Infinitive verbs, verbal agreement and perceived competence

Verbos infinitivos, concordância verbal e competência percebida

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Abstract: This paper examines how competent speakers of Brazilian Portuguese (BP) sound depending on variable number inflection of infinitive verbs (INF). Recent research has shown high rates of inflected infinitives in syntactic contexts in which it is prescriptively optional, such as adverbial clauses (CANEVER, 2012, 2017). According to that work, inflected infinitives also occur in nonstandard contexts, such as complements of auxiliary verbs, which can be taken as cases of hypercorrection. Informed by these findings and given the prestige usually associated with overtly marking verbal agreement in Brazil (SCHERRE; NARO, 2006, 2014), this study uses a modified matched-guise task (LAMBERT *et al*., 1960) in order to check whether speakers sound more educated, more intelligent and more formal in their INFflex-guise, and whether these perceptions vary significantly according to the syntactic context, the grammatical person and listeners' social characteristics (e.g. age). Results show that speakers are judged as more competent-sounding in their uninflected (INFø) guises, contradicting the initial hypothesis. However, further analyses show that this effect is stronger in the hypercorrect context as opposed to the syntactic context in which INFflex is more frequent. These results indicate a relation between frequency of occurrence in production and sociolinguistic perception, with higher rates of use translating into more neutral perceptions. Moreover, older respondents presented stronger reactions to INFflex guises, while younger respondents' judgments tended to be more neutral. Such age effects suggest a change in progress in the sociolinguistic perceptions associated to (INFflex).

Keywords: infinitive verbs; verb-subject agreement; perception.

Resumo: Este artigo examina quão competente soa o falante de português brasileiro (PB) a depender da flexão do infinitivo (INF). Pesquisas recentes demonstram altas taxas de infinitivos flexionados em contextos sintáticos opcionais, tais como orações adverbiais (CANEVER, 2012, 2017). De acordo com esses trabalhos, infinitivos flexionados também ocorrem em contextos não padrão, tais como complementos de verbos auxiliares, que podem ser considerados casos de hipercorreção. Considerando-se esses achados e o prestígio usualmente associado à marcação de concordância verbal no Brasil (SCHERRE; NARO, 2006, 2014), este estudo desenvolve uma versão modificada de um teste de estímulos pareados (LAMBERT *et al.*, 1960) para checar se o emprego de INFflex faz com que falantes soem mais educados, mais inteligentes e mais formais, bem como se tais percepções variam a depender do contexto sintático, da pessoa gramatical e de características dos ouvintes (p. ex. idade). Os resultados mostram que falantes foram julgados como mais competentes na presença de INFø, contrariando a hipótese inicial; análises mais detalhadas mostram, porém, que esse efeito é mais forte no contexto de hipercorreção em oposição ao contexto sintático no qual a variante INFflex é mais frequente. Tal resultado indica uma relação entre frequência de ocorrência na produção e percepção sociolinguística, com taxas mais altas de emprego traduzindo-se em percepções mais neutras. Além disso, respondentes mais velhos apresentaram reações mais polarizadas em relação a INFflex enquanto os mais jovens tenderam à neutralidade. Tal efeito de idade sugere uma mudança de percepção sociolinguística em progresso.

Palavras-chave: verbos infinivos; concordância verbal; percepção.

1 The problem of inflecting infinitives

Brazilian Portuguese (BP) is similar to a number of other Romance languages in reference to marking plural person redundantly. See in (1), for example, the first person singular and plural forms for the verb *cantar* 'sing' in the imperfect preterite; in Portuguese, Spanish, Italian and French, both the pronoun (*nós, nosotros, noi, nous*) and the morphemic inflection (*-mos, -mos, -ano, -ions*, respectively) work as plural marks. As (2) illustrates, Brazilian Portuguese is known to stand out among these languages, to the extent that subject-verb number agreement is actually variable (MENDES; OUSHIRO, 2015; NARO, SCHERRE, 1991; RÚBIO, GONÇALVES, 2012; SCHERRE; NARO, 2014, 2006; *inter*

alia), in spite of prescriptive grammars, which present (2a) as an invariable rule (ALMEIDA, 2009; BECHARA, 2009; CUNHA; CINTRA, 2013; LIMA, 2017; SAID ALI, 1966). However, when it comes to subject-verb agreement involving infinitive verbs, BP is the only language among those that appear in (1) that allows the addition of a plural morpheme to the infinitive verb, as *comprarmos* 'to buy-PL', in (3). In fact, the inflection of infinitives (a contradiction in terms) is considered an anomaly particular to very few of the Romance languages: Portuguese, Gallician, Mirandese, Sardinian, Old Neapolitan and Old Leonese (SCIDA, 2004).

(1)　a. eu cantava-Ø　　　nós cantáva-mos

　　　b. yo cantaba-Ø　　　nosostros cantaba-mos

　　　c. io cantav-o　　　　noi cantav-ano

　　　d. je chant-ais　　　　nous chant-ions

　　　　'I used to sing.'　'We used to sing.'

(2)　a. nós　　　cantáva-mos

　　　　we　　　sing:PST.1PL

　　　b. nós　　　cantava-Ø

　　　　we　　　sing:PST

　　　　'We used to sing.'

(3)　Fomos　　　lá　　　para　　comprar<u>mos</u>　　os　　ingressos.

　　　go:PST.1PL　there　to　　buy:INF.1PL　　the　tickets

　　　'*We went there to buy the tickets*.'

The example in (3) is a case that grammarians classify as optional (BECHARA, 2009; CIPRO NETO; INFANTE, 2010; CUNHA; CINTRA, 2013; LIMA, 2017; SAID ALI, 1966). This means that, in such contexts, the verb form is prescriptively considered correct with or without the plural inflection, and choosing one of the forms depends on stylistic factors and/or speakers' preferences; Bechara (2009, p. 286) states that the use of INFflex in a case like (3) shows that our focus is on the subject, while not inflecting the infinitive reveals that our attention is especially directed to the verbal action.

In this article, we refer to variable inflection in infinitive verbs as (INF), in parentheses. The variants are referred to as INFflex (as in

VERBmos) or INFø. Other cases in which these forms are considered optional by grammarians appear in (4) and (5). In (3-5), note that (i) the infinitive form is preceded by a preposition, which functions as the head of an adverbial subordinate clause, and that (ii) its verb subject is the same as the one in the main clause. Said Ali (1966, p. 349) also points to the optionality of INFflex when the infinitive verb serves as a complement of either nouns or adjectives, as in (6) and (7).[1] Therefore, we are calling cases such as the ones in examples (3-7) *prescriptively optional.*

(4) Chegamos   cedo   por esta<u>rmos</u>   ansiosos.
     arrive:PST.1PL   early   for be:INF.1PL   anxious:PL
     'We arrived early because we   were anxious.'

