

ORIGINAL ARTICLE

On the acceptability of agreeing infinitives in Brazilian Portuguese

Timothy Gupton¹  and Doug Merchant²

¹Romance Languages, University of Georgia, USA and ²Linguistics, University of Michigan, USA

Corresponding author: Timothy Gupton; Email: gupton1@uga.edu

(Received 5 November 2025 UTC; revised 15 April 2026 UTC; accepted 30 July 2026 UTC)

Abstract

We examine the acceptability of agreeing infinitivals in Brazilian Portuguese (BP) using an offline Bi-modal Acceptability Judgment Task (B-AJT) based on Modesto (2018. *Complement clauses in Portuguese: Syntax and acquisition* (pp. 59–129). John Benjamins.), originally designed to test the Movement Theory of Control (MTC, e.g., Hornstein 1999. *Linguistic Inquiry*, 30, 69–96.). Following the MTC, subject raising and subject-control sentences are analyzed uniformly within a formal syntactic paradigm (e.g., Chomsky 1995. *The minimalist program*. MIT Press. *et sequens*). Rodrigues and Hornstein (2013. *Syntax*, 16(3), 292–309.) argue that intuitions on agreeing infinitives in BP in Modesto (2018. *Complement clauses in Portuguese: Syntax and acquisition* (pp. 59–129). John Benjamins.) are inconclusive and not worthy of serious consideration, thus neutralizing a would-be challenge to the MTC. We examine acceptability data from BP speakers ($n = 52$) living in the Southeastern US, which reveal a statistically significant difference ($p < 0.029$) in the acceptability of partial control (PC, $m = 1.68/4$) and no-control (NC) sentences ($m = 2.26/4$) with agreeing infinitives. We interpret this to be indicative of robust intuitions related to sentence structures with agreeing infinitives. The validity of such intuition data lends further credence to Merchant and Gupton (2025. *Journal of Linguistics*, 61(2), 301–337.), which reveals significant processing differences between control and raising structures, which is unexpected under the MTC account. Linear regression results reveal a correlation between geographic region and acceptability, highlighting the importance of geographic variation, which can reveal subtle microparametric differences within languages.

Keywords: Acceptability judgments; Brazilian Portuguese; control; empty categories; Movement Theory of Control; raising

Introduction

In the current paper, we examine offline experimental data on the acceptability of control and infinitival structures in Brazilian Portuguese (BP). We present experimental data gathered via a Bi-modal Acceptability Judgment Task (B-AJT) to determine if BP speakers distinguish between sentences with inflected infinitives in

partial control (PC) and no control (NC) contexts. This is a partial replication of Modesto's (2018) methodology, which was designed to shed light on the adequacy of the Movement Theory of Control (MTC, e.g., Hornstein, 1999) for BP. According to the MTC, a proposed refinement of Minimalist Program syntactic analysis (e.g., Chomsky, 1995 *et sequens*), subject raising (1a) and subject-control sentences (1b) receive a uniform theoretical treatment in explaining BP data.

- (1) a. Brian is likely to leave Athens
- b. Brian is reluctant to leave Athens

In BP, certain infinitive forms may additionally take inflectional morphology (2a–c), yielding a variety of different control interpretations.

- (2) a. Eu_i lembro $EC_{i/*j}$ ter trabalho pouco
 I remember.PRS.1SG have.INF work.PTCP little
 "I remember not having been working much"
- b. Eu_i lembro EC_{i+} termos trabalho pouco
 I remember.PRS.1SG have.INF-1P work.PTCP little
 "I remember us having been working little"
- c. Eu_i lembro (eles)/ $EC_{*i+j/j}$ terem trabalho pouco
 I remember.PRS.1SG they have.INF-3P work.PTCP little
 "I remember them having been working little"

In (2a), we have a classic example of an obligatory control reading, in which the empty category (EC) in the subordinate clause subject position receives its reference from the superordinate clause subject. In (2b), we have a partial control reading, which allows a reading of the null subject (EC) of the subordinate clause as one that includes the main-clause subject in an inclusive first-person plural group with additional, discourse-salient referents. In (2c), we have what is typically called a "no(n) control" reading, owing to the fact that no part of the subordinate clause subject's reference overlaps with the superordinate clause subject. According to the traditional formal account of control, examples (2a–b) are posited to have a PRO empty category, while phonologically null subjects of subordinate clause "NC" structures like (2c) are posited to have a *pro* empty category (see e.g., Stowell, 1983; Jaeggli & Safir, 1989 for discussion of the empty categories *pro* and PRO).

For Modesto (2014), an MTC account of the PC data with agreeing infinitives above would incorrectly predict the acceptability of impossible sentences in BP. However, he also argues that native speakers of BP only have knowledge of such sentences as result of memorized grammatical content from formal grammar instruction as part of public education. We seek to add more data to further explore this claim, testing the acceptability of agreeing infinitives experimentally. In "Background: Control, raising, and the MTC", we briefly provide background on the leading theoretical accounts of control and raising as well as the empirical debate as it pertains to the interpretation of data with inflected infinitives in Brazilian Portuguese, paying particular attention to the disputed data in Modesto (2008) and Rodrigues and Hornstein (2013). In "Experimental methodology", we present the experimental methodology employed in the offline experimental task carried out

with native BP-speaking participants ($n = 52$) that were born in Brazil, but who were living in the Southeastern US at the time of data collection. We then examine the results and offer preliminary discussion. Despite a robust debate on the acceptability of agreeing infinitives in BP, the data presented reveal that our participants distinguish between PC and NC sentences with agreeing infinitives: although NC sentences are rated as acceptable, PC sentences are rated as unacceptable. In “Discussion”, we briefly examine the findings of the experimental study reported on in Merchant and Gupton (2025), which employed an online processing task with the same native BP-speaking participants. We then discuss the significance of combined results of the measures, which challenge claims in Rodrigues and Hornstein (2013). In the final section, we examine the limitations of the current study and outline directions for further research.

Background: Control, raising, and the MTC

In the generative tradition, early accounts of control in English (e.g., Williams, 1980; Chomsky, 1981) proposed that, despite ostensible similarities, sentences like (1a) and (1b), repeated below, have differing underlying structures (3a, b).

- (1) a. Brian is likely to leave Athens
- b. Brian is reluctant to leave Athens
- (3) a. Brian_i is likely [t_i to leave Athens]
- b. Brian_i is reluctant [PRO_i to leave Athens]

An important asymmetry becomes evident when we examine the behavior of these predicates with overt expletive subjects and their ability to combine with the clause [*that Brian will leave Athens*], as in (4a, b).

- (4) a. It is likely [*that Brian will leave Athens*]
- b. *It is reluctant [*that Brian will leave Athens*]

This difference is not related to the alteration of the sentence with an overt expletive; the difference remains when the same clause appears as a clausal subject (5a, b).

- (5) a. [*That Brian will leave Athens*] is likely
- b. *[*That Brian will leave Athens*] is reluctant

In (5b), the proposition [*that Brian will leave Athens*] is unable to semantically saturate the predicate *is reluctant*. Within a feature-checking model of syntax (e.g., Chomsky, 1995 *et sequens*), the clausal proposition [*that Brian will leave Athens*] in (5a) is understood to check an edge/EPP feature in Spec,TP, while the expletive *it* is proposed to do the same in (4a). The predicate *is reluctant* in the (b) examples, however, does not behave the same way in (4b, 5b) because the proposition [*that Brian will leave Athens*] is unable to saturate the predicate. Instead, the predicate [*is reluctant*] requires two arguments for theta role assignment: an experiencer [*Brian*] and a proposition [*that Brian will leave Athens*]. Additionally,

Brian appears to be assigned a theta role by the predicate [*is reluctant*] as well as by the proposition [*to leave Athens*]*—*a possibility that stands in violation of the Theta Criterion (e.g., Chomsky, 1981). Therefore, (1a) has been traditionally analyzed as an instance of raising (3a), while (1b) has been analyzed as an instance of (subject) control (3b).

In (3a), repeated below [*Brian to leave Athens*] is semantically marked as a theme by the predicate [*is likely*], while [*Brian*] is proposed to subsequently raise out of the subordinate clause to Spec,TP of the superordinate clause, where it checks an [EPP] feature and Nominative Case is valued.¹

- (3) a. *Brian*_{*i*} is likely [*t_i to leave Athens*]
 b. *Brian*_{*i*} is reluctant [*PRO_i to leave Athens*]

In (3b), the phonologically null (and caseless) pronoun *PRO* is assigned, which absorbs the surplus theta role from the non-finite verb [*leave*].

Hornstein's (1999) Movement Theory of Control (see also Hornstein, 2001; Boeckx & Hornstein, 2006; Boeckx et al., 2010; Hornstein & Polinsky, 2010; henceforth MTC) proposes a unified analysis of both sentence types under a movement-based account (6), essentially disposing with the empty category *PRO* as well as the formal distinction between these sentence types.

- (6) *Brian*_{*i*} is reluctant [*t_i to leave Athens*]

Hornstein (1999: 72) argues that “the general properties of OC[obligatory control] structures can be reduced to movement”. Incorporating the assumptions of the copy theory of movement (Chomsky, 1993, et seq.), we can represent (3a) and (3b) as (7a) and (7b), respectively:

- (7) a. *Brian*_{*i*} is likely [_{TP} [~~*Brian*~~_{*i*} *to leave Athens*]]
 b. *Brian*_{*i*} is reluctant [_{TP} [~~*Brian*~~_{*i*} *to leave Athens*]]

The representations in (7a, b) allow us to see the structural similarities between raising and obligatory control as proposed by the MTC. Given these proposed structural similarities, Merchant and Gupton (2025) extrapolated the prediction that raising and obligatory control sentences should be processed similarly—results that we will incorporate into the conversation in “Discussion”. However, it is worth mentioning that there is a crucial difference between (7a) and (7b) according to this account: the motivation for movement. In (7a), movement of the DP *Brian* should take place for reasons related to EPP-checking and nominative Case checking/valuation, and the predicate *be likely* only assigns a Theme argument to [*Brian to leave Athens*]. In (7b), however, the predicate [*be likely*] cannot assign a theta role to the DP *Brian*, which already has an Agent theta role. The fix for this then is that the standard view of theta theory (e.g., Chomsky, 1981) must be disposed with in order to allow a constituent to be assigned more than one thematic role.² Additionally, we have to suspend the restriction against that movement to theta-related syntactic positions (e.g., Chomsky, 1986).³ This poses no such problem for Hornstein (1999), who further argues that theta-marking is inconsistent with Minimalist assumptions

about the grammar and is an outdated remnant of the Government and Binding Theory (e.g., Chomsky, 1981) that should be eliminated. Instead, he proposes that theta role assignment is a morphological feature subject to assignment/checking processes (Hornstein, 1999: 79, following Lasnik, 1995). If theta roles are to be considered like Case or formal features, as we see it, a similar problem may yet remain, since DPs do not get assigned or valued (as in e.g., Pesetsky & Torrego, 2007) for more than one Case value or ϕ -feature value. However, in the interest of fairness, we will not dispute this issue further here, leaving the implications of multiple theta roles for the theory and for linguistic processing for further empirical research.

