type.

As in Task 1, some variation in performance was seen between the two groups. A statistical analysis, comparing NS group to L2 group performance on each sentence type, showed that the L2 learners performed native-like with all sentence types except for non-inflected infinitives with *wh*-subject extraction and inflected infinitives in passives. However, similar to the statistical deviation found in Task 1, further inspection of individual data revealed that these cases were again due to lack of NS variation and, as we will soon discuss in greater detail, in no way suggest that they do not make proper intra-group distinctions between inflected and non-inflected infinitives in these environments. The statistical results are shown in Table 4.

Again, in order to determine if both the L2 group and NS group made distinctions between categories, further statistical analyses were conducted. Inflected vs. non-inflected infinitive distinctions were examined in the four relevant contexts: subject-raising, passives, *wh*-subject extraction and topicalization. For all four sentence types, both groups made highly statistically significant intragroup distinctions between inflected and non-inflected infinitives. This is summarized in Table 5.

Similar to the intergroup analysis conducted with Task 1, we compared the numerical difference the NS group yielded between each of the sentence sets in Table 4 to the same numerical difference the L2 group yielded to see if the L2 inflected/non-inflected infinitive distinction for each sentence type was comparable to the native group. That is to say, we compared the numerical difference the NS group made between rejection/correction of inflected infinitives sentences with instances of A-movement and non-inflected infinitives with A-movement with that of the L2 group. The same comparison was made using the frequency difference of rejection/correction of inflected infinitives and non-inflected infinitives with the two types of A'-movement. All the distinctions made by the L2 group did not deviate statistically from the native group except in the case of *wh*-subject extraction. This is seen in Table 6, which again is a result of the virtual lack of native speaker deviation.

Table 5

Task 2 Results (Intragroup Comparisons)

	Infl SR vs. NonInfl SR		Infl Pass vs. NonInfl Pass	
	<i>t</i>	<i>P</i>	<i>T</i>	<i>P</i>
NS	14.45	< 0.001	24.00	< 0.001
L2	16.20	< 0.001	19.42	< 0.001

	Infl <i>wh</i> -mov vs. NonInfl <i>wh</i> -mov		Infl top vs. NonInfl top	
	<i>t</i>	<i>P</i>	<i>T</i>	<i>P</i>
NS	39.23	< 0.001	22.34	< 0.001
L2	21.91	< 0.001	17.35	< 0.001

Table 6

Task 2 Results (Intergroup Comparisons)

<i>t</i>	Infl SR – NonInfl SR		<i>T</i>	Infl Pass – NonInfl Pass	
	<i>P</i>	<i>Df</i>		<i>p</i>	<i>Df</i>
0.21	0.836	38	1.66	0.106	38

<i>t</i>	Infl <i>wh</i> -mov – NonInfl <i>wh</i> -mov		<i>T</i>	Infl top – NonInfl top	
	<i>P</i>	<i>Df</i>		<i>p</i>	<i>Df</i>
2.32	0.027	33	1.52	0.138	38

Discussion.

The L2 group reliably accepted non-inflected infinitive sentences and rejected/corrected inflected infinitive sentences with embedded subject extraction sentences when the movement originated from an A-position (subject-raising and passives), conversely accepting similar inflected infinitive sentences. Additionally, they consistently rejected/corrected non-inflected infinitive sentences when the subject movement originated from an A'-position (*wh*-subject extraction and topicalization). This is all seen in Tables 4–6. The only areas in which the L2 group differed statistically from the natives were with the rejection/correction of inflected infinitive with passives (A-movement) and *wh*-subject extraction (A'-movement) with non-inflected infinitives, which we reasoned to be due to the patent lack of variation of the native speaker group. The L2 learners, conversely, demonstrated slight variation as a group (although the majority of individuals within the L2 group did not differ from the natives), which compared to almost zero native variation resulting in a statistical difference. In light of this, it is important that these L1/L2 differences cannot be interpreted as evidence that the L2 learners do not make the proper distinctions between what types of embedded subject extraction are (un)grammatical

with inflected and non-inflected respectively. Crucially, the L2 learners make a highly polarized contrast between the (un)grammaticality of non-inflected and inflected infinitive sentences with embedded subject extraction depending on A/A'-dependencies, seen in Table 5. While the distinction the L2 group makes between rejecting the A'-movement of inflected and non-inflected infinitives is comparable to that of the NS group, their differentiation between the A-movement of inflected and non-inflected infinitives differs statistically. However, upon inspection of the group means of the rejection of *wh*-subject extraction over inflected and non-inflected infinitives (NS: 4.55 vs. 0.05; L2: 4.29 vs. 0.29, respectively), it can be seen that although it is not as polarized as the NS group, the L2 group overwhelmingly makes this distinction (and at the individual level, the majority do so with native-like accuracy). Based on this analysis of the data, it is tenable to claim that these L2 learners have complete knowledge of the A/A'-distinction on subject extraction that differentiate inflected and non-inflected infinitives.

