

ACQUISITION OF INFLECTED AND UNINFLECTED INFINITIVES IN CHILD L1 EUROPEAN PORTUGUESE

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Abstract

This study investigates the child (L1) acquisition of inflected and uninflected infinitives in European Portuguese (EP). We test and contrast properties involving two interfaces, focusing on morpho-syntactic and syntax-semantics properties of inflected infinitives, in contrast with uninflected infinitives. We present experimental results from three monolingual EP child groups, between ages 6 and 12 (n=72), compared to EP adults (n=32). Results show that children as young as 6-7 have knowledge of the morpho-syntactic properties of inflected infinitives, although at first glance they show insufficient knowledge of their syntax-semantics interface properties (i.e. non-obligatory control properties), differently from older children, who show evidence of knowledge of both types of properties. We argue that, in general, morpho-syntactic and syntax-semantics interface distinctions are also accessible to 6-7 children, but children may not show the entire range of interpretations possible for adults.

1. Introduction *

There has been little work examining, under any scenario (e.g. child L1, adult L2, bilingualism), the acquisition of inflected infinitives in any language. This is partly explained by the fact that inflected infinitives or personal infinitives are cross-linguistically rare (see e.g. Mensching 2000). To date, available work in L1 Brazilian Portuguese (BP) (Pires and Rothman 2009a,b) and heritage language bilingualism for EP and BP (Rothman 2007; Pires and Rothman 2009b) has demonstrated that in L1 and heritage BP inflected infinitives are a vulnerable domain for acquisition. These studies provide evidence that inflected infinitives are acquired in a protracted manner by BP children and in many cases never fully acquired by BP heritage speaker bilinguals. The BP data contrasts sharply with EP heritage bilinguals, who attain as adults expected competence for all related properties. Pires and Rothman (2009a,b) argue that the coupling of BP data sets, especially as they contrast with the case of EP bilinguals, strongly favors the position argued in the diachronic syntactic literature that colloquial BP no longer

fully instantiates inflected infinitives (see Pires 2006 for argumentation), but that eventual knowledge of inflected infinitives shown at the age of 12 and beyond is an instance of recovery via the acquisition of standard BP. This paper addresses the question whether inflected infinitives might simply be an inherently later acquired property, which would confound the clear-cut nature of the conclusions Pires and Rothman draw for L1 BP.

In addition to providing experimental data that can strengthen or challenge the conclusions regarding the empirical link between child acquisition and diachronic change in BP, the present study provides the first empirical research on the acquisition of inflected infinitives in L1 EP. We present two experiments designed to tap on the morphosyntax of infinitives and the syntax-semantics properties of their null subjects, using diagnostics for obligatory vs. non-obligatory control (Hornstein 2003, Pires 2006). The results clearly show that inflected infinitives are acquired much earlier in EP than in BP, lending independent support to Pires and Rothman's (2009a) explanation for the protracted acquisition of this property in BP. In addition, some data from EP children and adults tentatively suggest that inflected infinitives might be changing in EP as well, but towards expansion.

2. Inflected Infinitives: Morphosyntax and Syntax-Semantics

The two types of infinitives in Portuguese differ by either carrying person/number agreement (inflected infinitives) or not (uninflected infinitives). Both EP and Standard BP display distinct forms at least for 1st (1b) and 3rd plural inflected infinitives. Inflected infinitives act like either normal finite clauses or uninflected infinitives regarding distinct morpho-syntactic properties. For instance, like finites clauses and unlike uninflected infinitives, they show overt person/number agreement and allow overt subjects in non-Exceptional Case Marking contexts. Also differently from their uninflected counterparts, inflected infinitives cannot occur as complements of volitional verbs (e.g. *querer* 'want') and verbs like *tentar* 'try' and *conseguir* 'manage'. However, similarly to uninflected infinitives and unlike finite forms, they are never introduced by the complementizer *que* 'that', although they must occur in embedded clauses (see Pires 2006, Pires & Rothman 2009a, Raposo 1987, Ambar 1989).