Types of control: The theoretical distinctions

According to Landau (2015: 53) an important opposition exists between obligatory control (OC) and NC. In his updating of the Agree-based model (e.g., Landau, 2000, 2004), this opposition is recast as a relation between complement type and agreement [+Agr], as in (8):

- (8) The OC-NC generalization (restated)
 [+Agr] blocks control in attitude complements but not in non-attitude complements,
 Or:
 [+Agr] blocks logophoric control but not predicative control

No Control (NC) contexts should result when agreement [+Agr] is present in T, a prediction that may be tested with European Portuguese (EP), which has inflected infinitives, thus exemplifying NC (9):⁴

- (9) a. *Eu penso/afirmo* [*ter-em* *os deputados* *trabalhado* *pouco*]
 I think/claim have.INF-3pl the deputies worked little
 "I think/claim that the deputies have worked a little bit"
 b. *Eu penso/afirmo* [EC *ter-em* *trabalhado* *pouco*].
 I think/claim have.INF-3pl worked little
 "I think/claim that they have worked a little bit"

The postverbal subject of the subordinate clause in (9a), *os deputados*, does not include the subject of the superordinate clause (*eu*). In this sense, there is no control taking place. An embedded null subject is also possible (the EC in 9b) under the right discursive conditions. Given the lack of a control dependency in (9b), it is proposed that the subordinate clause empty category is *pro*.⁵ Similar sentences are considered to involve *pro* according to the MTC account as well.

Turning to OC, Landau (2000: 5) identifies exhaustive control (ExC) and partial control (PC) as the two main control sub-types whose appearance depends upon the superordinate clause predicate type. For ExC (10), the reference of PRO must be identical to the controlling DP *the chair*:

- (10) The chair_i managed [PRO_{i/*i+} to gather the committee at 6]

PC-inducing predicates (11), however, differ from ExC in that the reference of PRO may include additional individuals beyond the controlling DP. Notably, the reference of PRO in PC contexts must include the controller DP (i.e., *the chair* in 11b).

- (11) a. The chair_i preferred [PRO_{i+} to gather at 6]
b. *The chair_i preferred [PRO_{i+} to gather without him_i]

For Landau as well as Bianchi (2003), the distinction between ExC and PC has to do with whether an attitude or non-attitude context is present. According to Landau (2015: 18–19), attitude context-inducing predicates include desiderative (12a), propositional (12b), interrogative (12c), and factive predicates, while non-attitude context-inducing predicates include modal (13a), aspectual (13b), evaluative (13c), and implicative predicates.

- (12) PC complements: Attitude contexts
 - a. Bill planned to meet Ralph soon
 - b. Bill pretended to be Ralph
 - c. Bill asked where to take Ralph for lunch
- (13) ExC complements: Non-attitude contexts
 - a. Bill should greet Ralph
 - b. Bill started to talk to Ralph
 - c. It was rude of Bill to ignore Ralph

Attitude contexts involve states of affairs evaluated relative to “the epistemic or bouletic state of a participant in the reported situation and not relative to the actual world” (Landau, 2015: 18) and allow PC. Non-attitude contexts, on the other hand, select states of affairs that are evaluated relative to the real world and force ExC.⁶

According to the MTC, ExC sentences are proposed to involve movement of the controller DP from the phi-defective infinitival clause to the superordinate clause, which is phi-complete and may assign Nominative Case. PC sentences are explained as involving an argument and a null associative *pro* that are base-generated in argument position. The null associative pronoun requires identification in the preceding discourse, but the DP argument bearing [Agent] theta-features subsequently moves to Spec, TP of the embedded clause and then subsequently to Spec, TP in the superordinate clause, as in (14) from Rodrigues (2007: 220).

- (14) a. A vítima quer encontrar bêbada
the victim.F.SG want.PRS.3SG meet.INF drunk.F.SG
‘The victim wants to meet drunk’
b. [_{TP} [a vítima] [_{T'} quer [_{VP} [a vítima] [_{VP} [_V quer] [_{CP} [_{TP} [_{DP} [a vítima]
[_{T'}] [_{VP} [_{VP} [_{DP} [pro] [a vítima] encontrar] bêbada]]]]]]]]]

It is worth pointing out that the MTC account of PC still involves movement. As previously mentioned, a modification to theta theory is required by the MTC such that the controller DP (*a vítima* ‘the victim’ in 14) may be assigned more than one thematic role. This elegant proposal disposes with the need for the

empty category PRO. For Modesto (2010), however, PC sentences like (15) pose a serious problem for an MTC analysis:

- (15) *A presidente_i disse pro secretário_j que [EC_i] preferia [EC_{i + j}]
 the president say.PST.3SG to.the secretary that prefer.COND.3SG
 se reunirem em outro dia
 SE meet.INF.3PL in other day
 “The president_i told the secretary_j that she_i preferred them_{i + j} meeting another day”*

The issue is that a moved constituent originating in the lowest clause providing the antecedent indices (i.e., $i + j$) in (15) would have to be able to change its featural and referential identities during its movement to the next highest superordinate clause (i.e., as subject of *preferia* “she preferred”), where it is coreferential with *a presidente* in the matrix clause. Such movement is impossible according to current generative understandings of syntactic movement, which view moved traces of constituents as unpronounced copies (see Chomsky, 1993; Nunes, 2011 for further discussion). Rodrigues and Hornstein (2013) claim that examples like (15) are not necessarily problematic for the MTC, given the proposal in Rodrigues (2007) suggesting that the additional reference may be accounted for via a null associative *pro* found in languages like Japanese and Mandarin, thus allowing it to escape the apparent limitations of syntactic movement. Therefore, determining discourse reference for phonologically null pronouns is shifted to whatever discourse-pragmatic module interfaces with the syntax.

Modesto points out that the MTC account makes erroneous predictions for ExC structures, such that a plural controller should trigger plural agreement in the infinitive as a reflex of its movement copy, contrary to fact (16).⁷

- (16) *Os meninos conseguiram vender(*em) a casa
 the boys manage.PST.3pl sell.INF(*3pl) the house
 “The boys managed to sell the house”*

To this point, we have attempted to briefly summarize the basic tenets of the MTC and the key challenges for an explanatory account of BP. In the following section, we examine the key point of contention under investigation in this article: the acceptability of agreeing infinitives in BP and their ability to be associated with PC readings.

The empirical debate related to control

Modesto claims that (17a–c) are grammatical in European Portuguese (EP), but ungrammatical in Brazilian Portuguese (BP).

- (17) a. **O Juca convenceu [o pai das meninas₁]₂ a [EC]₁ ficarem com ele
 the Juca convinced the father of.the girls to stay.INF.3PL with him
 “Juca convinced the girls’ father that they should stay with him”*

- b. **[A filha dos Clinton]₁ espera [EC]₁ ganharem as eleições*
 the daughter of.the Clinton hopes win.INF.3PL the elections
 “The daughter of the Clintons hopes that they will win the elections”
- c. **O professor mandou [EC] fazermos um trabalho*
 the teacher asked do.INF.1PL a homework
 “The teacher asked us to do a homework assignment”

Clarifying further, for Modesto (2018: 68–69), the sentences in (17) are only grammatical in the grammar of standard BP, which is largely identical to the grammar of EP. For Modesto, BP speakers may have exposure to inflected infinitives either via childhood exposure to parents who use them, or via schooling. He refers to those with childhood home exposure as “inflecting speakers,” and for these individuals, NC sentences like those in (17) are ungrammatical.⁸ Modesto supports this claim via Acceptability Judgment Task (AJT) data suggesting that the 45 university-age, BP-speaking participants guessed the acceptability of NC sentences with inflected infinitives like those in (17). Those same participants rated PC sentences as totally acceptable with a probability density of 0.7.⁹

Notwithstanding, Rodrigues and Hornstein (2013) present epicene agreement data from Rodrigues (2004) showing an unexpected asymmetry between obligatory control (18a) and non-obligatory control (18b) structures.¹⁰

- (18) a. *A vítima_i tentou ser transferida_i / ??transferido_i para a*
 the victim try.PST.3sg be.INF transfer.PTCP.f/transfer.PTCP.m for the
delegacia de polícia de College Park
 station of police of College Park
 “The victim tried to be transferred to the police station at College Park”
- b. *A vítima_i disse que ser ??levada_i/levado_i para a*
 the victim say.PST.3sg that be.INF take.PTCP.f/take.PTCP.m for the
delegacia de polícia não é uma boa idéia.
 station of police not be.PRS.3sg a good idea
 “The victim said that being taken to the police station is not a good idea”

In (18a), the grammatically feminine *vítima* agrees with the passive participle, regardless of whether the victim is male or female, as expected for epicene agreement. In (18b), however, the passive participle agrees with the gender of the victim in question instead of the invariable feminine grammatical gender of the word. In short, agreement between PRO and its antecedent *a vítima* in these examples should be either transparent or blocked, but no asymmetry should be expected. For Boeckx & Hornstein, the facts in (18) are straightforwardly explained by the MTC: in (18a), a copy of *a vítima* appears in Spec, TP, while in (18b), *pro* appears in this same position, receiving an arbitrary reading based on context.¹¹

Given Modesto’s disagreement with the BP judgments of Rodrigues (2004), Rodrigues and Hornstein (2013) report on data from two experimental tasks: an Acceptability Judgment Task (AJT) and a Truth Value Judgment Task (TVJT). For the AJT, participants consisted of 21 Brazilian undergraduate students from different parts of Brazil. The researchers also gathered some demographic information: place of residence, gender, age, and education level. The AJT stimuli related

to a contextualized story prompt about a victim of gang violence. Participants rated the acceptability of 44 sentences (22 target items plus 22 distractors) on a 5-point Likert scale (1 = “not good”, 5 = “perfect”).¹² The target items involved epicene agreement matches and mismatches, with particular attention paid to obligatory control (OC) and NC constructions. The NC example contexts offered in Rodrigues and Hornstein (2013) consist of arbitrary control sentences like (19) with and without agreement.

