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Alberto Gallo Araújo Penzin

The processing of the double-object construction by Brazilian monolinguals and late Brazilian-Portuguese English bilinguals

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Faculdade de Letras, UFMG

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FOLHA DE APROVAÇÃO

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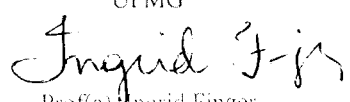
ALBERTO GALLO ARAÚJO PENZIN

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Prof(a). Ricardo Augusto de Souza - Orientador
UFMG

Prof(a). Larissa Santos Ciríaco
UFMG

Prof(a). Ingrid Finger
UFRGS

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RESUMO

A construção de objeto duplo tem recebido a atenção de pesquisadores em teoria linguística. Esta construção é parte de um grupo de construções similares chamadas por Goldberg (1995) de construções dativas. Existem evidências na literatura que sugere a existência de tal construção em alguns dialetos do português brasileiro (PB). No entanto, evidências experimentais (SOUZA et al. 2016), assim como evidências em corpora (ZARA, 2014) apontam para a pouca produtividade desta estrutura. Por outro lado, no inglês a construção de objeto duplo é a mais produtiva (CAMPBELL & TOMASELLO, 2001). Alguns autores (GUIMARÃES, 2016; OLIVEIRA et al., 2017; SOUZA, 2012; SOUZA et al., 2014) encontraram evidências sobre a influência da segunda língua (L2) na primeira língua (L1) no nível da sintaxe. Elas sugerem que o acesso às representações sintáticas de ambas as línguas é compartilhada por bilíngues independentemente da língua, L1 ou L2. Este estudo empregou uma metodologia experimental na tentativa de encontrar evidências sobre a aceitação (ou não) da construção de objeto duplo por monolíngues, assim como um possível efeito de bilinguismo em bilíngues do par português-inglês. No Experimento I, ambas as populações leram sentenças através da tarefa de leitura autocadenciada seguida de uma tarefa de julgamento de aceitabilidade temporalizada. Zara (2014) também encontrou que somente bilíngues de alta proficiência aceitaram sentenças com dois objetos diretos em inglês. A aquisição de tal estrutura sintática não é algo trivial, no sentido em que envolve restrições sintáticas e semânticas bem específicas. No Experimento II, bilíngues de baixa e de alta proficiência fizeram as mesmas tarefas em inglês, mas com formas lícitas e ilícitas da construção de objeto duplo. Os resultados do primeiro experimento sugerem que os monolíngues aceitaram as estruturas razoavelmente bem, mesmo elas não tendo o mesmo grau de gramaticalidade do que a estrutura mais comum na língua, o objeto duplo preposicionado. Além disso, não houve efeito de bilinguismo nos bilíngues tanto na medida on-line da tarefa, como na medida off-line. Os resultados do segundo experimento sugerem que bilíngues de baixa e de alta proficiência conseguiram detectar violações verbais e de animacidade envolvendo a construção em questão. Ademais, encontramos um efeito de L1 na preferência pela construção preposicionada na L2.

Palavras-chave: construção de objeto duplo; bilinguismo; compartilhamento sintático.

ABSTRACT

The double-object construction (DOC) has received the attention of many researchers in linguistic theory. This construction is part of a cluster of similar structures termed dative constructions by Goldberg (1995). There is evidence in the literature which suggests the existence of this construction in certain dialects of Brazilian Portuguese (BP). However, experimental (SOUZA et. al, 2016) and corpora-based (ZARA, 2014) evidence point to little productivity of this structure. On the other hand, in the English language the double-object construction is the most productive (CAMPBELL & TOMASELLO, 2001). Some authors (GUIMARÃES, 2016; OLIVEIRA et al., 2017; SOUZA, 2012; SOUZA et al., 2014) have found evidence for the influence of the weaker language (L2) on the stronger language (L1) on the level of syntax. It suggests that access to syntactic representations of both languages is shared by bilinguals irrespective of language. This thesis employs an experimental methodology in order to find evidence for the acceptance of the DOC in monolinguals, as well as a possible bilingualism effect on BP-English bilinguals. In Experiment I, both populations read sentences in BP on a self-paced reading task followed by a timed acceptability judgement task. Zara (2014) also found that only high proficiency bilinguals accepted sentences with two direct objects in English. The acquisition of said construction is not trivial, in that it has some subtle constraints related to syntax and semantics. In Experiment II, low and high proficiency bilinguals performed in English the same tasks previously mentioned, but with licit and illicit forms of the DOC. The results for the first experiment suggest that monolinguals accepted structures with two objects in BP fairly well, despite it not possessing the same grammaticality status as the most common structure, the prepositional double object; moreover, no bilingualism effect was found for the bilinguals in both on-line and off-line responses. The results for the second experiment suggest that both low and high bilinguals were able to detect verb violations as well as violations of animacy involving the DOC. Also, we found an influence of L1 on the preference for the prepositional construction in the L2.