Regarding their syntax-semantics properties, inflected infinitives take null subjects (*pro*) or lexical subjects with non-obligatory control properties, whereas uninflected infinitives can only take PRO null subjects, which in various contexts must carry obligatory control interpretation (Pires 2006; Quicoli 1996). As a result, at least three contrasts arise between the two forms. First, the null subject (*pro*) of inflected infinitives may be disjoint in reference from any DP in the sentence (1b); whereas the null subject (PRO) of uninflected infinitives must have a local c-commanding antecedent (1a). Second, uninflected infinitives must take a sloppy reading under ellipsis, whereas inflected infinitives only allow a strict

interpretation of the ellipsis site. That is, in the uninflected infinitive case in (1a), the embedded elided material can only correspond to ‘Rui regrets his own crying,’ with the null subject in the ellipsis site is ‘sloppily’ determined by the local antecedent (Rui). In the inflected infinitive (1b), the elided material must correspond to ‘Rui regretted *our* crying’, where the null subject in the ellipsis takes its antecedent in the main clause. Third, null subjects in inflected infinitives syntactically allow split antecedents, whereas in uninflected infinitives they do not.

- (1) a. A Maria tinha lamentado ter chorado, e o Rui também tinha.
 the M_i had regretted PRO_{i/*j} have-INF cried and the Rui too had
 (= Rui regretted having cried).
 ‘Maria had regretted having cried and Rui did too.’
- b. A Maria tinha lamentado termos chorado, e o Rui também tinha
 the M_i had regretted *pro*_k have-INF-1PL cried, and the R too had.
 (= Rui regretted our crying).
 ‘Maria regretted our crying, and Rui did too.’

Following a Minimalist approach to the specification of morphosyntactic and semantic distinctions (e.g. Chomsky 2000), we take the contrast between inflected and uninflected infinitives to follow from the feature specification of their functional heads (see e.g. Pires 2006, Pires & Rothman 2009a for details).

3. Methodology

We adapted for EP children the tests used by Pires & Rothman (2009a) with BP speakers: a Grammaticality Judgment and Correction Task (Pires & Rothman’s Morphological Recognition Task/ MRT), and an Interpretation Matching Task (IMT; Pires & Rothman’s CMT). The MRT task basically tests the morphology and distribution of inflected infinitives; the IMT task tests their syntax/semantics interpretive properties (see Pires, Rothman & Santos 2010, for details).

- (2) (MRT/Story testing inflected infinitive)
 A Margarida e a Minie gostam de fazer desporto. Fazem natação, mas hoje o desporto delas é outro. Porque é que a escolha delas mudou?
 Daisy and Minnie like sports. They always swim, but today they picked a different sport. Why did their choice change?
Test sentences (uttered by a puppet, for younger subjects):
- a. * É muito difícil elas nadar todos os dias. (incorrect)
 It is very difficult they swim-INF every day.
- b. Agora é mais importante a Margarida e a Minnie correrem mais. (ok)
 Now it is more important for Daisy and Minnie to run-INF-3PL more.

The MRT involved 12 stories: 6 stories testing 1PL or 3PL inflected infinitives, as in (2), 3 filler/control stories with non-inflected infinitives and 3 filler/control stories with present tense. The child was asked to correct each test sentence, if they thought it was incorrect (each story was followed by two test sentences). The younger children (up to age 9-10) were shown one picture matching the story and one picture matching each test sentence, as they were presented.

The Interpretation Matching Task (IMT) tested the obligatory vs. non-obligatory control contrasts from section 2. Participants were asked to choose a picture/description that matched the test sentence, and had the option to indicate that there was no match. In the case of younger subjects (up to 9-10), it was presented as a picture choice task. There were 24 stories, 12 with inflected infinitive test sentences, as in (3), 6 with non-inflected infinitives used for control, and 6 fillers/ distracters.

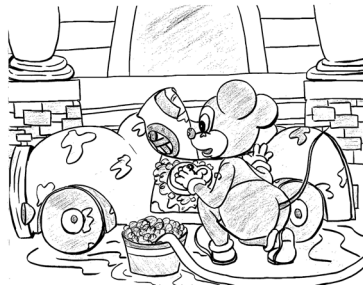
- (3) O Mickey estava em casa com o Pato Donald e a Margarida. O carro estava muito sujo e precisava de uma limpeza.

Mickey was at home with Donald Duck and Daisy. The car was very dirty and needed cleaning.

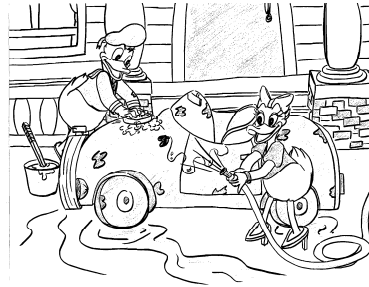
Test sentence with inflected infinitive:

O Mickey ficou satisfeito por lavarem o carro.
 the Mickey was happy of wash-INF-3PL the car
 'Mickey was happy that (they) washed the car.'