- (19) As testemunhas acham que prestar depoimento assustadas/assustados
 the witnesses.F.PL think that give.INF testimony scared.F.PL/scared.M.PL
 não é uma boa coisa
 NEG is a good thing
 “The witnesses think that giving testimony scared is not a good thing”

Although Rodrigues & Hornstein do not include their list of stimuli in an appendix, it does not appear that the authors included partial control sentences, with or without agreement. This is unfortunate, as statistical analysis would have been able to support their suggestions of indeterminacy in these judgments. Statistical analysis of the BP data revealed a significant difference between the ratings of NC versus OC sentences, but no statistical difference between NC sentences and finite embedded clauses (CPs) with different subjects. On the one hand, the authors interpret this to mean that agreement in NC sentences is controlled by an embedded null subject, similarly to a finite embedded CP. Furthermore, this difference in ratings between NC sentences and finite CPs was not found in their data from Italian, which does not have inflected infinitives. This serves as support for their claim that BP epicene agreement data favors the MTC. However, it must be clarified that the same outcome would be predicted by the PRO account, given that NC sentences involve PRO_{arb} and CPs involve PRO. The TVJT consisted of one context (20) followed by a continuation sentence dyad (21a, b), with participants rating each sentence as “true” or “false”.

- (20) A director of a stationery store was going on a trip on Thursday to solve personal problems. On Wednesday, he found us, his employees, saying that we wanted to have a meeting to discuss the role of each of us in the company. The director, who really hates participating in meetings, told us that the meeting would happen on Friday because by then he would be back from his trip. But deep inside he really wanted us to meet on Thursday without his presence
- (21) a. *O director preferia nos reunirmos na quinta-feira*
 the director preferred.3.sg CL.1pl meet.INF.1pl in-the Thursday
 “The director preferred us meeting on Thursday”
- b. *O director declarou se reunir na sexta-feira*
 the director declared.3.sg CL.SE meet.INF in-the Friday
 “The director declared a meeting on Friday”

Rodrigues & Hornstein claim that the target truth-value answer for (21a) should be “false” on the (PC) interpretation that includes the director since (1) it is stated in the context that he will be unavailable for a Thursday meeting and (2) because the director states that the meeting will occur on Friday, following his return. This state of affairs also predicts a “true” answer for a sentence like (21b). Given that participants were privy to the director’s mental state indicating his factual preference, which differed from his stated preference, we assume that participants should be able to interpret (21a) under an NC reading, but only if their grammar permits it.¹³ Since 85% of the 29 university-aged Brazilian participants rated (21a) as “true”, the authors conclude that BP speakers are able to assign NC readings to inflected infinitivals (i.e., one in which the subordinate clause *nos* “us” does not include reference to the matrix subject *o director*). This contradicts Modesto’s claim that sentences like (21a) are not entirely grammatical and would never be used by a BP native speaker.¹⁴ On the basis of this fact, in combination with the claim in Pires and Rothman (2009, 2010) that agreeing infinitives do not form part of the core grammar of BP, Rodrigues & Hornstein conclude that they should not be used as evidence in theoretical debate, insisting that “the empirical status of Portuguese inflected infinitives as cases of partial control is not well established” (2013: 305). They go on to argue that “it is not clear what kind of knowledge speakers have with respect to these verbal forms,” and that “it is unclear that these verbal forms are fully mastered by these speakers or how much their (late, explicitly tutored) mastery reveals about the basic operation of the grammar” (2013: 307). If these statements are true, it would seem that we need more experimental studies done on inflected infinitives in BP, not fewer.

Seeking to advance the empirical issue

We question the rationale of ignoring intuition data related to structures that are claimed to not be fully mastered until 10–12 years of age. Late-mastered structures are hardly uncommon—for example, according to Blake (1983), certain uses of the subjunctive mood in Spanish are not mastered until around 12 years of age. Nonetheless, the subjunctive is not claimed to be a peripheral or unstable part of the *i*-language grammar of Spanish speakers.¹⁵ Given the small quantity of data that has been gathered to date informing the suggestion that judgments of inflected infinitives in BP are indeterminate, we seek to contribute to this lacuna and use it as motivation for our first three research questions (22–24):

- (22) *Research question 1:* Are PC contexts in BP acceptable when an agreeing infinitive appears in the subordinate clause?
- (23) *Research question 2:* Are NC contexts in BP acceptable when an agreeing infinitive appears in the subordinate clause?

If it is the case that agreeing infinitive structures are not fully mastered, we should expect to find some degree of indeterminacy in acceptability judgments of sentences with agreeing infinitives. In other words, we would expect to find no significant differences in judgment between different sentences with agreeing infinitives in NC

and PC contexts. Our third research question (24) involves a comparison of PC and NC acceptability ratings when appearing with agreeing infinitives:

(24) *Research question 3:* Are NC and PC contexts equally acceptable in BP?

If acceptability is indeterminate for all structures with agreeing participles, we expect to find no difference in acceptability of PC and NC contexts. Furthermore, we formulate research question four (25) to gain insight on the factors that might favor the acceptability of agreeing infinitives:

(25) *Research question 4:* If variation is present in the acceptability of agreeing infinitives, what variables predict its acceptability?

We examine the following independent variables related to RQ4: (1) self-reported participant gender; (2) matrix predicate type, either propositional or factive; (3) subordinate clause predicate type; and (4) participant region, to test for regional variation, given that Modesto (2018) suggests that some BP speakers have inflected infinitives in their grammars. If females favor (un)inflected infinitives, this may indicate a change in progress. If matrix predicate type is significant, this will be support for Landau's account of infinitives. If embedded predicate type is significant, it will suggest that more attention should be paid to these structures and their relative frequencies. In the following section, we present the methodology employed in the Acceptability Judgment Task based on Modesto's (2018) methodology in order to determine the acceptability of agreeing infinitives.

Experimental methodology

We explore the acceptability judgments of agreeing infinitives in BP by reporting on data collected from 52 native speakers (27 female) of BP who were residing in the Southeastern United States at the time of the study, and who were naïve to the purposes of the study. Most participants were undergraduate and graduate-level university students at a large public university in the Southeastern US, and were initially recruited via the International Student Life office at the university following institutional review board approval of the study protocol. Additional participants were recruited via the snowball sampling technique (see e.g., Johnson, 2005), by which native speakers of BP recruited other speakers of BP among friends and acquaintances via word of mouth. Participation lasted 40–60 minutes and was compensated with gift certificates.¹⁶ After participants completed the ethical consent process, there were four parts to the study: (1) a novel Cross-modal Repetition Priming (CMRP) task reported on in Merchant and Gupton (2025), (2) a Bi-modal Acceptability Judgment Task (B-AJT), (3) a familial and personal handedness questionnaire adapted from those used in the Bever Language and Cognition Lab at the University of Arizona, and (4) a shortened version of the Bilingual Language Profile (Birdsong et al., 2012).¹⁷ We describe the acceptability judgment task in the remainder of this section.

Bi-modal acceptability judgment task (B-AJT)

In order to test the status of agreeing infinitives in BP, and consistent with recent discussion recommending additional replication studies in linguistics (e.g., Grieve, 2021) we replicate Modesto's (2018) methodology, but with the addition of audio to create our B-AJT. We did this because it was the most recently used methodology exploring inflected infinitives, and because the author agreed to share his materials. This untimed, Internet-based offline task was administered via SurveyGizmo (now Alchemer). For each sentence rated for acceptability, an audio file of a Brazilian speaker reading the sentence was included following recommendations in Kitagawa and Fodor (2006) to ensure the intended meaning of the target sentences and to guard against unintended accommodation among participants. We also included audio recordings because we were interested in tapping participant intuitions related to this form in more natural spoken situations, such as storytelling.¹⁸

The sentences rated were contextualized within the story of Will Robinson, a young boy whose family is lost in space. During their travels, Will's family met Moia Glic and her family, who are from the planet Kandor and are also lost in space.¹⁹ Will and Moia communicate via radio and talk about their families and experiences. Following this introduction to the *Lost in Space* (Allen, 1965–1968) story, participants rated 60 pseudorandomized sentences on a four-point Likert scale (–2 to 2, without a “0” mid-point value) that included a separate “I don't know” option to avoid the possibility of a mid-point rating serving as a proxy uncertain response.²⁰ Half of the contexts, which we call PC contexts, were designed to allow the possibility of a partial control (PC) reading. It is worth noting that Modesto (2018) refers to these as *obligatory control* (OC) contexts. However, since we want to avoid potential terminological confusion with exhaustive control (EC), we have decided to use *PC*, given that these are contexts that allow for PC readings. In order to make clear the intended PC reading, a paraphrase in parentheses followed the context, as in (26).

(26) PC context

Como os Robinson não podem voar, Will lamenta serem do planeta Terra

“Since the Robinsons couldn't fly, Will regretted them being from planet Earth”

(Will lamenta ele e seus pais serem do planeta Terra)

“Will regretted him and his parents being from planet Earth”

Half of these contexts included factive predicates in the superordinate clause (as in 26), while the other half included propositional predicates. These are summarized in Table 1.

As discussed in “Types of control: The theoretical distinctions”, Landau (2000) has proposed that both factive and propositional predicates may select PC in the subordinate clause; we therefore refer to these as *PC predicates*. The other half of the contexts did not allow a PC reading (27), and for this reason, we call these NC contexts (*non-control* in Modesto). As with the PC contexts, these sentences were also followed by a paraphrase within parentheses to make the intended reading clear.

Table 1. BP matrix predicates by type included in the B-AJT

Factive predicates	Propositional predicates
lamentar “ <i>lament, regret</i> ”	acreditar “ <i>believe</i> ”
odiar “ <i>hate</i> ”	concluir “ <i>conclude</i> ”
aceitar “ <i>accept</i> ”	perceber “ <i>realize, perceive</i> ”

Table 2. BP subordinate clause predicates by type included in the B-AJT

Subordinate clause predicate	
<i>serem</i>	“to be”
<i>estarem</i>	“to be”
<i>terem</i> + past participle (PP)	“having + participle”
<i>terem sido</i> + gerund (GER)	“having been + gerund”
<i>estarem sendo</i> + gerund (GER)	“having been + gerund”

(27) NC context

Depois de saber o que aconteceu com os Glic, Will lamenta estarem perdidos
 “After learning what happened to the Glic, Will regretted them being lost”
 (*Will lamenta os Glic estarem perdidos*)
 (“Will regretted that the Glic were lost”)

NC contexts included the same predicates that appear in Table 2. Additionally, all subordinate clause infinitives were inflected with third-person plural agreement and were of five possible types.