(5) Eles usam   o   computador para assisti<u>rem</u>   a   filmes.
     they use:PRS.3PL   the   computer   to   watch:INF.3PL to   movies
     '*They use a computer to watch movies*.'

(6) Entendemos   a   importância de controla<u>rmos</u>   nossos   gastos.
     understand:PRS.1PL the importance of control:INF.1PL our   expenses
     '*We understand the importance of controlling our expenses*.

(7) Somos   capazes   de   cria<u>rmos</u>   novos   neurônios.
     be:PRS.1PL   capable   of   create:PRS.1PL   new   neurons
     '*We are capable of creating new neurons*.'

However, there are contexts in which only the INFflex form is considered correct by grammarians, as in (8-9), when an overt plural subject precedes the verb. In other words, we have here a case of *prescribed* INFflex:[2]

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[1] While the optionality of INFflex in co-referential adverbial clauses is mentioned by many grammarians, the status of INFflex in complements of nouns and adjectives is rarely discussed. Said Ali (1966) is one of the few exceptions.

[2] INFflex is also possible with 2SG, as in "Tu não <u>perceberes</u> a mentira me surpreende" ("*Your not noticing the lie surprises me*"), as well as with 2PL. However, 2SG forms are less frequently used (in a few dialect regions in Brazil) while 2PL forms are virtually nonexistent. Therefore, in this article we focus on the variable use of INFflex with 1PL and 3PL.

(8) A   prioridade   é   os   alunos   aprende<u>rem</u>   a   ler.

     the   priority   be:PRS.1SG the   students learn:INF.3P   to   read:INF

     '*The priority is for the students to learn to read*.'

(9) É   importante   nós   analisa<u>rmos</u>   esse   ponto   de   vista.

     is   important   we   analyze:PRS.1PL   this   point   of   view

     '*It is important for us to analyze this point of view.*'

Finally, (10) is an example commonly ruled out by prescriptive grammarians, who state that INFflex should not be employed when the infinitive verb is a complement of an auxiliary verb (ALMEIDA, 2009; BECHARA, 2009; CUNHA; CINTRA, 2013; LIMA, 2017, SAID ALI, 1966).[3]

(10) Nós   podemos   cancela<u>rmos</u>   a   assinatura   após   12 meses.

     we   can:1PL   cancel:INF.1PL   the   subscription   after   12 months

     '*We can cancel the subscription after 12 months*.'

While the use of INFø in (8-9) could be considered *nonstandard*, in this article we are using this term specifically to refer to the use of INFflex in cases like (10). That is, we do not focus on nonstandard lack of prescribed INFflex, but rather on nonstandard instances in which INFflex is overused – cases that we are thus considering examples of hypercorrection (LABOV, 1972).

If on the one hand there is consensus among grammarians when it comes to examples like (10), on the other hand some grammarians openly disagree on the use of INFflex in syntactic contexts like those in (3)-(7). See for example Almeida (1981, p. 156), for whom the use of INFflex must be limited to "instances of real need to indicate its subject".[4] When the verb subjects both in the main and in the subordinate clauses

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[3] Many grammarians, such as Bechara (2009), Cunha and Cintra (2013), Lima (2017) and Said Ali (1966), consider INFflex justifiable in cases like (10) when there is a long distance between the main verb and its infinitive complement, but none of them specifically discuss how far the infinitive verb must be from the main verb for INFflex to be "acceptable" (LIMA, 2017, p. 506).

[4] Original: "*casos de real necessidade de identificação do seu sujeito*".

are identical and there is no lack of clarity, as in examples (3-5), Almeida (1981, p. 155) considers the use of INFflex "extravagant and silly".

In contrast to Almeida (2009), who sees the expansion of INFflex in Brazilian Portuguese (BP) as evidence of linguistic decay, Maurer Jr. (1968) purports that this process is natural and an expected linguistic phenomenon. According to him, since INFflex has emerged in the language, there is a tendency for its uses to expand (MAURER JR., 1968, p. 89).

Recent empirical studies have indicated that an expansion of INFflex is indeed in progress. Regarding European Portuguese (EP), Bossaglia (2013a) carried out a corpus-based study on the variable use of INFflex using the CETEMPúblico corpus, focusing on constructions with causative (11-12) and perception verbs (13-14*).*[5]

(11) ...o   mais   sensato   seria   deixá-las   escolhe<u>r</u>   o   nível.
     the   most   reasonable would.be let-3PL.ACC choose:INF the level
     "... the most reasonable thing would be to let them choose the level."

(12) não se   consegue fazer   as   pessoas compra<u>rem</u>   discos à   força.
     not REFL can   make   the people   buy:INF.3PL   records by   force
     "... it is not possible to make the people buy records forcefully."

(13) A   gente   ouvia-os   chega<u>r</u>,   fala<u>r</u>   e   instala<u>r</u>   o   material.
     The people heard.3PL.ACC arrive:INF   talk:INF   and set-up:INF the material
     "We heard them arrive, talk and set up the material."

(14) ... ouve   os   revisionistas nega<u>rem</u>   a   existência do   Holocausto.
     Hear.3SG.PRS the revisionists   deny:INF.3PL the existence of-the Holocaust
     "... he hears the revisionists deny the existence of the Holocaust."

Based on the premise that a higher semantic integration corresponds to a higher syntactic integration (GIVÓN, 1995), Bossaglia (2013b) tested whether the fact that perception constructions are less semantically integrated – and thus more syntactically independent – would favor the use of INFflex. Not only has her data analysis confirmed

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[5] Examples (11-14) were extracted from Bossaglia (2013a, p. 225).

that hypothesis,[6] it has also revealed higher rates of inflection for causative verbs that have a more agentive nature, such as *permitir* 'to allow', *impedir* 'to prevent', and *obrigar* 'to force'. The study also revealed data that Bossaglia (2013b, p. 228) considered "irregular", such as:

(15) ... não   os   deixa   fica<u>rem</u>   sozinhos.
        not   3PL.ACC   let.3PL.PRS   stay:INF.3PL   alone
      "… he doesn't let them be alone."

(16) Nunca os   ouvi   reclama<u>rem</u>   o   ordenamento do   território.
      never 3PL.ACC   hear.1SG.PST   demand:INF.3PL   the planning   of-the space
      "I've never seen them demanding the spatial planning."

(17) Quero   fazê-las   se<u>rem</u>   elas   próprias.[7]
      want.1SG.PRS   make-3PL.ACC   be:INF.3PL   3PL.NOM   own
      "I want to make them be themselves."