As detailed in Section 2 – Syntactic analysis, the same features argued to be acquired given the results in Task 1 give rise to these related A/A'-movement asymmetries: subject extraction from an embedded A'-position is possible with inflected infinitives since the embedded INFL, once in an AGREE relationship with a Case-assigner, can check Case on its subject. Non-inflected infinitives, with no uninterpretable Case feature, cannot fulfill this role, and so A'-subject extraction is not possible. The opposite is true for A-movement. If L2 learners can acquire the uninterpretable features needed to license inflected infinitives, and thus converge on a narrow syntactic representation that is target-like, they should reliably make this distinction between inflected and non-inflected infinitives with embedded subject extraction.

Given that knowledge of the inflected infinitive would require the acquisition of new features for English-speaking natives of L2 Portuguese, the theories under question make different predictions in regard to the possibility of attainment of these structures, especially the ones involving A/A'-movement asymmetries, since these restrictions are never taught to tutored learners. Full Accessibility approaches maintain that since both interpretable and uninterpretable features remain available, adult L2 learners should be able to acquire the features necessary to reset the Inflection Parameter to the Portuguese setting, which licenses infinitives with spell-out ϕ -features (i.e., inflected infinitives). Conversely, all Partial Accessibility approaches would predict that inflected infinitives cannot be acquired in a native-like fashion by English adult learners of Portuguese since this property is dependent on the resetting of a parameter that is predicted to remain resistant to resetting. Our data, showing that learners do indeed have robust knowledge of the syntax of inflected infinitive in their own right and as compared to non-inflected infinitives and true finite verbal forms, provides strong support for Full Accessibility approaches.

7 Conclusion

The main question addressed in this article – the extent to which adult learners of a non-primary language have access to inborn universal linguistic properties – embodies a longstanding debate in L2 generative acquisition theorizing. Whether or not children and adults inevitably differ with respect to availability of internal linguistic mechanisms that generate particular language grammars, has been actively debated since well before

it was formalized by Bley-Vroman (1989, 1990) two decades ago. Such a debate, in fact, is not limited to generative L2 theorizing, but rather is actively debated in other cognitive linguistic traditions that also assume some type of special design for L1 linguistic acquisition (e.g., Dekeyser, 2000, 2003; Long, 2005, 2007; Paradis, 2004; Ullman, 2001). Comparatively speaking, L1 and L2 acquisitions are most often decidedly different in route, performance and ultimate attainment. Unlike the case of acquisition in childhood, adult learners are not guaranteed native-like linguistic outcomes, affective factors come to bear on L2 performance (the extent to which they actually come to bear on ultimate attainment competence is more opaque) and variability/optionality seems to be commonplace in adult acquisition. With this in mind, the null hypothesis would be that child and adult acquisition are cognitively different (see Schwartz, 1986; for a different take on what the null hypothesis should be) and since UG is assumed to be the primary source of L1 outcome uniformity, it is reasonable to claim that all or part of the generative linguistic system ceases to be accessible to adult learners.

If we all agree that these L1/L2 differences are factual, then one can logically ask: Why the proliferation of theoretical proposals to explain what is agreed to be observable? There are two main related issues. The first is that any global or local UG-impairment position idealizes a situation in which the outcomes of child L1 and adult L2 should expectedly be the same in any given domain simply because the mechanisms and processes of acquisition remain constant. However, the initial states of L1 (UG and access to input) and adult L2 acquisition (L1 steady-state, UG and access to input) are distinct, which has been demonstrated/argued to be deterministic notwithstanding accessibility to an intact UG (e.g., Schwartz & Sprouse, 1994, 1996; White, 1989, 2003). Moreover, inasmuch as other mechanisms that are not purely linguistic are implicated in how language is acquired and comes to be mentally represented, it is possible that differences in these areas would result in competence and performance differences that have nothing to do with maturational effects on UG (e.g., differences in cognition between children and adults, differences in processing and working memory capacities). The expectation that full accessibility to UG must entail that the end-states of L1 and L2 are the same is counter-intuitive and highlights an important comparative fallacy. A second issue with Partial Accessibility approaches is that they are unable to explain the striking similarities between adult and child acquisitions that do obtain, especially where they are predicted to never occur (e.g., the emergence of L2 properties despite a *poverty-of-the-stimulus*, see Rothman, 2008). Work by Dekydtspotter and Sprouse (2001) and others (see Slabakova, 2006, 2008; for a review of relevant literature) has shown for more than a decade that adult learners come to have robust, determinate knowledge of the most subtle semantic nuances that are only acquirable given their underlying relationship to the acquisition of new syntactic features. Partial Accessibility approaches are unable to account for this type of evidence, of which there is a significant and growing body of studies.