If the acceptability of agreeing infinitives in PC and NC sentences is found to exhibit no significant statistical differences, this will constitute an indeterminate judgment, thus confirming Rodrigues and Hornstein’s (2013) suggestion that such sentences are indeterminate and, furthermore, data related to them should not be utilized in theorizing related to the syntactic analysis of raising and control. Although we had no reason to suspect that any differences would arise, we also decided to examine if subordinate clause type aids in the acceptability of PC contexts with agreeing infinitives as part of research question three.

Given the length of the task being replicated, the decision was taken to not include additional distractors, which would increase the potential for fatigue. This is informed by market research (e.g., la Bruna & Rathod, 2005) suggesting that the ideal questionnaire length for avoiding participant fatigue is 17–20 minutes.

B-AJT results

For the acceptability judgment, we examine data gathered from 45 out of 52 participants. Four participants were excluded from data analysis due to their

Table 3. Welch two-sample *t*-test comparing acceptability ratings of NC and PC sentences

Welch two-sample <i>t</i> -test
data: x = PC ratings, y = NC ratings sample estimates: mean of x = -0.03167340 , mean of y = 0.04924914
$t = -2.191$, $df = 2675.9$, $p\text{-value} = 0.02854$
95 percent confidence interval: -0.153345637 -0.008499431

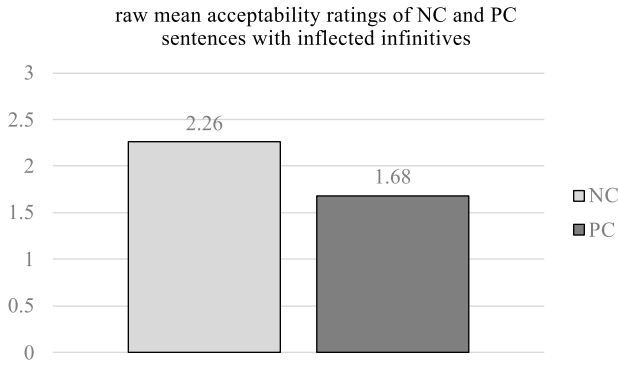


Figure 1. AJT. Raw mean acceptability ratings of NC and PC sentences.

linguistic background suggesting that they had less than eight years of formal education in Brazil delivered in Brazilian Portuguese. Three more participants were excluded owing to high quantities (10+) of “I don’t know” responses in this task.²¹ A total of 2684 ratings were coded for the following independent variables: participant sex, subject ID number, context type (PC or NC), matrix predicate type (factive or propositional), and subordinate clause predicate type (*ser*, *estar*, *ter*+PP, *ter sido*+GER, *estar sendo*+GER). When converted to a four-point scale (0–3), the raw mean acceptability rating of PC sentences, the dependent variable, was 1.68, and 2.26 for NC sentences (Figure 1).

We then *z*-normalized these scores to ensure scale comparability among participants, following suggestions in Sprouse et al. (2016), netting a minimum acceptability rating of -3.65 and a maximum of 2.22 . The *z*-normalized mean acceptability of PC sentences was -0.03 (s.d. = 0.98), and for NC sentences it was 0.05 (s.d. = 0.93), as reported in Figure 2.

A Welch two-sample *t*-test (Table 3) revealed a statistically significant difference ($p < 0.029$) between the ratings of PC and NC sentences.

Linear regressions to test for interactions between the independent variables and sentence acceptability of PC sentences were conducted using the linear model (*lm*) function in RStudio. These results are summarized in Table 4.

Of the independent variables examined in Table 4, participant sex was the only independent variable found to positively favor acceptability ratings of PC sentences.

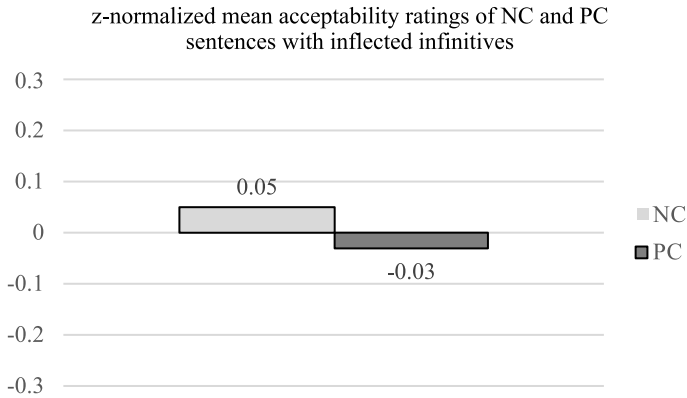


Figure 2. AJT. Z-normalized mean acceptability ratings of NC and PC sentences.

Table 4. AJT. Linear regression statistics, interaction of variables with acceptability of PC sentences

Variable	Standard error	t-value	Probability
Sex (female)	0.074	2.432	0.015 [*]
Matrix propositional predicate	0.739	1.134	0.257
Matrix factive predicate	0.739	-1.134	0.257
Embedded <i>ser</i>	0.093	-0.600	0.549
Embedded <i>estar</i>	0.093	0.262	0.794
Embedded <i>ter</i> + PP	0.092	0.589	0.556
Embedded <i>ter sido</i> + GER	0.092	-0.185	0.853
Embedded <i>estar sendo</i> + GER	0.092	-0.060	0.952

^{*}Statistically significant result at a confidence interval greater than 95%.

As a robustness check, we re-ran a linear model with matrix predicate type (in this case, factive), but entering participant number as a random factor. The result was non-significant when participant-related variables were removed from the model ($SE = 0.067$, $z\text{-value} = -1.222$, $p = 0.222$), therefore suggesting that these participant-related variables are significant predictors of the acceptability of PC sentences.

We then tested for particular interactions between either propositional or factive predicates in the matrix clause and positive acceptability of PC readings, running a linear model for each. In Table 5 we can see that, for sentences with matrix propositional predicates, no variable was found to be a significant predictor of acceptability.

In Table 6 we can see that, for sentences with matrix factive predicates and PC readings, the PC reading was found to be a significant predictor (Est. = 0.12273, $SE = 0.05220$, $t = 2.351$, $p = 0.019$).

Table 5. Linear regression results for Task 1. PC sentences with propositional predicates

Call: lm(formula = ZRATE ~ propositional + PC + propositionalPC, data = data5)					
Residuals:	Min	1Q	Median	3Q	Max
	-3.9253	-0.5271	0.3450	0.7248	2.8010
Coefficients:	Estimate	Std. error	t-value	Pr(> t)	
(Intercept)	-0.01215	0.03697	-0.329	0.742	
Propositional	-0.03899	0.05224	-0.746	0.455	
PC	0.03899	0.05228	0.746	0.456	
Propositional + PC	0.08375	0.07388	1.134	0.257	
Residual standard error: 0.9569 on 2680 degrees of freedom (16 observations deleted due to missingness)					
Multiple R-squared: 0.002267			Adjusted R-squared: 0.00115		
F-statistic: 2.03 on 3 and 2680 DF			p-value: 0.1076		

Table 6. Linear regression results for Task 1. PC sentences with factive predicates

Call: lm(formula = ZRATE ~ factive + PC + factivePC, data = data5)					
Residuals:	Min	1Q	Median	3Q	Max
	-3.9253	-0.5271	0.3450	0.7248	2.8010
Coefficients:	Estimate	Std. error	t-value	Pr(> t)	
(Intercept)	-0.05114	0.03691	-1.385	0.1660	
Factive	0.03899	0.05224	0.746	0.4555	
PC	0.12273	0.05220	2.351	0.0188	
Factive + PC	-0.08375	0.07388	-1.134	0.2571	
Residual standard error: 0.9569 on 2680 degrees of freedom (16 observations deleted due to missingness)					
Multiple R-squared: 0.002267			Adjusted R-squared: 0.00115		
F-statistic: 2.03 on 3 and 2680 DF			p-value: 0.1076		

We interpret this as further evidence against claims of indeterminate judgments as they relate to sentences with PC readings.

Curious as to whether there might be regional variation, in our methodology, we additionally attempted to gather information regarding where participants were from, but only 19/52 participants responded to this question. Two of those were among the participants excluded, leaving 17/45.²² We therefore ran linear regression models, testing for interactions between geographic region in Brazil (as determined by state) and the acceptability of PC sentences. These statistics appear in Table 7.

Table 7. AJT. Linear regression statistics, interaction of geographical region with acceptability of PC sentences

Variable (region)	Standard error	<i>t</i> -value	Probability
Minas Gerais (MG)	0.171	−3.670	<0.001*
Mato Grosso (MT)	0.231	0.776	0.438
Paraná (PR)	0.170	−4.089	<0.001*
Pernambuco (PE)	0.167	−2.553	0.011*
Rio Grande do Norte (RN)	0.224	4.085	<0.001*
Roraima (RO)	0.237	1.270	0.205
Rio Grande do Sul (RS)	0.233	−1.595	0.111
São Paulo (SP)	0.131	5.491	<0.001*

*Statistically significant result at a confidence interval greater than 95%.

The regression results in Table 7 indicate that state of origin is a significant predictor of acceptability of agreeing infinitives in PC contexts. A positive *t*-value indicates positive acceptability for agreeing infinitives among participants from São Paulo and Rio Grande do Norte states. Negative *t*-values appear for participant data from the states of Minas Gerais, Paraná, and Pernambuco, which indicates a tendency to rate PC sentences with agreeing infinitives lower. With respect to participants from the states of Mato Grosso, Roraima, and Rio Grande do Sul, state of origin is not a significant predictor of acceptability of agreeing infinitives with PC readings. In “Discussion”, we discuss these findings in greater detail, relating them to our research questions.

Discussion

Recall that the current study seeks to shed light on the status of inflected infinitives among speakers of BP, following up on suggestions of indeterminacy as related to their status in the mental grammars of BP speakers. A finding of indeterminacy would serve to challenge the validity of experimental studies like Modesto (2018) and Merchant and Gupton (2025), which have gathered data on the processing and acceptability of inflected infinitives in BP that appear to challenge the MTC (e.g., Hornstein, 1999). We sought to further explore this issue by examining independent variables such as gender and region in Brazil in addition to linguistic variables proposed by Landau (2000).