(18) Vi-os   assina<u>rem</u>   a   paz   com a   maioria dos   clãs.
      see.1SG.PST-3PL.ACC   sign:INF.3PL   the   peace   with the   majority of-the clans
      "I saw them signing the peace treaty with most clans."

From a formal perspective, examples (15-18) are considered Exceptional Case-Marking structures (ECM), in which the infinitive subject receives the accusative case from the main verb, and therefore only INFø could supposedly occur. According to Bossaglia (2013b), the use of INFflex in (15-18) can be interpreted as a result of an "overgeneralizon of the inflection", possibly related to higher subject agentivity and the presence of the preposition.[8] For Maurer Jr. (1968),

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[6] Perception constructions display "a higher degree of freedom in the use of inflected infinitives by virtue of the lower degree of semantic integration" (BOSSAGLIA, 2013b, p. 229).

[7] This is a reduced version of the original example in Bossaglia (2013b, p. 228), which was *"Quero desarmar as pessoas, fazê-las serem elas próprias"* *("I want to defuse people, make them be themselves").*

[8] The variable use of INF in EP is also explored by Vandershueren (2013), Vanderschueren and Diependaele (2013) and Vanderschueren and de Cuypere (2014), who focused on adverbial clauses.

these examples would serve to illustrate his prediction for the expansion of INFflex to new, at-first unexpected syntactic contexts.

As for Brazilian Portuguese (BP), Ladeira (1986 *apud* CABRAL, 2006) analyzed data on infinitive verbs extracted from the news and from the Bible,[9] and found the following conditioning factors for the use of INFflex: (i) 1PL; (ii) sentence-initial infinitive clauses; (iii) a long distance between the main-clause verb and the infinitive verb; (iv) the presence of plural predicates and participles; (v) the occurrence of the infinitive in adverbial clauses; and (vi) the presence of reflexive pronouns. Ladeira also found that the occurrence of oblique pronouns in the position of infinitive subject inhibits INFflex.

Drawing on these results, Cabral (2006) investigated the use of INFflex in written news[10] in order to test whether the variable use of INFflex is guided by stylistic factors, as defended by some grammarians, or whether there are syntactic, semantic and extralinguistic factors that correlate with the use of INFflex. As a result of both the frequent use of verbal agreement (NARO; SCHERRE, 2003) and the preference for an explicit pronominal subject in BP (DUARTE, 1995), Cabral expected that INFflex would be more frequent than INFø in standard language, as in written news. Contradicting her main hypothesis, Cabral observed a higher rate of INFø. She also found that non-canonical types of relative clauses (19) and the passive voice are contexts that favor INFflex (CABRAL, 2006, p. 84).

(19) É claro   que surgem, habitualmente, obstáculos a se<u>rem</u>   vencidos.

     is obvious that appear   habitually   obstacles   to be:INF.3PL overcome:PTCP

     'It is obvious that, habitually, obstacles appear that need to be overcome.'

Another study that focuses on variable (INF) in a written corpus is Canever (2012), who shows high rates of INFflex in prescriptively optional contexts: 75% in adverbial clauses (N=525),[11] 53,5% in

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[9] Ladeira (1986 *apud* CABRAL, 2006) used *Jornal do Brasil* editorials and a Brazilian translation of the *Jerusalem Bible*.

[10] Cabral (2006) extracted her data from editorials and news reports from the newspapers *Jornal do Brasil* and *O Globo*.

[11] Canever (2012) only considered cases of optional INFflex those with co-referentiality between the subjects of the adverbial and the main clause.

complements of adjectives (N=101) and 94,5% in complements of nouns (N=54). Canever (2012) also finds, in academic writing, instances of what was defined above as nonstandard/hypercorrect INFflex:

(20) ...tão importantes que não poderiam se<u>rem</u>   esquecidas

      so   important   that not could   be:INF.3PL   forgotten

  '... *so important that they couldn't be forgotten.*'

(21) As   virtudes começam   a   se<u>rem</u>   tratadas no   capítulo 8

  The   virtues   begin   to   be: INF.3PL treated   in.the chapter 8

  '*The virtues begin to be treated in chapter 8.*'

In (20) and (21), as well as in (10) earlier, we have tokens of INFflex in periphrastic constructions, with the infinitive verb serving as a complement for an auxiliary verb. The fact that these data occurred in theses and dissertations – which involve a high degree of formality and careful style in the sense of LABOV (1966) – is strong evidence that the variable use of INFflex in verbal periphrases is an actual feature of the "Brazilian cultivated norm" (FARACO, 2008). In addition, Canever (2012) also indicates a preference for INFflex with (i) 1PL in adverbial clauses (90%, N=177) and (ii) with passive voice (92%, N=101).

So far, we have discussed (INF) both from the perspective of prescritive grammars and from the perspective of descriptive studies. Although linguists are concerned with language description, taking into consideration the viewpoint of prescriptive grammarians is particularly important when it comes to investigating (INF). This morphosyntactic variable constitutes a gray area for prescriptive grammarians themselves (differently from other cases, for which their positions are categorical and unambiguous), and speakers are exposed to those positions when searching for the prescribed (INF) forms. Speaker's beliefs about language are informed by this kind of information, and this is particularly true in the case of (INF). As for empirical studies on (INF), while they do shed light on the use of INFflex in both European and Brazilian Portuguese, they do it from a synchronic perspective and, in the case of (BP), offer no statistical analyses of the data. The next section establishes the ground for the perception study by summarizing a diachronic analysis of INFflex in (BP).

2 The motivation for a perception study on (INF)

Considering both the occurrence of INFflex in nonstandard/ hypercorrect contexts and the frequent use of optional INFflex in academic writing, Canever (2017) hypothesized that the frequency of INFflex in optional contexts would be on the rise. This hypothesis was tested in a corpus of 1,346 master theses and Ph.D. dissertations defended at the University of São Paulo between 1995 and 2014 (Corpus_Pós_ USP). The study focused on (INF) in adverbial clauses, as well as in nominal and adjectival complements – the three syntactic contexts in which, according to Bossaglia (2013b), variable (INF) emerged. Given the findings of Canever (2012), variable grammatical person (1PL x 3PL) and the verb ('*be*' x others)[12] were tested as linguistic predictors.[13]

In a total of 285,182 tokens of (INF) extracted from the corpus, 21% (61,444) were instances of the three syntactic contexts being focused. From these, a qualitative analysis carefully excluded the tokens in which the verb of the main clause was impersonal, as in (22-23).[14] The remaining 24,945 tokens were then statistically analyzed in R.[15] Table 1 shows how these data are distributed across the three syntactic contexts.