Key-words: double-object construction; bilingualism; shared syntax.

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SUMMARY

1. INTRODUCTION

The double-object construction (henceforth, DOC), a common syntactic configuration in English which encompasses a group of verbs with certain semantic properties licensing two direct objects, still receives attention from researchers interested in linguistic studies (GOLDBERG, 1995, 2003; HOVAV & LEVIN, 2008; LARSON, 1988; PINKER, 1989). In English, verbs like *give* and *send* can be realized by two different syntactic structures represented below, termed by many authors as the dative alternation[1].

1a. Mary gave a book to John

1b. Mary gave John a book.

2a. Michael sent a letter to his father.

2b. Michael sent his father a letter.

The sentences (1b) and (2b) above are some basic examples of this construction. Native speakers of English are able to acquire said construction while at the same time intuitively knowing its constraints. On the other hand, Hovav & Levin (2008) claim that dative alternations are not found in many languages.

The learnability of L2 constructions which do not have an L1 equivalent has been the focus of only a few psycholinguistic studies related to bilingualism and second language acquisition[2]. More specifically, it has been argued (CAMPBELL & TOMASELLO, 2001) that for bilingual individuals who have English as their second language the acquisition of the DOC raises even more challenges, especially if there is not an analogous structure in their native language.

It is important to note that the view of bilingualism adopted in this paper encompasses speakers who use two or more languages in everyday life (GROSJEAN, 2013, p.7). This

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[1]Despite the use of the term alternation, we do not subscribe to the implications of such a term, in the sense that a surface form is derived from an underlying form, as presented in Larson (1988).
[2]Fernández & Souza (2016), Hartsuiker & Pickering (2008), Oliveira (2016), Souza (2012), Zara (2009, 2014), among others.

perspective is in contrast with a more traditional definition of bilingualism, which only includes in the bilingual category individuals who have learned both languages at a young age, or who attain very high levels of proficiency in both languages. The former definition incorporates a considerably larger population and it reaches the majority of bilingual speakers of English as a second language residing in Brazil. The adoption of such a perspective of bilingualism will be expanded upon in section 2.3, entitled the bilingual mind.

At first glance, the learning challenge imposed by the acquisition of the DOC in English is also true for speakers of Brazilian Portuguese (henceforth, BP) living in Brazil. Zara et al. (2013) reported that only bilinguals with a high vocabulary knowledge accepted perfectly valid sentences with two direct objects in English. In fact, for any L2 learner of English there seems to be a few more intricacies involved in the complete acquisition of the DOC. The examples (3b) and (4b) below represent some restrictions involving the DOC in English:

3a. I brought a glass of water to the table.

3b. *I brought the table a glass of water. (PARTEE, 1965 *apud* GOLDBERG, 1995, p.2)

4a. Jack donated his money to the needy.

4b. *Jack donated the needy his money.

Example (3b) is considered ungrammatical in English because the first argument of a DOC (*the table*) must have the semantic features of a recipient, i.e., an animate entity capable of receiving an object of the transfer event (GOLDBERG, 1995).