Given the results in “Experimental methodology”, we have summarized the *z*-normalized acceptability ratings according to geographic region for participants who provided this optional information in Table 8. In Figure 3, we can visualize more clearly which regions in Brazil distinguish between PC and NC sentences:

As we can see, BP speakers from São Paulo and Roraima tend to accept PC sentences with agreeing infinitives, but do not accept NC sentences. While speakers from Pernambuco and Rio Grande do Sul accept PC sentences with agreeing infinitives, they do not appear to distinguish between NC and PC sentences. Results

Table 8. Z-normalized acceptability ratings of NC and PC sentences by state in Brazil

		SP	RN	MG	PR	PE	MT	RO	RS
NC	mean	−0.36	−1.37	0.05	0.01	0.53	−0.7	−0.18	0.18
	s.d.	0.95	0.7	0.89	0.9	0.48	0.29	0.52	1.02
PC	mean	0.48	−0.2	−0.21	−0.26	0.49	−0.21	0.42	0.16
	s.d.	0.56	1.21	0.91	0.8	0.61	0.93	0.48	0.61

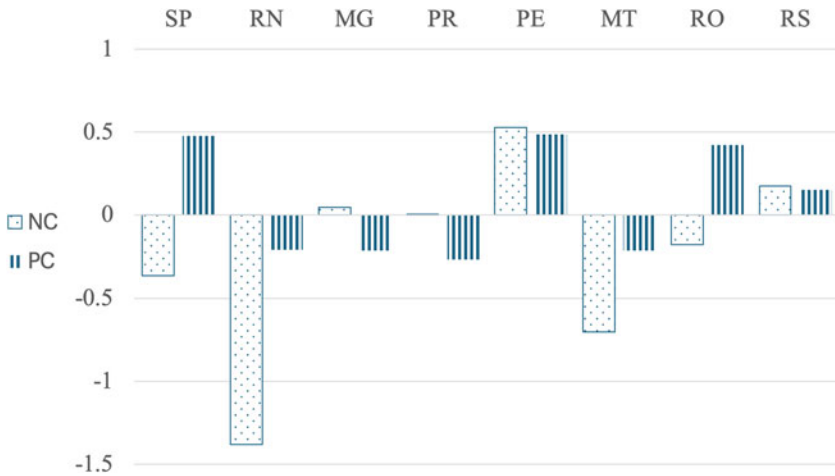


Figure 3. Z-normalized acceptability of NC and PC readings of inflected infinitives by Brazilian state.

from four participants from São Paulo appear to be consonant with results gathered from 26 participants from the same area in Modesto (2018). However, we would like to caution the reader that these results are from extremely limited numbers of BP participants in this study, and as such, should be treated as pointing toward the need for further research.

Discussion of research questions

With respect to our first two research questions, PC contexts with agreeing infinitives were rated unacceptable overall by participants, while NC contexts with agreeing infinitives were rated as acceptable. This result initially appears to differ from Modesto’s (2018) results, given that intuitions in our results are not as robust and in opposite directions. However, regarding our third research question, we found that PC and NC contexts are not equally unacceptable. Our participants distinguish between PC and NC contexts with agreeing infinitives, which challenges the suggestion from Rodrigues and Hornstein (2013) of indeterminacy in the i-grammar of BP with respect to agreeing infinitives. Regression results of data gathered from 17 participants who indicated their state of origin identify place of

origin as a significant factor in determining whether BP speakers accept PC readings in sentences with agreeing infinitives (Table 7). As we have seen, BP speakers from São Paulo and Roraima accepted PC sentences with agreeing infinitives, but did not accept NC sentences. In our opinion, these results challenge the claim that intuitions associated with agreeing infinitives in PC contexts in the grammar of BP are somehow indeterminate. Furthermore, they are suggestive that the acceptability and use of agreeing infinitives is subject to diatopic variation, which may prove ripe for a syntactic microvariation account (e.g., Kayne, 2005). We would like to highlight that we report on region information for a limited number of participants; therefore, these findings should be treated with care. Nevertheless, they point toward the need for linguistic researchers to take this variable into account when considering future studies of infinitives in BP.

Regarding research question 4, the regression analyses reveal that, in sentences with agreeing infinitives and factive predicates, a PC reading favors acceptability. In sentences with agreeing infinitives and propositional predicates in PC reading contexts, none of these factors predict acceptability. This asymmetry is not predicted by Landau's classification of predicate types. The only immediate difference between these predicate types that comes to mind is that factive predicates are traditionally understood to presuppose the truth of their complement (28a), while propositional predicates do not (28b), and may be canceled.²³

- (28) a. John was shocked to have met Janet Jackson. (*but he didn't)
 b. John claimed to have met Janet Jackson. (but he didn't)

We would like to suggest that the cancelability of the complements of propositional predicates may be responsible for their lower acceptability rating. With respect to truth conditions, participants may have found the fictional story of Will Robinson difficult to evaluate and thus assigned lower ratings to these sentences.²⁴

Additionally, the regression results revealed unexpected differences among subordinate clause predicates, with *estar* and *ter* + PP favoring positive acceptability, while other predicates either predicted negative ratings (*ser*) or were not associated with any particular acceptability (*ter sido* + GER, *estar sendo* + GER). This detail should inform future experimental studies of control in general and PC in particular.

Although our research questions did not seek to determine any sex-related differences related to the acceptability of agreeing infinitives in PC contexts, regression results suggest that females rate them higher than males do. It is as yet unclear if this represents a change in progress, or perhaps the sociolinguistic tendency among women to emulate members of aspirational socioeconomic groups, a possibility that bears potential for supporting the claim that intuitions about agreeing infinitives and PC exist among those with the greatest amounts of formal education (see e.g., Meyerhoff, 2019 for more on the tendency of women to emulate aspirational socioeconomic groups and to lead linguistic change). Such a scenario might favor viewing European Portuguese grammar, which allows for agreeing infinitives in PC readings, as the aspirational normative variety. We leave this issue for those working in sociolinguistics to determine. What seems clear to us is that there is diatopic variation within Brazil with respect to the relative acceptability of PC sentences. Therefore, we feel that there is good reason to consider acceptability

judgments related to control and agreeing infinitives in BP as legitimate, and worthy of playing a role in theory building.

Now that we have confirmed that BP speakers have intuitions related to agreeing infinitives and distinguish between PC and NC readings, we can revisit the debate on the syntactic analysis of control sentences, combining these results with the linguistic processing of control and raising structures as reported in Merchant and Gupton (2025), which involved the same participant pool.

Acceptability and processing

Recall that, according to Rodrigues and Hornstein (2013: 307), “Brazilian Portuguese inflected infinitives should not be used as evidence in favor of any theoretical issue, as it is not clear what kind of knowledge speakers have with respect to these verbal forms.” As we have seen, the acceptability results for partial control and NC sentences with agreeing infinitives examined in “Experimental methodology” and “Discussion” differ to a degree that is statistically significant. Therefore, the data examined further informs our collective knowledge regarding the theoretical status of agreeing infinitives in BP. We feel that the data presented challenge the suggestion of indeterminacy, while further justifying the experimental testing of the processing of control, raising, and similar structures in BP—some of which contain agreeing infinitives—to test the predictions of the MTC. Merchant and Gupton (2025) reason that, if raising and control structures are generated via the same syntactic mechanisms (as proposed by the MTC), then they should be processed similarly, as operationalized via reaction times (RTs) to stimuli. They employed a novel methodology called *antecedent cross-modal repetition priming task* (A-CMRP), which was designed to compare activation of phonologically overt pronouns/anaphora and theoretically-predicted empty categories (EC) at different points in the timecourse, with a particular interest in whether an EC or an overt pronoun reactivates its antecedent at the predicted gap positions, and whether target sentence types differ in the extent of reactivation, thus allowing for a comparison of partial and exhaustive control sentences to sentences with raising or overt anaphors.

The A-CMRP measured reactivation at three probe points: (1) following the matrix predicate, (2) at the predicted gap position, and (3) at the end of the sentence. We refer to these probe points as short [S], medium [M], and long [L] latencies, respectively, as in the following example of raising (29).

- (29) *Os dados recolhidos resultaram [S] surpreendentemente [M] ser muito problemáticos para as hipóteses existentes [L]*
 “The data gathered turned out [S] surprisingly [M] to be very problematic for current hypotheses [L]”

For each sentence, a pair of probe words were chosen, an experimental target that appeared in the sentence prime and a non-target which did not appear in the sentence prime according to the participant’s assigned block. For (29) the prime was either *recolhidos* “gathered” or *falsos* “false”. Each subject saw either the target or non-target probe (randomized by trial).

Table 9. A-CMRP. Estimated marginal mean reaction times (in ms) for CRETs by prime type and probe latency

Prime type	Short	Medium	Long
Distractor (baseline)	697.4	743.3	691.8
Partial control	644.5	647.0	740.3
Exhaustive control	686.8	793.8	630.1
Overt anaphor (pronoun)	690.7	665.8	667.0
Raising	696.1	667.8	673.1
Non-anaphor	694.1	679.4	694.9
Tough constructions	680.1	709.2	621.4

The same participants who completed the B-AJT also completed the A-CMRP (engaging in the latter task first), while seated in an adjustable chair at a desk with a PC using e-Prime (Psychology Software Tools, 2016) and fitted with headphones.²⁵ During each trial, participants listened through a headset to a sentence prerecorded by a native speaker of BP. At one of three probe points in the recorded sentence, a central fixation point ([#]) was replaced by a probe word, which was displayed for 500 ms. Participants were asked to decide as quickly as possible, while still making sure to answer accurately, whether the probe that they saw had appeared earlier in the sentence they were listening to. If the word had appeared, they were asked to press the spacebar on a keyboard; if the word had not appeared in the sentence, they were asked to do nothing.²⁶ The computer recorded all response latencies, measured from the onset of the visual probe until the moment that the subject pressed a button in response. After a 2000 ms delay, the next trial began. As with the B-AJT, the same participants were excluded, thus leaving us with data gathered from 45 participants.

Table 9 shows evidence of similar reactivation in the gap position (i.e., at medium latency) in raising sentences and in those with overt pronouns, thus supporting the standard account of movement in raising constructions, where a trace/copy of the raised element reactivates it in the gap position. No such reactivation was found for exhaustive control sentences at medium latency; pairwise comparisons revealed that response times were significantly slower in EC sentences (793.8 ms) than in raising sentences (667.8 ms, $SE = 61.877$, $t = 2.037$, $df = 1461$, $p = 0.042$). They were also significantly slower than sentences with overt pronouns (665.8 ms, $SE = 63.149$, $t = 2.027$, $df = 1461$, $p = 0.043$).