(22) ...mas há   razão   para supor∅   que   a   intersecção é grande.

     but   exists reason to   assume:INF that the intersection is big

       '... but there is reason to assume that the intersection is big.'

(23) Quais são os   principais planos para atingir∅   estes objetivos?

     what   are the main   plans   to   reach:INF these goals

     'What are the main plans to reach these goals?'

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[12] This variable was tested given the fact that all nonstandard instances of INFflex found by Canever (2012) were with '*be*', as in (20-21).

[13] A full description of the variables tested in this study can be found in Canever (2017, p. 62)

[14] Although INFflex is possible in these impersonal constructions (e.g. "para supormos", "para atingirmos"), the meaning of the sentences would be completely different. Therefore, these are not instances of (INF), that is, they are not in the envelope of variation – differently from those with clear co-referentiality between the subject of the main clause and the subject of the infinitival clause.

[15] For a detailed explanation of data extraction and qualitative analysis, see Canever (2017, p. 49-64).

TABLE 1 – Distribution of (INF) according to syntactic context (CANEVER, 2017)[16]

	(INF)
Adverbials	17,045
Adjective complements	4,205
Noun complements	3,695
Total	24,945

Figure 1 shows that, in academic writing, the frequency of INFflex in these contexts did not rise from 1995 to 2014. Differently from what was hypothesized, we observe a rather stable frequency of INFflex overall, and, in fact, statistical analyses showed no significant difference among the rates of INFflex over the years. While one could argue that a 20-year period is relatively short, this diachronic pattern is revealing not only in that it contradicts the trend pointed out by Canever (2012), but also in that it indicates an unexpected stability regarding the use of INFflex in written BP. Still, more diachronic studies are needed in order to shed light on the usage patterns of INFflex considering earlier years.

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[16] Only 8 instances of INFflex in complements of modal verbs were found in the corpus, namely 3 instances of 3PL and 5 instances of 1PL. Although infrequent, they can be taken as instances of hypercorrect INFflex, as they have been produced by highly educated speakers in a very careful style.

FIGURE 1 – Rate of INFflex in academic writing from 1995 to 2014
(CANEVER, 2017)
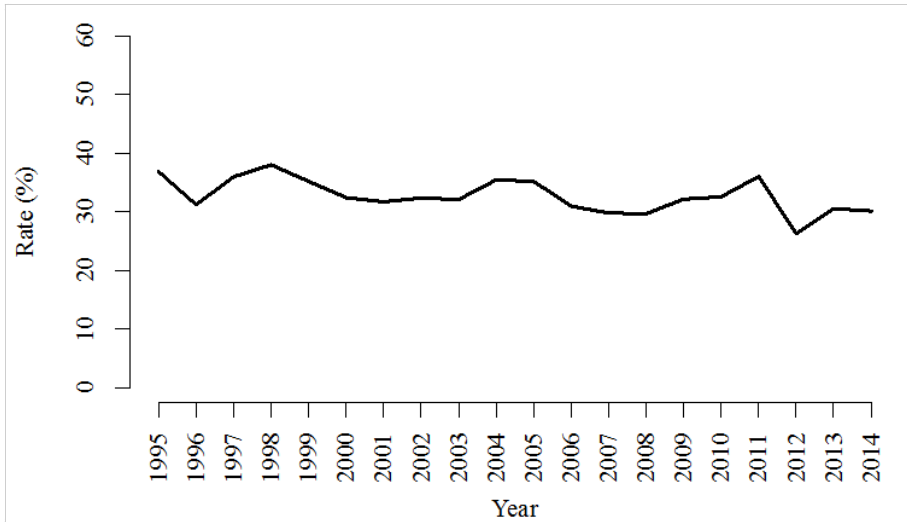
Canever (2017) also found that (i) INFflex is more frequent in adverbial clauses than in complements of nouns and adjectives (Figure 2), and (ii) there is a statistically significant preference for INFflex with 1PL in adverbial clauses – as expected, based on Canever (2012) – and in nominal complements, and for 3PL in adjectival complements.

FIGURE 2 – Rates of INFflex according to syntactic context (CANEVER, 2017)
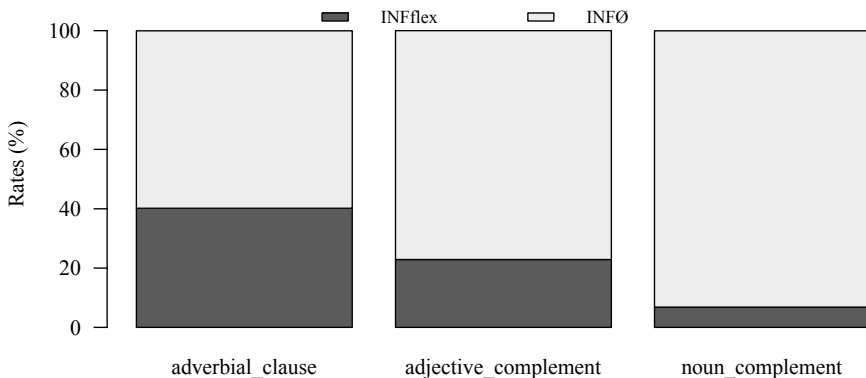
Drawing on the diachronic study by Canever (2017), this paper essentially asks whether INFflex is currently associated with positive social meanings. In light of the stability regarding the use of INFflex in academic writing, it is of interest to investigate to what extent this diachronic pattern relates to sociolinguistic perceptions of INFflex among BP speakers. Is it the case that stable and frequent rates of INFflex in adverbial clauses over the years have impacted speakers' perceptions when it comes to INFflex in this syntactic context? Regarding the attested preference for INFflex with 1PL in adverbial clauses, do speakers's perceptions vary depending on whether INFflex occurs with 1PL or 3PL?

Given the prestige usually associated with overtly marking agreement in BP (MENDES; OUSHIRO, 2015; NARO; SCHERRE, 1991; RÚBIO; GONÇALVES, 2012; SCHERRE; NARO, 2014, 2006; *inter alia*), our main goal here is to verify if speakers sound more educated, more intelligent and more formal in their INFflex- than in their INFø-guises. Although subject-verb agreement is one of the most studied variables in BP, there has been little research focusing on infinitive verbs,[17] and no perception study regarding inflected infinitives in BP.

It is of particular interest to check how the social values of INFflex differ depending on whether it is used in a prescriptively optional syntactic context (like adverbial clauses) or in a nonstandard/hypercorrect context (as complements of modal verbs – see example (10) in section 1). In this regard, an effect of listeners' education is expected, with nonstandard INFflex-guises leading to more positive perceptions among less educated speakers. This prediction is not only related to the fact that hypercorrection has been originally associated with lower middle class speakers (LABOV, 1972), but also to the stigma associated with lack of verbal agreement in Brazil. In light of this scenario, we hypothesize that less educated Brazilian speakers might have a generalized belief that *the more verbal agreement they use, the better they speak*.