- a. *Wrong picture*
 (Obligatory control interpretation)



- b. *Correct picture*
 (Non-obligatory control interpretation)



We tested 6-7 year-olds (n=24), 9-10 year-olds (n=20) and 11-12 year-olds (n=28), compared to adult controls (n=32) in a suburban area of Lisbon.

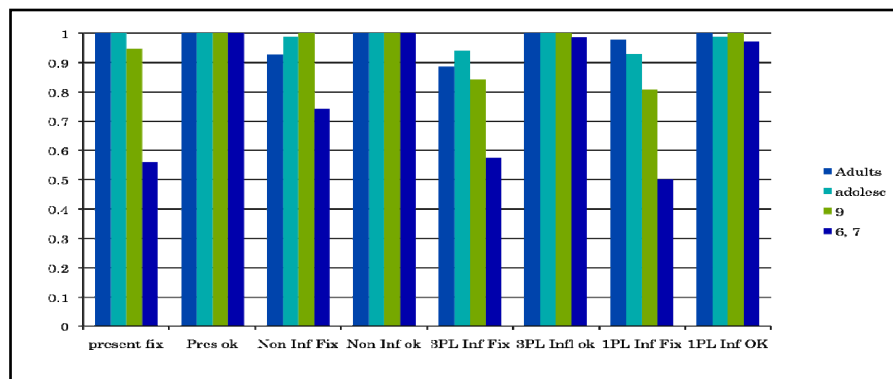
4. Results and discussion

Regarding the MRT, we refer here only to the most relevant cases, in which the sentence had to be corrected (in figure 1, the columns marked “Fix”). The MRT was in general difficult for the younger group, as shown by results with present tense sentences – three 6-7 year-olds were excluded from this task as cases of yes-bias. In the fix items with inflected infinitives (3rd plural and 1st plural), we can see that 6-7 year-olds obtain results around 0.5. However, there are clear individual differences, so results around 0.5 are not chance level for all individuals: 10 subjects were above chance, like the older groups, showing knowledge of the morphology and distribution of inflected infinitives, and only 9 subjects were below chance.

The adult control group performs as expected, even though showing unexpectedly worse results with 3rd plural inflected infinitives than in other conditions. This is partly due to bad results in particular items, namely, the overacceptance (11 out of 32) of the ungrammatical (4), an inflected infinitive selected by a volitional verb. The 9-10-year old group also showed difficulty with this item (7 out of 20), besides overaccepting certain 1PL forms (“consequimos acharem” and “tentámos comprarmos”), although at lower rates.

- (4) *O Paulo e o Geraldo querem irem buscar as canas de pesca.
Paulo and Geraldo want go.INF-3PL to.get the fishing rods.

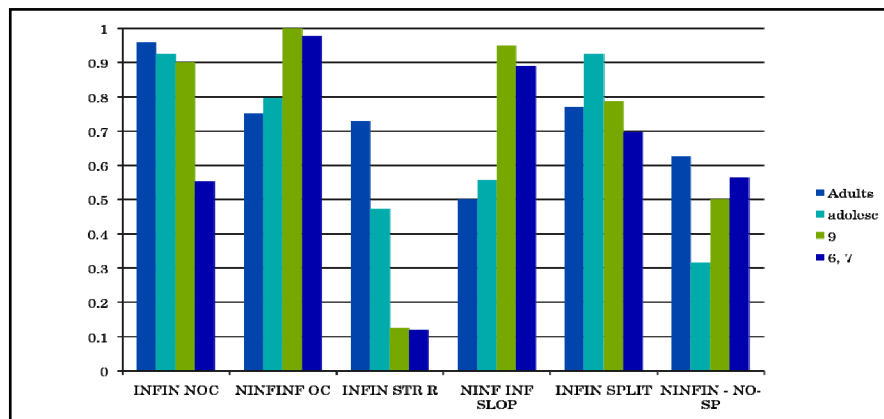
Figure 1: MRT task – results



An intergroup comparison shows that 6-7 year-olds are significantly different ($p=.000$) from other groups as a group in the fix conditions, including inflected infinitives; 9-10 year-olds significantly differ from adolescents only in the 1st plural inflected infinitive fix condition; there are no significant differences between 11-12 year-olds and adults.