Example (4b) is considered a bad sentence since the verb *donate* does not license the argument structure expressed by the DOC (HARLEY, 2007; ZARA, 2014). The examples above motivate the question related to the proficiency level or language experience required for L2 learners of English to become sensitive to restrictions involving the DOC. The first concern of this study is to further investigate the acquisition of the DOC in English by the Brazilian Portuguese-English bilingual population residing in Brazil.

The second aim of this study is an attempt to contribute to the debate regarding the status of the DOC in BP. Speakers of certain regions in Brazil seem to reject this structure in their own native language, while others found evidence that it is perfectly acceptable and it has in fact reached some degree of productivity (GOMES, 2003; LUCCHESI & MELLO, 2009; SCHER, 1996). The former appears to be the case for most dialects of BP. Moreover, the production of the DOC seems to be restricted to certain dialects based on socio-economic status. Thus, this could explain the lack of data supporting the existence of the construction in most linguistic communities in Brazil. The following examples (A-D) represent the four possible syntactic configurations of the change-of-possession verbs in BP according to the authors above:

A. Maria deu o livro para o João.
   Mary gave a book to John[3].

B. Maria deu para o João o livro.
   Mary gave to John a book.

C. ?Maria deu o João o livro.
   Mary gave John a book.

D. ??Maria deu o livro o João.
   *Mary gave a book John.

Zara (2014) found by conducting corpora analysis data that the structure in (A) is the most prevalent in the language, followed by (B). The structure (C) is much lower, representing only 3% of instances. The author found only one occurrence of (D) in spoken corpus of BP (C-ORAL BRASIL, 2012). However, the representative data from the corpus was still in its inception when the author's analysis was conducted. Souza et al. (2016) conducted a timed acceptability judgement to test the acceptance of the DOC in BP. They found that native speakers of BP independent of proficiency rejected sentences with two direct objects. Still, there are some regions where the population's use of the DOC is well

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[3] The English "translations" of examples (A-D) correspond to the paraphrase of these sentences in English.

acknowledged. One of these places is in the state of Minas Gerais (SCHER, 1996). This study will attempt to unearth evidence *for* or *against* the presence of the DOC in BP, as well as to discover if Brazilian-English bilinguals are sensitive to the DOC restrictions in the English language.

An experimental methodology was employed in order to assess the two primary objectives mentioned in previous paragraphs: 1. The L2 acquisition of the DOC by Brazilian-Portuguese English bilinguals. 2. Evidence for or against the acceptance of the construction in Brazilian Portuguese. Each experiment consists of the same task with two distinct types of measurement, i.e. a self-paced reading (an on-line measurement) and timed acceptability judgement task (an off-line measurement)[4]. The first experiment, termed Experiment I, will attempt to shed light on objective 2, that is, whether the DOC is acceptable in BP by native speakers, especially by monolinguals. The second experiment, i.e. Experiment II, will focus on objective 1, the L2 acquisition of the DOC by Brazilian Portuguese English bilinguals[5].

Another important feature of this paper is to test the on-line, L1 processing of the DOC for the BP-English bilingual population in question. The objective is to try to replicate a bilingualism effect on the L1 (i.e. BP), which has been attested in a few studies (GUIMARÃES, 2016; OLIVEIRA et. al., 2017; SOUZA, 2012; SOUZA et al., 2014) conducted in the same laboratory, the psycholinguistics laboratory at Universidade Federal de Minas Gerais, where the two experiments for this thesis were implemented. The theoretical implication which underlies this research question is the notion that while both monolinguals and bilinguals may consciously evaluate the DOC sentences in BP as bad sentences, the bilinguals will process these sentences which deviate from their L1 grammar faster due to their knowledge of another language[6].

In summary, this study explores through an experimental methodology the on-line and the off-line responses of sentences with the double-object construction (DOC) in both BP and English. In Experiment I, monolinguals of BP and Brazilian-Portuguese English bilinguals

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[4] An on-line measurement is related to more automatic cognitive processes, whereas an off-line measurement is prone to influence of metalinguistic knowledge. A more in-depth discussion on the matter is present in Kim & Nam (2016) and Oliveira et al. (2017).
[5] The inversion of the objectives is due to the fact that bilingual participants concluded the experiment in BP before the experiment in English. Yet the status of the construction in English deserved a more prominent role in the introduction.
[6] We cannot say that it is knowledge of English per se. What is known is that bilingual speakers' mental grammars are more malleable to structures which deviate from their original grammars.

read sentences in Portuguese in a self-paced reading task followed by a timed acceptability judgement task. In Experiment II, low and high proficiency bilinguals performed the same tasks in English with sentential stimuli which exhibit verb violations and violations in the animacy of the recipient argument.