The next section outlines the design of a matched-guise experiment that deals with all of these variables: the speaker (two men and two women), the main linguistic variable (INF), the plural person (1PL or 3PL), the syntactic context (adverbial clause, in which INFflex is optional; or complement of modal verbs, in which INFflex is nonstandard).

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[17] Besides the aforementioned studies that dealt with written BP, Görski (2000) investigated (INF) in oral BP and found a rate of 8% of INFflex.

3 Designing a perception experiment: (INF) and notions of competence

In the previous sections, we built an argument in favor of a perception experiment to test if INFflex indexes positive social meanings. Crucially, we want to check if there is a difference in listeners' reactions to INFflex and INFø depending on whether (i) their syntactic context is optional or nonstandard, and (ii) the person subject is first (1PL) or third (3PL) and (iii) they were produced by a man or a woman. For (i), we decided that we should use adverbial clauses, since it is the most frequent context in which (INF) occurs (at least in academic writing) and the one in which INFflex itself is also significantly more frequent (see FIGURE 2). For (ii), our decision to include subject-person as a variable in the experiment is based on the fact that INFflex (instead of INFø) is preferred with 1PL when it comes to adverbial clauses. Finally, since we had four combinations (2 syntactic contexts x 2 grammatical persons) and we wanted each voice to be heard only once by each respondent, we decided to record four different speakers, so that we could check for differences in perceptions depending on whether the stimulus was produced by male or female voices. In addition, we decided to use two female and two male voices in order to check if differences in perception would correlate to gender or to speakers.

In order to account for these variables, we created the following sentences:

TABLE 2 – INFflex and INFø stimuli used in the task

		INFflex	INFØ
Adverbial clause	1PL	Aqui em casa, além da televisão, nós também usamos o computador 'pra' **assistirmos** a filmes e séries. *'Here at home, besides the tv, we also use the computer in order to watch movies and series.'*	Aqui em casa, além da televisão, nós também usamos o computador 'pra' **assisti'** a filmes e séries. *'Here at home, besides the tv, we also use the computer in order to watch movies and series.'*
	3PL	Hoje em dia, com diversos aplicativos novos, muitas pessoas usam a internet 'pra' **fazerem** ligações. *'Nowadays, with many news apps, many people use to the internet to make calls.'*	Hoje em dia, com diversos aplicativos novos, muitas pessoas usam a internet 'pra' **fazê'** ligações. *'Nowadays, with many news apps, many people use to the internet to make calls.'*
Modal verb complement	1PL	No caso da televisão a cabo, só depois de 12 meses nós podemos **cancelarmos** a assinatura. *'When it comes to cable tv, we can cancel the subscription only after 12 months.'*	No caso da televisão a cabo, só depois de 12 meses nós podemos '**cancelá'** a assinatura. *'When it comes to cable tv, we can cancel the subscription only after 12 months.'*
	3PL	Com tantos aplicativos infantis hoje em dia, as crianças podem **aprenderem** muito. *'With so many child apps nowadays, kids can learn a lot.'*	Com tantos aplicativos infantis hoje em dia, as crianças podem '**aprendê'** muito. *'With so many child apps nowadays, kids can learn a lot.'*

We recorded the speakers as they read the INFflex version of these sentences as naturally as they could (that is, by trying to sound as if they were not reading them). We then selected the most natural-sounding recordings and created their INFø version, by using PRAAT (BOERSMA; WEENINK, 2019) to cut the plural inflections (1PL –*mos* and 3PL –*em*). We also cut the infinitive morpheme /-r/, since final /r/ is nearly-categorically deleted in spoken BP, especially when it comes to the pronunciation of infinitive verbs (OLIVEIRA, 1983; OUSHIRO;

MENDES, 2014; OUSHIRO, 2015).[18] In other words, leaving the infinitive /-r/ in the INFø guises would have made the stimuli sound noticibly different from what is usual in spoken BP.

Considering the 4 original INFflex stimuli and their corresponding 4 INFø matches (2 syntactic contexts x 2 grammatical persons x INFflex/ INFØ), 32 stimuli were created in total, since 4 speakers were recruited. The goal in this case is to test how the same speaker is perceived when listened to in each of the guises. For instance, if a speaker is perceived as more intelligent when heard in their INFflex-guise comparatively to their INFø-guise, this difference in perception can be attributed to the only feature that differentiates the guises; the infinitive inflection.

With that in mind, the stimuli were organized so that each respondent would listen to both syntactic contexts (adverbial x modal clauses), both grammatical persons (1PL x 3PL), and both inflection variants, but only once to each speaker – in a way that every participant would listen to four stimuli (one by each of the speakers). Although some studies that also utilize modified versions of matched-guised tasks have respondents listen to the same speakers more than once, such as Bekker and Levon (2017),[19] we assumed that our respondents would realize that they were listening to the same speakers repeatedly, in a way that their perceptions stimulated by later stimuli would be likely primed by earlier ones. Given the number of speakers and the nature of the linguistic variable being focused on, we preferred to reduce the time necessary to accomplish the task in order to reduce task abandonment.

To satisfy these conditions, we created eight sets of stimuli, with four stimuli each, one by each speaker. For example, Table 3 shows that set A1 is composed of the stimuli highlighted in black. Table 4 shows set A2 – the matched version of A1 (the cells that were white in Table 3 are black in Table 4). Sets A1 (Table 3) and A2 (Table 4) are the same, except for variable (INF), which defines the guises. In the interest of concision, we do not illustrate the remaining 6 matched sets of stimuli (B1/B2, C1/ C2, D1/D2), but their structure follow the same design shown in Tables 3 and 4, but with the stimuli that are grey.

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[18] These authors found a rate of 97% of deletion of infinitive /-r/.
[19] Bekker and Levon (2017) presented respondents with two stimuli from the same speaker – one in English and one in Afrikkans.