Figure 2 summarizes the IMT results. In the inflected infinitive *non-obligatory control* (INFIN NOC) items, there was no significant difference between adults and 9-10 year-olds ($p = 0.95$) or between adolescents and 9-10 year-olds ($p = 0.999$): these groups have knowledge of inflected infinitives. Although 6-7 year olds present average results at around 0.5, making the group difference between 6-7 and 9-10 year-olds significant ($p = 0.000$), these results are not chance results overall (similar to the MRT results): 10 subjects are above chance (6 at ceiling) and only 8 subjects are below chance. That is, many 6-7 year olds already acquired this aspect of the syntax-semantics of inflected infinitives, although some others revealed a preference for a partially co-referent reading of the subjects of inflected infinitives. Interestingly, this preference may be independent from the recognition of the inflected infinitive morphology, as we will also see in the results of the split/non-split antecedent condition. We suggest that the child often wants the *pro* subject in the subject position of an inflected infinitive to be taken as co-referent with an antecedent in the matrix clause (see Montalbetti 1984 in this respect).

Figure 2: IMT task - results



Obligatory (OC) vs. Non-obligatory control (NOC). Surprisingly, in the case of obligatory control (OC) with non-inflected infinitives, as in (5), adults and adolescents performed worse than children. As part of the context, Miguel went to the mall with Margarida and Silvia. Subjects had to decide whether Miguel saw a movie alone or with his friends. Even though the OC interpretation of the sentence means that Miguel saw a movie, it is still possible to pragmatically infer that Miguel saw a movie with his friends. In this case, the unexpected adult/teenage answers may be cases in which this pragmatic inference was taken into account.

- (5) A Margarida disse depois: O Miguel adorou ter visto um filme.
Margarida said later: Miguel loved to.have-INF seen a movie

Strict / sloppy reading under ellipsis. Both 6-7 and 9-10 year-olds generalize a sloppy reading in both inflected and non-inflected infinitive items, resulting in a low rate of strict readings with inflected infinitives (INFIN STR R) and close to ceiling results with non-inflected infinitive (NINF INF SLOP). This is further supported by the fact that both younger groups showed much higher preference than the adults for the sloppy reading interpretation also in the non-inflected infinitive conditions. The results with adults and 11-12 year-olds reveal that they varied between readings in both inflected and non-inflected infinitive items. We assume this was possible if adults/adolescents could also interpret the ellipsis as a Null Complement Anaphora (NCA), allowing a freer antecedent from the discourse/situational context, in sentences such as (6) (see discussion in Santos 2009; Cyrino & Matos 2006; see Pires, Rothman & Santos 2010 for details).

- (6) O Miguel achou mal colocarem a televisão na cozinha, mas
the M. found bad put-INF-3PL the TV in.the kitchen but
o Ronaldo adorou ____.
the R. loved
'Miguel didn't like putting the TV in the kitchen, but Ronald loved (it).'

Split / non split antecedents. The results with inflected infinitives are good and actually better than they seem. This is because even though the split reading is obligatory with 3rd plural inflected infinitive test items (7), this reading is not obligatory with 1st plural test items (8). In (7), if subjects are sensitive to the 3rd pl. inflection, they understand that *Ronaldo* alone cannot be the antecedent of the subject of the inflected infinitive. However, in (8) the conjoined indirect object of the matrix verb can satisfy the requirement of a 1st plural antecedent for the *pro* in the subject position of the inflected infinitive without the need for split antecedents. The results with the 3rd person plural test items, requiring an obligatory split antecedent, are good in general. In these contexts, adults and adolescents are at ceiling; 9-10 year-olds give 85% correct answers; 6-7 year-olds give 82% correct answers. This is very relevant because it means that even the younger children show knowledge of the inflection of an inflected infinitive.

- (7) O Miguel convenceu o Ronaldo a limparem o jardim.
Miguel convinced Ronaldo to clean-INF-3PL the garden
(8) O Carlos disse: O Ronaldo disse-me a mim e ao Miguel para pescarmos.
Carlos said: Ronaldo told me and Miguel to fish-INF-1PL.

The unexpected adult/teenage results with uninflected infinitives may again be explained by an additional pragmatic inference. In (9), even though the OC reading is given by the syntax/semantics (Mickey and I ride a horse), it can be pragmatically inferred that Donald also rode a horse.

- (9) O Donald convenceu-me a mim e ao Mickey a andar a cavalo.
 the Donald convinced to me and to.the Mickey to ride-INF a horse

5. EP children and adolescents vs. BP children and adolescents

In comparison with the results presented above, Pires & Rothman (2009a) tested BP children and adolescents from upper-middle class background between the ages of 6 and 15. They used the two tasks above that were adapted for the present EP study. Their MRT results indicated that only the 13-15 year-old group was fully competent at identifying both correct and incorrect uses of inflected infinitive morphology, both in 1PL and 3PL forms. Their groups up to age 12 performed poorly regarding inflected infinitives, but were successful regarding their knowledge of indicatives and uninflected infinitives, indicating no general difficulty with the task.