Summarizing the place of the present study within this aforementioned epistemological L2 theory debate, it is important to highlight that these advanced learners demonstrated full-bodied target syntactic knowledge of the distribution of inflected

infinitives and their distinction from non-inflected infinitives and finite forms.¹¹ We interpret this to mean that these English learners of L2 Portuguese have reset two interrelated parameters. First, the Null-Subject Parameter (NSP) must have been reset, since only null-subject languages can instantiate inflected infinitives. We assume that resetting the NSP from English to Portuguese is accomplished based on the acquisition of interpretable phi-features that their L1 lacks (see Alexiadou & Agnostopoulou, 1998; Rothman & Iverson, 2007). However, the second parameter, the Inflection Parameter, is assumed to be especially resistant to resetting by all Partial Accessibility accounts insofar as it requires the acquisition of uninterpretable features (see Section 2 – Syntactic analysis). If, and only if, these uninterpretable features are acquired can INFL be able to value nominative Case on a subject and the uninterpretable ϕ -features of T could be deleted by the interpretable ϕ -features of this same subject. The data presented in this article clearly demonstrate that these features can be acquired. Anticipating criticism by proponents of Partial Access accounts, we maintain that explicit (domain-general) learning could never result in the full acquisition of all of these properties, especially the restrictions on movement we examined herein, since such properties are never explicitly taught and are extremely infrequent in the input. At a minimum, Partial Accessibility approaches, assuming inevitable syntactic deficits, predict some level of variability or optionality with these properties in particular; however, this prediction was not borne out in the present data set. And so, the proposal that L1/L2 differences constitute unavoidable deficits in the narrow syntax is not supported by the present data.

In the introduction section, it was claimed that examining the domain of inflected infinitives in L2 Brazilian Portuguese acquisition was of particular interest in light of the fact that inflected infinitives might only be a property of modern standard Brazilian Portuguese and no longer part of colloquial Brazilian Portuguese dialects (see Pires, 2001, 2006). If true, this means that monolingual Brazilian Portuguese speakers do not actually acquire inflected infinitives as part of their native Portuguese grammar, but as part of higher registers of speech imparted via schooling (see Pires & Rothman, forthcoming; in press; for studies on heritage language and L1 acquisition respectively which support this view). Nevertheless, educated Brazilian Portuguese speakers clearly have grammars that instantiate inflected infinitives. This makes inflected infinitives a fair domain to investigate UG-accessibility in adult L2 learners provided one is assured they receive input that contains the triggers needed to result in a grammar with inflected infinitives. The present learners are advanced learners of Brazilian Portuguese who have been exposed almost exclusively to standard Brazilian Portuguese. While it is true that this also means that they have received explicit instruction on inflected infinitives,

¹¹ It was mentioned by a reviewer that we would need to establish that these learners are at a steady state to meaningfully add to this debate since the approaches under investigation make reference to the state of competence at the steady state. While we agree with interpretation of the theories the reviewer alludes to, the data we provide afford us the luxury of not having to demonstrate that these learners are at the steady state since whether or not they are still in the process of acquiring BP is irrelevant given the fact that they clearly have acquired, and fully, the domain of grammar under investigation herein. Were the data to show the opposite then we would have to demonstrate that the learners are finished in the process of BP acquisition to be able to falsify the Full Access approaches. However, since the data show full convergence of a domain that Partial Accessibility maintains should be unacquirable at any stage of overall L2 proficiency allows us to conclude a priori that Partial Access approaches are falsified on the basis of the present data.

such instruction does not include all of the relevant information for which they demonstrated native-like knowledge. Under these circumstances, it is to be expected that if UG is accessible to adults, the input that these learners have had should be sufficient to generate a grammar with inflected infinitives much like exposure to similar input in late childhood/early adulthood results in complete knowledge of inflected infinitives (and well beyond explicit instruction) for monolinguals. Future research that explores knowledge of inflected infinitives in English learners of L2 Brazilian Portuguese that have learned the language naturalistically might yield different results, if the input to which they were exposed is more of colloquial dialects than the standard dialect. Such learners might then help to confirm diachronic proposals that vernacular Brazilian Portuguese dialects lack inflected infinitives since such proposals are difficult to confirm a posteriori based on monolingual data alone that likely reflect recovery of such properties in light of formal education.

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