TABLE 3 – Example of a set of stimili: set A1

A1	Man 1		Man 2		Woman 1		Woman 2	
Adverbial 1PL	flex	Ø	flex	Ø	flex	Ø	flex	Ø
Adverbial 3PL	flex	Ø	flex	Ø	flex	Ø	flex	Ø
Modal 1PL	flex	Ø	flex	Ø	flex	Ø	flex	Ø
Modal 3PL	flex	Ø	flex	Ø	flex	Ø	flex	Ø

TABLE 4 – Example of a matched set of stimuli: A2

A2	Man 1		Man 2		Woman 1		Woman 2	
Adverbial 1PL	flex	Ø	flex	Ø	flex	Ø	flex	Ø
Adverbial 3PL	flex	Ø	flex	Ø	flex	Ø	flex	Ø
Modal 1PL	flex	Ø	flex	Ø	flex	Ø	flex	Ø
Modal 3PL	flex	Ø	flex	Ø	flex	Ø	flex	Ø

The task was set up in the online survey platform Qualtrics, and people were invited to participate via e-mail and social media. Once respondents accessed the survey, they were randomly assigned one of the eight sets of stimuli (or conditions). After a short introduction that described the basic instructions for the task, the four stimuli of the assigned condition were then randomly presented to the participant. After listening to each audio clip, the listener was asked to rate it on five evaluative scales (see Appendix A), which were designed so as to elicit listener judgments of speaker competence (*educated/not educated, intelligent/ not intelligent, formal/not formal*), sexuality (*gay-lesbian/ not gay-lesbian*), and accent (*Paulistano/not Paulistano*).[20] The idea of testing a correlation between gay-soundingness and the variants of (INF) is based on Mendes (2016), whose work on nominal number agreement showed that four male voices were consistently perceived as more masculine-sounding when heard in their nonstandard guises, that is, when their plural NPs lacked plural /s/ in the nominal nucleus (as in *as coisa-ø* 'the things'). Similarly, given the fact that this study is part of a body of research that has been investigating how certain linguistic variants make speakers sound more or less *Paulistano* – such as Oushiro (2015) and Soriano (2016), about coda (-r) pronunciation, and Mendes (2016) about (EN) –, the accent scale was included in order to verify if

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[20] *Paulistanos* are those born and raised in the city of São Paulo.

there is any correlation between inflecting the infinitive and sounding more or less *Paulistano*. Prior to a final demographic questionnaire, in which respondents were asked about their age, sex, education, and place of origin, they answered a few multiple-choice questions about the speakers (see Appendix A). This article, however, focuses on the scalar responses, more specifically on the scales that are related to perceived competence.

Each set of stimuli was listened to by at least 50 respondents, for a total of 411. Most of them (61%) are from the city of São Paulo and its metropolitan area, although there were a considerable number of participants from other states (31%). The great majority of listeners are highly educated (44% have a college degree and 48% have a postgraduate degree), and most of them are between 20 and 39 years old (74%).

5 Findings

Listeners' reactions to the 32 experimental stimuli were statistically analyzed in R (R CORE TEAM, 2018). In order to check if the responses in the scales correlated to one another, we initially ran a Principal Components Analysis of the data (function *principal* of package *psych* – REVELLE, 2016). Table 5 shows, as expected, that the responses on the scales for education, intelligence and formality are positively correlated – meaning that respondents that perceived a certain speaker in a certain guise as more educated- also perceived her or him as intelligent- and formal-sounding (note that the responses on the the two first scales load on to the first principal component more strongly than the third). Following Levon (2014) and Mendes (2016), we named this first component as Perceived Competence. As for the responses on the scales for gay-soundingness and Paulistanity, they do not correlate with any of the others and we simply used the same terms to name the corresponding components.

TABLE 5 – Factor loadings for five perceptual evaluation scales
(Method: PCA with promax rotation)

	'Competence'	'Gay-soundingness'	'Paulistanity'
Education	**0.89**	-0.03	0.04
Intelligence	**0.89**	-0.03	0.01
Formality	**0.75**	0.07	-0.05
Gay-soundingness	-0.03	**1.00**	0.00
Paulistanity	0.02	0.00	**0.99**
SS loadings	2.13	1.00	1.00
Proportion Variance (%)	43	20	20
Cumulative Variance (%)	43	63	83
Proportion Explained (%)	52	24	24
Cumulative Proportion (%)	52	76	100

The factor scores generated by the Principal Component Analysis were taken in subsequent regression modeling as the dependent variable. Mixed-effect regression models were run, with both the respondents and the speakers being included as random intercepts.[21]

Contradicting our hypothesis that INFflex might be associated with positive social values, such as higher perceived competence, speakers were perceived as more competent-sounding in their INFø-guises, as can be seen in Figure 3. Furthermore, Figure 4 shows that the difference is greater in modal constructions – a context in which the use of INFflex is an example of hypercorrection, as discussed earlier – while in adverbial clauses, in which INFflex is *prescriptively optional*, there is a smaller difference in how speakers were perceived in reference to the guises (INFflex or INFø).

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[21] Speaker and Speaker Gender did not turn out to be significant predictors of the participants' responses.

FIGURE 3 – PCA scores for perceived competence based on INFflex and INFØ
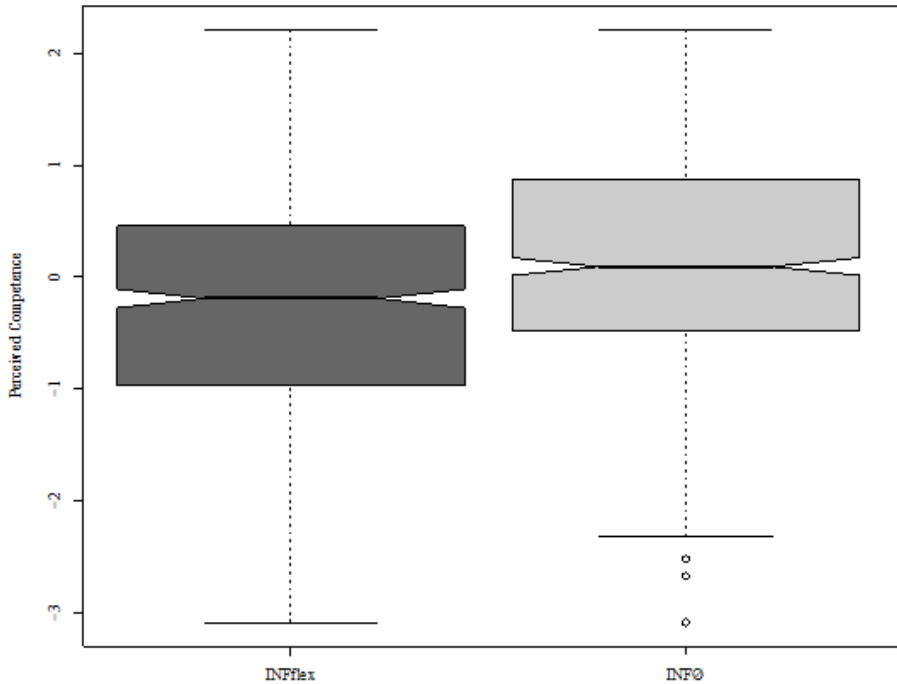
Considering that the intercept is alphabetically defined as INFø and Adverbial clauses, Table 6 shows that all differences are statistically significant: (i) between responses based on INFflex and INFø; (ii) between responses based on the syntactic contexts (modal *versus* adverbials); and (iii) between responses based on the interaction (INF):Syntactic Context. In other words, the results summarized in Table 6 confirm what the boxplots indicate: speakers are heard as more competent-sounding in their INFø-guises, and this effect is greater in modal constructions. In other words, (INF) has a stronger effect in the hypercorrect context as opposed to the prescriptively optional one. Also note that sentences with modal forms, regardless of the INF-guise, generally get lower ratings (-0.216, *p*<0.001).