Regarding the IMT, only the 13–15 year-old and 10–12 year-old BP groups tested by Pires & Rothman (2009a) performed in a target-like manner regarding non-obligatory control in inflected infinitives. Although a comparison to the EP IMT results is less straightforward due to a higher rate of non-expected answers across different EP groups, including the adults, in the IMT there is also a clear contrast between BP and EP. A comparison between our EP 6 to 10 year-olds and the BP 6 to 9-year olds in Pires & Rothman 2009a shows that only the BP children behaved at or below chance regarding all three IMT properties of inflected infinitives.

These results indicate overall that the EP children and teenagers from the earliest tested age (6 years old) show evidence of proficiency regarding the properties of inflected infinitives, in sharp contrast with the BP children/adolescents, who only start showing partial knowledge of the morpho-syntax of inflected infinitives at the ages 10-12. This contrast lends independent support to the proposal made in Pires & Rothman 2009a that BP children/teenagers fail to acquire the properties of inflected infinitives early because these properties are no longer robustly instantiated in the colloquial dialects they are exposed to.

This so far unnoticed distinction in the acquisition of the two dialects (EP vs. BP) stems from a complex and ongoing scenario of language change that affected only the properties of infinitives in BP, and not (yet or in the same way) in EP (see Pires 2006, Pires & Rothman 2009a, b; Rothman 2007). This again provides support for the view that, contrary to EP, BP children/teenagers acquire the properties of inflected infinitives much later, only as the result of their exposure to

the standard dialect of BP, primarily through explicit learning in school and through late increased exposure to reading and hearing that dialect.

It is interesting to point out that our results also provide some evidence of a possible change in course in colloquial EP. Our EP MRT results indicated an overacceptance by at least one third of the adults of the ungrammatical inflected infinitives in the complement of volitional verbs (4). This indicates potential dialectal variation in EP that may result from an ongoing reverse process of grammatical change by which inflected infinitives are extending in EP to contexts that would allow only uninflected infinitives, the opposite of the retracting trend seen in BP regarding inflected infinitives.

Before we conclude, it is relevant to discuss why EP teenagers and adults seem to perform worse than BP teenagers regarding the strict ellipsis interpretation of inflected infinitives. This shouldn't be expected if EP speakers in general acquire the properties of inflected infinitives earlier than BP speakers. We argue that a substantial part of the difficulty that the EP subjects (especially from age 11-12 on) experienced with strict ellipsis was not the result of an intrinsic difficulty in their ability to acquire this distinction, but rather the result of additional interpretive choices that may be favored by EP speakers but not by BP speakers, showing partially distinct target competence between EP and BP. We proposed that part of the EP (but not BP) teenagers/adults admit strict and sloppy readings in both inflected and non-inflected infinitives due to their ability to interpret the ellipsis material as Null Complement Anaphora. This possibility is arguably not available for the oldest BP group (13 to 15-year-olds), which performs at ceiling (95%) regarding the choice of the strict reading of inflected infinitives, better even than the EP adults, who overall make this option only slightly more than 70% of the times (see Cyrino & Matos 2006, Santos 2009 for related evidence).

6. Conclusion

This paper investigated aspects of the morphosyntax, syntax-semantics and syntax-pragmatics interface involved in the acquisition of infinitives in dialects of Portuguese. These are the first results to date regarding the acquisition of inflected vs. non-inflected infinitives in EP. Despite the complexity of the tasks involved, the youngest EP children that were able to perform the experimental tasks (6-7 year-olds) showed knowledge of different syntax-semantics properties of inflected infinitives. The difference of outcome from BP speakers (Pires & Rothman 2009a), who show proficient competence of inflected infinitives only starting at age 11-12, provides independent support for the argument that the delayed acquisition of inflected infinitives in BP is indeed due to its limited availability in the PLD of colloquial dialects, as the result of previous or ongoing language change. However, our results from EP also suggest that children can acquire the syntax-semantics properties of inflected infinitives, even if they do now always show the same

preferences as adults regarding pragmatic/contextual options that allow additional interpretations of inflected infinitives.

* Authors contributed equally to this project, and are listed alphabetically. We thank the staff at the Agrupamento de Escolas Mães d'Água, Amadora and Centro de Linguística, University of Lisbon, for assistance in the data collection; Michael Iverson for help with the statistical analysis; and the participants at GALA 2009 for questions and suggestions.

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