The results in Merchant and Gupton (2025) are convergent with those from two otherwise dissimilar experimental studies that also suggest a dissociation in the processing of raising and control structures. Sánchez et al. (2016) examined the processing of control and raising predicates and their interaction with grammatical gender in Porteoño Spanish, employing a visually-primed repetition task that required participants to maintain an adjective stem in active memory while listening to audio presentation of the control/raising sentence, and subsequently produce the appropriate agreement on the adjective at the end of the sentence. Although they did

not distinguish between EC and PC in their stimuli, they found significantly faster reaction times in raising sentences as compared to control, as well as a significantly higher rate of omissions (i.e., failure to respond with an inflected adjective) in the latter sentence type. Evidence for a dissociation between these sentence types is not limited to behavioral measures; an ERP study of subject control and raising in German (Experiment 6) in Featherston et al. (2000) revealed a significant difference in P600 values at the gap position in raising and in subject-control sentences, leading them to conclude that this evidence is consistent with the standard theoretical account distinguishing between NP trace on the one hand and PRO on the other.

Merchant and Gupton (2025) conclude that the results examined in this section are highly suggestive of different linguistic mechanisms being involved in the processing of raising and control structures in BP. For them, if movement is operative in ExC as well as raising sentences, we should find similar patterns of reactivation of antecedents in the gap position. However, this prediction does not bear out: the significant differences in processing between raising and ExC in the gap position are inconsistent with what might reasonably be assumed to be the predictions of the MTC as to how these sentences are processed.²⁷ This, combined with the statistical similarities between raising and overt pronoun anaphors, strongly suggests that raising and ExC phenomena are represented differentially in the mental grammar of BP.

Challenges and future directions

In this study, we have attempted to shed light on the claim in Rodrigues and Hornstein (2013) that BP speakers have indeterminate intuitions related to inflected infinitives. Data gathered from our native-speaker BP participants living in the US suggest that BP speakers overall have linguistic intuitions associated with agreeing infinitives, thus distinguishing between NC and PC readings with agreeing infinitives. The results also suggest that the nature of these intuitions is subject to regional variation, with speakers from the states of São Paulo and Roraima exhibiting the greatest acceptance. This result for speakers from São Paulo confirms Modesto's (2018) findings regarding acceptability of inflected infinitives in BP. Furthermore, experimental data in Modesto et al. (2023) suggest that inflected infinitives are not uncommon in production, at least among inflecting speakers of BP.

This is the first study that we are aware of to correlate geographical origin and judgments of agreeing infinitives in BP. However, the small numbers of participants who chose to provide information regarding place of origin are an obvious limitation of the current study. Nevertheless, the results examined in this study highlight the importance of collecting data on this variable in future studies. This should lead us toward a deeper understanding of the availability of different infinitive structures in BP as well as a greater understanding of diatopic variation in Brazil, which may reveal the presence of syntactic microvariation. Further research with BP-speaking participants inside and outside of Brazil will confirm or disconfirm these admittedly partial initial findings.

A related limitation has to do with the linguistic profile of our participants, all of whom are BP-English bilinguals to a greater or lesser degree. Given that many resided in the US at the time of data collection, we feel a responsibility to address the possibility of first language (L1) attrition among our participants, which carries the potential to adversely affect the data collected. If Pires and Rothman (2009) are correct and inflected INFs are primarily acquired via the formal education system in Brazil, attrition might be expected to target these structures in the event that varied contexts requiring formal registers become infrequent for BP speakers. Our study did not collect information capable of making a determination in this regard. Therefore, we are unable to arrive at a definitive conclusion as to whether the participants in our study have attrited L1 grammars—in fact, no data that we collected was conceived to answer this research question. Notwithstanding, we suspect that the same proviso applies to a vast body of native-speaker control data in second-language acquisition (SLA) research gathered over the last 40+ years from native-speaker controls residing outside their country of origin. Even though late-acquired SLA (L2) has been found to have influence on the L1 resulting in cross-linguistic interference, Pavlenko (2000, 2004) has argued that L2 interference on the L1 is not necessarily evidence of L1 attrition. We would like to suggest that it is more likely a normal result of bilingualism/multilingualism. For Kasparian and Steinhauer (2016), attrition results from decreased use of the L1 and reduced L1 activation accompanied by reduced proficiency.²⁸

Following Kasparian and Steinhauer (2016, 2017), L1 attrition follows an inverse trajectory to that of (successful) L2 acquisition.²⁹ This sort of perspective on attrition can be informed by the Interface Hypothesis (IH), which was developed by Antonella Sorace and colleagues in order to account for subtle non-target-like (i.e., non-native) performance among extremely advanced L2 acquirers. In an early formulation (Sorace & Serratrice, 2009), the interface between syntax and other modules of the grammar was predicted to result in persistent optionality and instability. More recent research on the IH has found that not all syntactic interfaces are equally problematic, therefore motivating a split between internal and external interfaces (Sorace, 2011; see also White, 2011 for a review and critical commentary). External interface phenomena tend to approach native-like levels of acquisition at advanced levels of L2 acquisition, and are typically subject to greater instability and residual optionality because they involve an interface between the syntax and an external module of the grammar, such as discourse-pragmatics, discourse-prosody, or discourse-information structure.³⁰ Internal interfaces are those involving the syntax and modules such as the lexicon or semantics, both of which are implicated in the acquisition of control and raising. Applied to attrition and the context of L1 BP-L2 English bilinguals living abroad, the IH would predict that control and raising structures should be less subject to interface-related instability than syntactic interface phenomena involving the consolidation of syntax with modules considered to be external.

In other studies on bilingualism over the last decade, there has been a proliferation of research on heritage as well as SLA problematizing the notion of the idealized native speaker—in particular, the notion that the native speaker should be monolingual (e.g., Gudmestad et al. 2021; Kupisch & Rothman, 2018; Putnam & Sánchez, 2013; Rothman & Treffers-Daller, 2014).³¹ Tsehaye et al. (2021) advocate

in favor of a more nuanced approach to capture native-speaker diversity. In the current study, we took a conservative approach and excluded participants who reported incomplete formal education in Brazil. Whether the data examined within differs significantly from native-speaking BP populations residing in Brazil is, for the moment, an open empirical question that we leave for future research. Despite the considerable challenges presented by the massive geographical area in which BP is spoken, future studies of control and similar phenomena in BP should strive to represent a multiplicity of dialect areas and sociolinguistic strata. Such efforts will provide us with greater insight on any changes taking place in Brazilian Portuguese.

Acknowledgements. We thank our Brazilian consultants, Camila Lívio Emidio, and Diogo Cosme, who were instrumental in designing and validating our stimuli. We thank Camila for lending her voice, Rachel Olsen for her tireless work on our sound files during the recording process, and Kit Callaway for her assistance with participants. We are grateful to our anonymous *Applied Psycholinguistics* reviewers, whose suggestions improved the present work. Finally, we offer special thanks to Marcello Modesto, Idan Landau, audiences at Going Romance XXXV, the UGA Linguistics Colloquium and Penn State's Morphology and Syntax Syndicate (now the Morphology Circle), as well as Tom Bever, Acrísio Pires, Vera Lee-Schoenfeld, Paula Schwanenflugel, Luke Smith, Sara Carter, Sandra McGury, Jonathan Crum, the Department of Linguistics, Department of Romance Languages, and The Graduate School at UGA, the Department of Linguistics and Asian/Middle Eastern Languages at San Diego State University, and the Department of Linguistics at the University of Michigan.

Financial support. This study was not funded by any grant.

Ethical standards. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent. Informed consent was obtained from all individual participants included in the study.

Notes

1 That Nominative Case is assigned in this position is demonstrated by substitution of an oblique Case pronoun in the same position (i). i. He/*Him is likely to leave Athens.

2 This in itself is not *a priori* precluded or necessarily problematic, as we can appreciate in sentences with relative clauses like (i), where [*the man*] is clearly capable of being assigned a thematic role of Theme by the predicate *see* and agent by the predicate *rob*.

(i) The man that I saw next to my car robbed a bank yesterday. The Theta Criterion is also a noted issue for analyses of relative clauses, which has been addressed with raising (e.g., Kayne, 1994) and matching (e.g., Salzmann, 2019) proposals, in addition to hybrid approaches (e.g., Radford, 2019). A comparative and comprehensive review of relative clauses is beyond the scope of this article.

3 See Saito (2001) and Ito (2008), who argue that movement to theta-positions is occasionally allowed.

4 In these examples, agreement on the infinitive is separated by a dash to draw attention to the verbal agreement morpheme. The dash does not appear in standard EP orthography.

5 We place the null subject (EC) in (9b) in preverbal, Case-related position here for ease of presentation even though EP allows for postverbal subjects. Below, we discuss the movement of the EC with greater precision.

6 A more detailed discussion of Landau's (2015) Two-tiered Theory of Control (TTC) would take the current analysis too far afield, but the essential detail involved in this theoretical account is that NC and OC, the latter of which is subdivided into PC and ExC, involve a minimal null pronoun similar to both *pro* and PRO.

7 An *Applied Psycholinguistics* reviewer notes that Canever and Mendes (2019) report that examples like (16) with agreeing infinitives are acceptable for some educated BP speakers, against the grammaticality claims of Modesto.

8 See Pires and Rothman (2009) for a similar claim regarding knowledge of inflected infinitives among heritage speakers of BP living outside of Brazil. However, for these authors, inflected infinitives that speakers have been exposed to in formal schooling form part of the i-grammar of BP, although not part of its core grammar. See also Rothman (2007), Pires and Rothman (2010), and Pires et al. (2011) for additional discussion.

9 This was the probability density for ratings of “5” on a 5-point Likert scale. Probability densities for ratings of less than “3” were less than 0.1 each.

10 In epicene agreement, a noun is endowed with a particular grammatical gender that is invariable, regardless of the natural gender of the referent. For example, in BP *peessoa* “person” and *vítima* “victim” are invariably feminine.

11 Landau (2013) criticizes the above approach, noting that nothing about the formal agreement processes operative in (18a) and (18b) necessarily implies or requires movement, given that (long-distance) Agree, binding, and predication are additional mechanisms available for agreement.

12 Rodrigues and Hornstein (2013) do not provide information on the descriptors for each of the possible acceptability ratings.

13 According to Marcello Modesto (p.c.), the problem with sentences like (21a) is not assigning a NC reading to inflected infinitives; according to him, this follows the standard (i.e., EP) grammar. The problem is that BP speakers do not *use* that interpretation in normal speech.

14 We find the claim that the target answer for (21a) as “false” to be problematic, given that the context in (20) already establishes a disconnect between the director’s thoughts and (verbal) actions. Despite this objection, we recognize the fact that the results are unexpected based on Modesto’s claim.

15 Heritage speaker communities are a potential exception regarding the Spanish subjunctive (see e.g., Silva-Corvalán, 1994; Montrul, 2009), where individuals may suffer from reduced input as well as a lack of formal schooling in the heritage language. Despite this elevated potential for reduced linguistic input in the heritage language and variable or nonexistent formal schooling, heritage speakers still manage to acquire a complete, non-divergent heritage language grammar. See e.g., Putnam and Sánchez (2013), among others, for further discussion.