FIGURE 4 – PCA scores for perceived competence based on INFflex and INFØ
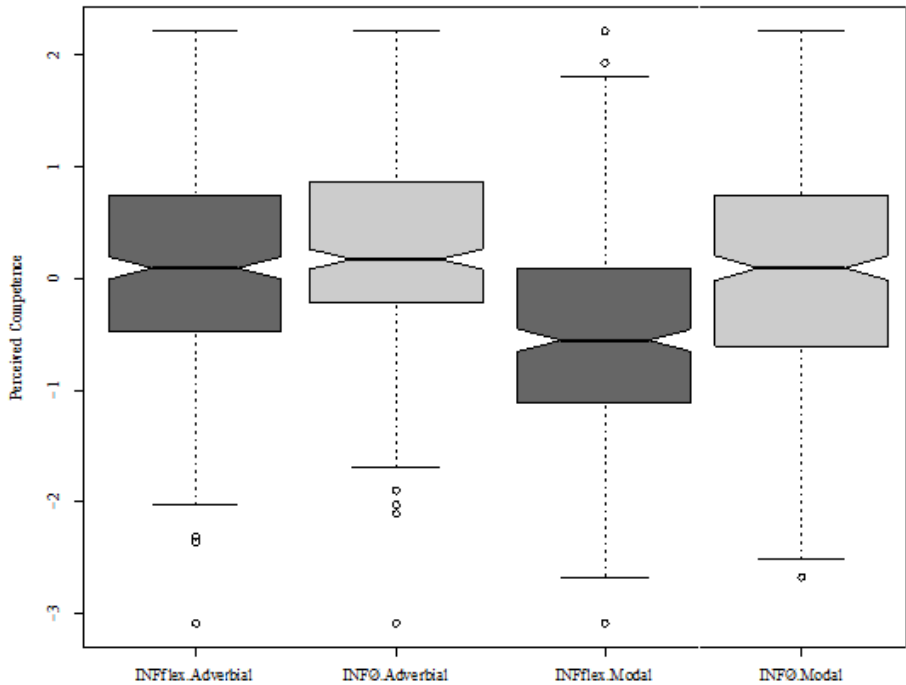in two syntactic contexts

TABLE 6 – Linear mixed-model regression results for *Perceived Competence*:
Syntactic context effect

Fixed effects	Estimate	Standard error	t value	*p* value
(Intercept)	0.246	0.132	1.865	0.139
(INF)-INFflex	-0.159	0.057	-2.794	0.005**
Syntactic Context (Modal)	-0.216	0.057	-3.797	<0.001***
(INF)-INFflex:Syntactic Context (Modal)	-0.309	0.080	-3.827	<0.001***

Total N: 1432. Random effects: RESPONDENT (368), SPEAKER (4). Log likelihood: -1833.492

Formula: PCA ~ INF * SYNTACTIC_CONTEXT + (1 | RESPONDENT) + (1 | SPEAKER)

If instead of Syntactic Context (modal x adverbial clauses) we
include Grammatical Person (1PL x 3PL) in the regression model, we
see that this is not a significant predictor of the participants' responses

– differently from what we expected at first. The difference between responses based on INFø (Intercept) and INFflex is still significant (p= 0.001), but there is no effect of Grammatical Person, nor of the interaction (INF):Grammatical Person.[22]

TABLE 7 – Linear mixed-model regression results for *Perceived Competence*: Person

Fixed effects	Estimate	Standard error	t value	*p* value
(Intercept)	0.083	0.134	0.621	0.567
(INF)-INFflex	-0.246	0.077	-3.165	0.001 **
Grammatical Person-3PL	0.111	0.077	1.430	0.153
(INF)-INFflex:Gram.Person-3PL	-0.137	0.131	-1.046	0.296

Total N: 1432, Random effects: Respondent (368), SPEAKER (4).Log likelihood: -1833.492

Formula: PCA ~ INF * GRAMMATICAL PERSON + (1 | RESPONDENT) + (1 | SPEAKER)

With regard to Respondents' Age, we found that younger respondents tend to perceive speakers' competence more neutrally irrespective of the guise, while older listeners tend to perceive the speakers as more competent-sounding in their INFø guises and less competent-sounding in their INFflex guises. Table 8 shows a significant interaction between (INF) and the Respondent's Age, even though (INF) and Age are not, themselves, predictors in this model.

TABLE 8 – Linear mixed-model regression results for *Perceived Competence:* Age effect

| Fixed effects	Estimate	Standard error	t value	*p* value
(Intercept)	0.084	0.178	0.471	0.646
(INF)-INFflex	0.056	0.138	0.405	0.685
Respondent_Age	0.001	0.003	0.462	0.643
(INF)-INFflex: Respondent_Age	-0.011	0.004	-2.785	0.005 **

Total N: 1408. Random effects: Respondent (362), SPEAKER (4). Log likelihood: -1856.558

Formula: PCA ~ INF * RESPONDENT_AGE + (1 | RESPONDENT) + (1 | SPEAKER)

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[22] There is also no significant interaction (INF): Grammatical Person if we include Syntactic Context as another interaction in the regression model (p=0.534).