16 Participants were offered numerous opportunities to rest during and between tasks in order to avoid fatigue. Additionally, participants were seated at a different location for each task, which required them to move around the laboratory space at least twice.

17 The southeastern university’s Institutional Review Board (IRB) only required informed consent from participants, meaning that the investigators provided basic information about the study and allowed participants the chance to ask questions about the study prior to starting.

18 For the *Applied Psycholinguistics* reader interested in reading about the social perceptions of inflected infinitives in BP, we recommend Canever and Mendes (2019).

19 Although the *Lost in Space* story involves character names and places that might, at first blush, seem unfamiliar to BP speakers, we decided not to alter the methodology because we were told that the story is well known in Brazil.

20 See Langsford et al. (2018) for more on the reliability of Likert scale judgments. For discussion of Likert scale midpoint ratings masking as “I don’t know” replies among bilingual speakers, see Ionin and Zyzik (2014: 40–41).

21 There was a total of 65 “I don’t know” ratings among the 52 participants, but the vast majority of them were provided by these three individuals. Greater than 10 “I don’t know” responses constituted over 17% of answers on the B-AJT.

22 Participant distributions according to state were the following: Rio Grande do Sul—RS (4), São Paulo—SP (4), Minas Gerais—MG (2), Pernambuco—PE (2), PR (2), Mato Grosso—MT (1), Rio Grande do Norte—RN (1), Roraima—RO (1).

23 Recent research by Degen and Tonhauser (2022) reveals that factive predicates are more heterogeneous in their behavior than previously thought. See also Beaver (2010) and Beaver and Geurts (2011).

24 An *Applied Psycholinguistics* reviewer suggests that we are ignoring the finding that acceptability of agreeing infinitives correlates with frequent predicates. Given that this study was a replication of Modesto (2018), we used the exact stimuli that he did, but with slight modifications otherwise. To our knowledge, the creation of Modesto’s stimuli did not take frequency of predicates in BP into account (although the methodology reported on in Merchant & Gupton, 2025 did). For this reason, we are uncomfortable with this suggestion and with running a post-hoc regression analysis of the data incorporating frequency measures that were not carefully controlled for.

25 Participants first completed a practice session, following which they completed three pseudo-randomized experimental blocks of 28 trials each, with a self-paced break between each block.

26 This is the Go/No-go response paradigm (see e.g., Verbruggen & Logan, 2008 for discussion and Gomez et al., 2007 for a review and critical evaluation of the methodology).

27 Although the MTC does not (to our knowledge) make any specific predictions about how these structures are processed, we believe that this would be a rather straightforward extrapolation from the theory.

28 See Gallo et al. (2021) for a more comprehensive review of the literature on attrition.

29 This is hardly an uncontroversial assumption, as a number of researchers have argued that L2 acquisition is fundamentally different from L1 acquisition (e.g., Bley-Vroman, 1990; Hawkins, 2005; Hawkins & Chan, 1997).

30 Many interfaces implicate multiple interfaces simultaneously. For example, the L2 acquisition of L2 focus in Spanish involves syntax, prosody, information structure, and discourse pragmatics (see e.g., Leal et al., 2019).

31 For a dissenting opinion favoring the native-speaker comparison, see Domínguez and Arche (2021).

References

- Allen, I. (1965–1968). *Lost in space* [television series] Irwin Allen Productions; Jodi Productions Inc.; Van Bernard Productions Inc., 20th Century Fox Television.
- Beaver, D. (2010). Have you noticed that your belly button lint color is related to the color of your clothing? In R. Bauerle, U. Reyle & T. Zimmermann (Eds.), *Presuppositions and discourse: Essays offered to Hans Kamp* (pp. 65–100). Brill.
- Beaver, D., & Geurts, B. (2011). Presupposition. In C. Maienborn, K. von Heusinger & P. Portner (Eds.), *Semantics – Interfaces* (pp. 494–528). DeGruyter Mouton.
- Betancort, M., Carreiras, M., & Acuña-Fariña, C. (2006). Processing controlled PROs in Spanish. *Cognition*, 100, 217–282.
- Bever, T., & McElree, B. (1988). Empty categories access their antecedents during comprehension. *Linguistic Inquiry*, 19(1), 35–43.
- Bianchi, V. (2003). On finiteness as logophoric anchoring. In J. Guéron & L. Tasmowski (Eds.), *Temps et point de vue/Tense and Point of View* (pp. 213–246). Université de Paris X.
- Birdsong, D., Gertken, L., & Amengual, M. (2012). *Bilingual Language Profile: An Easy-to-Use Instrument to Assess Bilingualism*. COERLL, University of Texas at Austin. Retrieved February 1, 2017, from <https://sites.la.utexas.edu/bilingual/>
- Blake, R. (1983). Mood selection among Spanish-speaking children, ages 4 to 12. *Bilingual Review/La Revista Bilingüe*, 10, 21–32.
- Bley-Vroman, R. (1990). The logical problem of foreign language learning. *Linguistic Analysis*, 20(1/2), 3–49.
- Boeckx, C., & Hornstein, N. (2006). The virtues of control as movement. *Syntax*, 9, 118–130.
- Boeckx, C., Hornstein, N., & Nunes, J. (2010). *Control as movement*. Cambridge University Press.
- Canevar, F., & Mendes, R. B. (2019). Infinitive verbs, verbal agreement and perceived competence. *Revista de Estudos da Linguagem*, 27(4), 1671–1700.
- Carneiro da Cunha, M. (1993). *Românticos. Um amor nos anos 90* [Romantics: Love in the 90s]. Arte e Oficinas Editoras.
- Chomsky, N. (1981). *Lectures on government and binding*. Foris.
- Chomsky, N. (1982). *Some concepts and consequences of the theory of government and binding*. MIT Press.
- Chomsky, N. (1986). *Knowledge of language: Its nature, origin, and use*. Praeger.
- Chomsky, N. (1993). A minimalist program for linguistic theory. In K. Hale & S.J. Keyser (Eds.), *The view from building 20: Essays on linguistics in honor of Sylvain Bromberger* (pp. 1–52). MIT Press.
- Chomsky, N. (1995). *The minimalist program*. MIT Press.
- Davies, M. (2016). *Corpus do português* [Corpus of Portuguese]. Retrieved May 16, 2022, from <https://www.corpusdoportugues.org>.
- Degen, J., & Tonhauser, J. (2022). Are there factive predicates? An empirical investigation. *Language*, 98(4), 552–591.
- Domínguez, L., & Arche, M. (2021). The ‘Comparative Logic’ and why we need to explain interlanguage grammars. *Frontiers in Psychology*, 12, 717635.

- Duarte, M. E. (1995). *A perda do princípio “evite pronome” no português brasileiro* [Loss of the Avoid Pronoun Principle in Brazilian Portuguese] (Publication No. 99179) [Doctoral dissertation, University of Campinas]. Repository of Intellectual and Scientific Production of UNICAMP.
- Featherston, S., Gross, M., Münte, T. F., & Clahsen, H. (2000). Brain potentials in the processing of complex sentences: An ERP study of control and raising constructions. *Journal of Psycholinguistic Research*, 29, 141–154.
- Figueiredo Silva, M. C. (1996). *A posição sujeito no Português Brasileiro: Frases finitas e infinitivas* [Subject position in Brazilian Portuguese: Finite phrases and infinitives]. Editora da Unicamp.
- Gallo, F., Bermudez-Margaretto, B., Shtyrov, Y., Abutalebi, J., Kreiner, H., Chitaya, T., Petrova, A., & Myachykov, A. (2021). First language attrition: What it is, what it isn't, and what it can be. *Frontiers in Human Neuroscience*, 15, 686388.
- Gomez, P., Ratcliff, R., & Perea, M. (2007). A model of the go/no-go task. *Journal of Experimental Psychology: General*, 136(3), 389–413.
- Grieve, J. (2021). Observation, experimentation, and replication in linguistics. *Linguistics*, 59(5), 1343–1356.
- Gudmestad, A., Edmonds, A., & Metzger, T. (2021). Moving beyond the native-speaker bias in the analysis of variable gender marking. *Frontiers in Communication*, 6, 723496.
- Hawkins, R. (2005). Revisiting Wh-movement: The availability of an uninterpretable [wh] feature in interlanguage grammars. In L. Dekydtspotter, R. Sprouse & A. Liljestrand (Eds.), *Proceedings of the 7th Generative Approaches to Second Language Acquisition Conference (GASLA 2004)* (pp. 124–137). Cascadilla Proceedings Project.
- Hawkins, R., & Chan, C. Y. (1997). The partial availability of Universal Grammar in second language acquisition: The ‘failed functional features hypothesis’. *Second Language Research*, 13, 187–226.
- Hlavac, M. (2018). stargazer: Well-Formatted Regression and Summary Statistics Tables. R package version 5.2.2. Retrieved August 14, 2020, from <https://CRAN.R-project.org/package=stargazer>
- Hornstein, N. (1999). Movement and control. *Linguistic Inquiry*, 30, 69–96.
- Hornstein, N. (2001). *Move! A minimalist theory of construal*. Blackwell.
- Hornstein, N., & Polinsky, M. (2010). *Movement theory of control*. John Benjamins.
- Ionin, T., & Zyzik, E. (2014). Judgment and interpretation tasks in second language acquisition research. *Annual Review of Applied Linguistics*, 34, 37–64.
- Ito, A. (2008). NP movement into theta-positions and unexpected behavior of behavior of numeral quantifier stranding. *Nanzan Linguistics: Special Issue*, 5, 79–93.
- Jaeggli, O., & Safir, K. (1989). The null subject parameter and parametric theory. In O. Jaeggli & K. Safir (Eds.), *The null subject parameter* (pp. 1–44). Kluwer Academic Publishers.
- Johnson, T. (2005). Snowball sampling. In P. Armitage (Ed.), *Encyclopedia of biostatistics*. Wiley. <https://doi.org/10.1002/0470011815.b2a16070>.
- Kasparian, K., & Steinhauer, K. (2016). Confusing similar words: ERP correlates of lexical-semantic processing in first language attrition and late second language acquisition. *Neuropsychologia*, 93, 200–217.
- Kasparian, K., & Steinhauer, K. (2017). When the second language takes the lead: Neurocognitive processing changes in the first language of adult attriters. *Frontiers in Psychology*, 8, 389.
- Kato, M., & Ordóñez, F. (2019). Topic subjects in Brazilian Portuguese and clitic left dislocation in Dominican Spanish: The role of clitics and null subjects. *Syntax*, 22(2–3), 229–247.
- Kato, M. A. (2000). The partial pro-drop nature and the restricted VS order in Brazilian Portuguese. In M. Kato & E. V. Negrão (Eds.), *Brazilian Portuguese and the null subject parameter* (pp. 223–258). Iberoamericana Vervuert.
- Kato, M. A., & Negrão, E. V. (Eds.) (2000). *Brazilian Portuguese and the null subject parameter*. Iberoamericana Vervuert.
- Kayne, R. (1994). *The antisymmetry of syntax*. MIT Press.
- Kayne, R. (2005). Some notes on comparative syntax, with special reference to English and French. In G. Cinque & R. Kayne (Eds.), *The Oxford Handbook of Comparative Syntax* (pp. 3–69). Oxford University Press.
- Kitagawa, Y., & Fodor, J. D. (2006). Prosodic influence on syntactic judgments. In G. Fanselow, C. Féry, M. Schlesewsky & R. Vogel (Eds.), *Gradience in grammar: Generative perspectives* (pp. 336–358). Oxford University Press.
- Kupisch, T., & Rothman, J. (2018). Terminology matters! Why difference is not incompleteness and how early child bilinguals are heritage speakers. *International Journal of Bilingualism*, 2(5), 564–582.

- la Bruna, A., & Rathod, S.** (2005). Questionnaire length and fatigue effects. *Bloomer White Paper*, 5, 2–17.
- Landau, I.** (2000). *Elements of control: Structure and meaning in infinitival constructions*. Kluwer.
- Landau, I.** (2004). The scale of finiteness and the calculus of control. *Natural Language and Linguistic Theory*, 22(4), 811–877.
- Landau, I.** (2013). *Control in generative grammar*. Cambridge University Press.
- Landau, I.** (2015). *A two-tiered theory of control*. MIT Press.
- Langsford, S., Perfors, A., Hendrickson, A., Kennedy, L., & Navarro, D.** (2018). Quantifying sentence acceptability measures: Reliability, bias, and variability. *Glossa*, 3(1), 1–34.
- Larsen, T., & Johansson, C.** (2020). Gone with a trace? Reactivation at PRO positions. In V. Torrens (Ed.), *Typical and impaired processing in morphosyntax* (pp. 91–116). John Benjamins.
- Lasnik, H.** (1995). Last resort and Attract F. *Proceedings of FLSM*, 6, 62–81.
- Leal, T., Destruel, E., & Hoot, B.** (2019). The acquisition of focus in L2 Spanish. *Second Language Research*, 35(4), 449–477.
- Marslen-Wilson, W., Tyler, L. K., Waksler, R., & Older, L.** (1994). Morphology and meaning in the English mental lexicon. *Psychological Review*, 101(1), 3–33.
- Merchant, D., & Gupton, T.** (2025). Processing dissociations between raising and control in Brazilian Portuguese. *Journal of Linguistics*, 61(2), 301–337.
- Meyerhoff, M.** (2019). *Introducing sociolinguistics*. Routledge.
- Modesto, M.** (2010). What Brazilian Portuguese says about control: Remarks on Boeckx & Hornstein. *Syntax*, 13(1), 78–96.
- Modesto, M.** (2014). *Epicene agreement, null finite subjects and inflected infinitives in BP* [Unpublished manuscript]. Department of Linguistics, University of São Paulo.
- Modesto, M.** (2018). Inflected infinitives in Brazilian Portuguese and the theory of Control. In A. L. Santos & A. Gonçalves (Eds.), *Complement clauses in Portuguese: Syntax and acquisition* (pp. 59–129). John Benjamins.
- Modesto, M., Soto, M., & França, A. I.** (2023). Experimental evidence of the production of inflected infinitives by Brazilian Portuguese speakers. *Revista da ABRALIN*, 23(1), 1–29.
- Molsing, K.** (2010). On the L2 acquisition of the Overt Pronoun Constraint in Brazilian Portuguese. In P. Guijarro-Fuentes & L. Domínguez (Eds.), *New directions in language acquisition: Romance languages in the generative perspective* (pp. 157–188). Cambridge Scholars Publishing.
- Montalbetti, M.** (1984). *After binding* (Publication No. 15222) [Doctoral dissertation, Massachusetts Institute of Technology]. DSpace@MIT.
- Montrul, S.** (2009). Knowledge of tense-aspect and mood in Spanish heritage speakers. *International Journal of Bilingualism*, 13(2), 239–269.
- Negrão, E.** (1997). Asymmetries in the distribution of overt and empty categories in Brazilian Portuguese. In J. Black & V. Motapanyane (Eds.), *Clitics, pronouns and movement* (pp. 217–235). John Benjamins.
- Nicol, J.** (1988). *Coreference processing during sentence comprehension* (Publication No. 14421) [Doctoral dissertation, Massachusetts Institute of Technology]. DSpace@MIT.
- Nicol, J., & Swinney, D.** (1989). The role of structure and co-reference assignment during sentence comprehension. *Journal of Psycholinguistic Research*, 18, 5–19.
- Nunes, J.** (2011). The copy theory. In C. Boeckx (Ed.), *The Oxford handbook of linguistic minimalism* (pp. 143–172). Oxford University Press.
- Pavlenko, A.** (2000). L2 Influence on L1 in late bilingualism. *Issues in Applied Linguistics*, 11(2), 175–205.
- Pavlenko, A.** (2004). L2 influence and L1 attrition in adult bilingualism. In M. Schmid, B. Köpke, M. Keijzer & L. Weilemar (Eds.), *First language attrition: Interdisciplinary perspectives on methodological issues* (pp. 47–59). John Benjamins.
- Pesetsky, D., & Torrego, E.** (2007). The syntax of valuation and the interpretability of features. In S. Karimi, V. Samiian, & W. Wilkins (Eds.), *Phrasal and clausal architecture: Syntactic derivation and interpretation* (pp. 262–294). John Benjamins.
- Pires, A., & Rothman, J.** (2009). Acquisition of Brazilian Portuguese in late childhood: Implications for syntactic theory and language change. In A. Pires & J. Rothman (Eds.), *Minimalist inquiries into child and adult language acquisition: Case studies across Portuguese* (pp. 129–154). Mouton DeGruyter.
- Pires, A., & Rothman, J.** (2010). Building bridges: Experimental L1 acquisition meets diachronic linguistics. In P. Guijarro-Fuentes & L. Domínguez (Eds.), *New directions in language acquisition: Romance languages in the generative perspective* (pp. 357–385). Cambridge Scholars Publishing.

- Pires, A., Rothman, J., & Santos, A. L. (2011). L1 acquisition across Portuguese dialects: Modular and interdisciplinary interfaces as sources of explanation. *Lingua*, **121**, 605–622.
- Psychology Software Tools, Inc. (2016). E-Prime (3.0). <https://support.pstnet.com>.
- Putnam, M., & Sánchez, L. (2013). What's so incomplete about incomplete acquisition? A prolegomenon to modeling heritage language grammars. *Linguistic Approaches to Bilingualism*, **3**(4), 478–508.
- Radford, A. (2019). *Relative clauses: Structure and variation in everyday English*. Cambridge University Press.
- Rodrigues, C. (2004). *Impoverished morphology and movement out of case domains* (Publication No. 1844) [Doctoral dissertation, University of Maryland, College Park]. Digital Repository at the University of Maryland.
- Rodrigues, C. (2007). Agreement and flotation in partial and inverse partial control configurations. In W. Davies & S. Dubinsky (Eds.), *New horizons in the analysis of control and binding* (pp. 213–229). Springer.
- Rodrigues, C., & Hornstein, N. (2013). Epicene agreement and inflected infinitives: When the data is “under control”: A reply to Modesto (2010). *Syntax*, **16**(3), 292–309.
- Rothman, J. (2007). Heritage speaker competence differences, language change, and input type: Inflected infinitives in heritage Brazilian Portuguese. *International Journal of Bilingualism*, **11**(4), 359–389.
- Rothman, J., & Treffers-Daller, J. (2014). A prolegomenon to the construct of the native speaker: Heritage speaker bilinguals are natives too! *Applied Linguistics*, **35**(1), 93–98.
- Saito, M. (2001). Movement and theta-roles: A case study with resultatives. In Y. Otsu (Ed.), *The proceedings of the second Tokyo conference on psycholinguistics* (pp. 35–60). Hituzi Syobo.
- Salzmann, M. (2019). A new version of the Matching Analysis of relative clauses: Combining deletion under recoverability with vehicle change. In M. Krifka & M. Schenner (Eds.), *Reconstruction effects in relative clauses* (pp. 187–224). DeGruyter.
- Sánchez, M. E., Sevilla, Y., & Bachrach, A. (2016). Agreement processing in control and raising structures. Evidence from sentence processing in Spanish. *Lingua*, **177**, 60–77.
- Silva-Corvalán, C. (1994). *Language contact and change: Spanish in Los Angeles*. Clarendon.
- Snyder, W. (2000). An experimental investigation of syntactic satiation effects. *Linguistic Inquiry*, **31**, 575–82.
- Sorace, A. (2011). Pinning down the concept of “interface” in bilingualism. *Linguistic Approaches to Bilingualism*, **1**(1), 1–33.
- Sorace, A., & Serratrice, L. (2009). Internal and external interfaces in bilingual language development: Beyond structural overlap. *International Journal of Bilingualism*, **13**(2), 195–210.
- Sprouse, J., Caponigro, I., Greco, C., & Cecchetto, C. (2016). Experimental syntax and the variation of island effects in English and Italian. *Natural Language and Linguistic Theory*, **37**(1), 307–344.
- Stowell, T. (1983). Subjects across categories. *The Linguistic Review*, **2**, 285–312.
- Tsehay, W., Pashkova, T., Tracy, R., & Allen, S. (2021). Deconstructing the native speaker: Further evidence from heritage speakers for why this horse should be dead! *Frontiers in Psychology*, **12**, 717352.
- Verbruggen, F., & Logan, G. (2008). Automatic and controlled response inhibition: Associative learning in the go/no-go and stop-signal paradigms. *Journal of Experimental Psychology: General*, **137**(4), 649–672.
- White, L. (2011). Second language acquisition at the interfaces. *Lingua*, **121**, 577–590.
- Williams, E. (1980). Predication. *Linguistic Inquiry*, **11**, 203–238.
- Yang, C. L., Gordon, P. C., Hendrick, R., & Wu, J. T. (1999). Comprehension of referring expressions in Chinese. *Language and Cognitive Processes*, **14**(5/6), 715–743.