Figure 5 shows the effect of the interaction between (INF) and Respondents' age. Each dot represents an answer given by a respondent (based on INFflex/black or INFø/grey), the x-axis represents Respondents' age while the y-axis represents perceived competence ratings (PCA scores). The corresponding regression lines indicate that younger speakers (especially those that are 35 years old or younger) have similar perceptions of competence (the lines are parallel and close to one another). Toward the right portion of the plot, the patterns move in opposite directions: older participants hear the speakers as more competent-sounding in their INFø-guises and less-competent sounding in their INFflex-guises.[23]

FIGURE 5 – Respondents' answers according to their age

_____
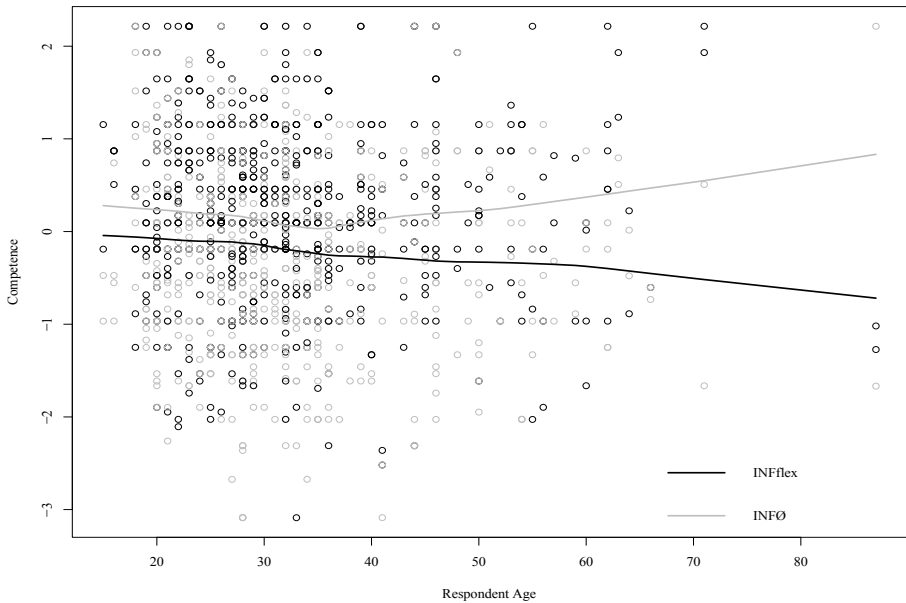
[23] In Figure 5, there is actually only one participant over 80 years old (hence the rightmost four dots – one response for each of the speakers). By excluding the data volunteered by this speaker, re-running the model yields similar results, and the interaction between (INF) and Age remains significant without the oldest participant/outlier (p=0.019).

To further investigate this significant interaction between (INF) and Respondents' age, we analyzed the subsets of adverbial and modal data separately, and found that such interaction is actually only significant for the modal subset, as Table 9 shows.[24]

TABLE 9 – Linear model regression results for *Perceived Competence:* Age effect in the modal data subset

Fixed effects	Estimate	Standard error	t value	*p* value
(Intercept)	-0.199	0.168	-1.184	0.236
(INF)-INFflex	0.002	0.236	0.012	0.990
Respondent Age	0.007	0.005	1.430	0.153
(INF)-INFflex:Respondent Age	-0.014	0.007	-2.111	0.035*
Total N: 703. Log likelihood: -971				

Formula: PCA ~ INF * Respondent Age

Considering instances of INFflex in modal complements as cases of hypercorrection, this result suggests that, when it comes to hypercorrect use of (INF), older speakers are more sensitive than younger speakers. As shown in section 2, according to the diachronic study of academic writing by Canever (2017), there is no clear indication of change in production. However, the difference between older and younger participants evidences a change in progress, in reference to how they perceive speakers as more or less competent-sounding depending on the variants of (INF).

So far, our results lead to the question of whether perception changes faster than production, particularly when it comes to a linguistic variable that is so "in the spot", with some consensus and much dispute among grammarians and how their prescriptions are enforced at school and by social pressures. Our results also lead to the question of whether social meanings linked to morphosyntactic variants are dependent on syntactic context and frequency of use.

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[24] For the adverbial subset, the interaction between (INF) and Respondents' age was not significant (*p*=0.5133).

5 Conclusion

This study used a modified matched-guise task (LAMBERT *et al.*, 1960) in order to verify if speakers sound more educated, more intelligent and more formal in their INFflex-guises than in their INFø-guises, and whether these perceptions vary significantly according to the syntactic context, the grammatical person and the listeners' social characteristics (e.g. age and education). Based on the diachronic study by Canever (2017) and given the prestige usually associated with overtly marking agreement in BP (MENDES; OUSHIRO, 2015; NARO; SCHERRE, 1991; RÚBIO; GONÇALVES, 2012; SCHERRE; NARO, 2014, 2006; *inter alia*), we expected to find that INFflex is associated with positive social meanings when used in a prescriptively optional syntactic context, such as adverbial clauses, and, more specifically, with 1PL. Regarding INFflex in a nonstandard context (as complements of modal verbs), we expected to find an effect of listeners' education, with nonstandard/hypercorrect INFflex-guises leading to more positive perceptions only among less educated speakers.

Taking these hypotheses into account, we created eight sentences that accounted for the three variables we wanted to test: syntactic context, grammatical person, and (INF). After recruiting and recording four speakers (two men and two women), we organized the 32 stimuli in eight sets, each of which contained only one stimulus per speaker. We had a total of 411 respondents, and their reactions to the 32 experimental stimuli were statistically analyzed in R.

Contradicting the initial hypothesis that speakers would sound more educated, more intelligent and more formal in their INFflex-guises, results show that speakers are generally judged as more competent-sounding in their uninflected (INFø) guises, and that this effect is greater in the nonstandard/hypercorrect context used in the experiment (modal constructions). We interpret the results for adverbial clauses as a hint that frequency of use plays a crucial role in the sociolinguistic perception of (INF). Although there are variables that are high in frequency of use and are still stigmatized – such as the lack of verbal agreement in BP –, when it comes to (INF) it seems to be the case that social meanings depend both on the construction (the syntactic context) and the frequency of use. Drawing on Canever (2017), while there were only 8 instances of hypercorrect INFflex in modal complements (in a very large corpus

of written BP), the rate of INFflex (40%) is stable over the years. This relatively high frequency use of INFflex in a *prescriptively* optional context such as adverbial clauses might be leading to more neutral perceptions of (INF) in this syntactic context.

Given the fact that most of the respondents were highly educated, it was not possible to test if INFflex in the nonstandard/hypercorrect context (modal constructions) might be associated with more positive values among less educated speakers, as hypothesized. However, older respondents presented stronger reactions to Modal-INFflex guises, while the judgments or younger respondents tended to be more neutral. Such an age effect suggests a change in progress in the sociolinguistic perceptions associated to (INF).

For these reasons, future studies should further investigate the effects of age, education, syntactic context and frequency of use in the social meanings associated with this morphosyntactic variable. Since INFflex frequently occurrs in written language, it would also be interesting to replicate the perception task reported here with written stimuli. Additionally, further research should explore patterns of variation and change of (INF) in spoken BP as well, not only to discuss the evolution of this variable (at the interface spoken/written BP), but also to shed more light on the relationship between perception and production.

Authorship Statement

This paper is part of Canever's (2017) Ph.D. dissertation, advised by Professor Ronald Beline Mendes. Both authors designed the experiment reported in the article. Data collection and statistical analyses were performed by the first author. Both authors collaborated on interpreting results and writing and revising the article.

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