1.1. Hypotheses

1.1.1. Experiment I

In order to facilitate the comprehension of our hypotheses for Experiment I, the same examples from BP displayed above are repeated below.

A. Maria deu o livro para o João.

Mary gave a book to John.

B. Maria deu para o João o livro.

Mary gave to John a book.

C. ?Maria deu o João o livro.

Mary gave John a book.

D. ??Maria deu o livro o João.

Mary gave a book John*.

I. A sentence such as (A) is the most productive in the Portuguese language spoken in Brazil (ZARA, 2014); therefore, the least amount of processing cost is expected. On the other hand, sentence (D) will be considered ungrammatical by most BP speakers, or at least odd, since there is no preposition and the order of the arguments is reversed. Additionally, the paraphrase of a structure equivalent to (D) does not exist in English. Therefore, we predict that this type of sentence will result in the highest processing cost for all groups.

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II. The processing cost of sentences such as (C) above for the target segment, the post-verbal fragments, will be higher for the monolinguals if they judged sentences in BP involving the DOC as significantly lower than the two more common structures, the prepositional double object (A) and the inverted prepositional double object (B).

III. Structures such as (C) will be judged significantly higher than (D) by all groups. Zara (2014) found almost no occurrences of (D) in BP corpora, while there were a small amount of occurrences of (C). We believe this small difference in frequency of these two constructions will be sufficient to make participants rate (C) higher.

IV. The paraphrase of the structure (C) in English is the most common construction of the four different configurations displayed above, while its equivalent in BP is only attested in certain dialects. Zara (2009) and Zara et al. (2013) reported that native speakers of BP who are low proficiency English bilinguals rejected the English paraphrase of (C), the double direct object variant. Thus, it is expected that their second language knowledge will not influence this group's on-line processing.

V. On the other hand, highly proficient English bilinguals who have fully acquired the DOC in their L2 will display lower reaction times in the real-time processing of sentences with the syntactic configuration of (C), [V NP_{rec} NP_{theme}]. This hypothesis is based on the results of studies which reveal a bilingualism effect on L1 involving the same bilingual population (GUIMARÃES, 2016; OLIVEIRA et al., 2017; SOUZA, 2012; SOUZA et al., 2014).

1.1.2. Experiment II

I. Zara et al. (2013) found that low proficiency bilinguals rejected perfectly formed sentences with two direct objects in offline responses (measured by the acceptability judgement task), which corresponds to the assessment that learners of English as a second language who have low vocabulary knowledge have not acquired double object

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sentences in their L2. Based on results uncovered in the study previously mentioned, low proficiency English bilinguals will reject the licit and the illicit experimental items containing the DOC.

II.   High proficiency bilinguals will encounter difficulties in rejecting the illicit double object sentences with verb and animacy violations, but they will accept licit instantiations of the DOC. This population will overgeneralize what is an acceptable sentence with two direct objects, leading them to accept bad sentences more.

1.2.   Research questions

- Do speakers of Brazilian Portuguese living in Minas Gerais accept the grammaticality of the DOC in their own native language?
- Do the high proficiency bilinguals of the pair BP-English process the DOC in BP on a self-paced reading task just as fast the prepositional double object?
- Is there a discrepancy between the on-line and the off-line measurements for the highly proficient bilingual group?
- Are bilinguals living in Brazil capable of discerning animacy constraints of dative constructions in an experimental setting? If so, then what is the proficiency level which represents the threshold in terms of accepting or rejecting good and bad sentences?
- For the sentences in English, do bilinguals have the tendency to overgeneralize by judging bad sentences as acceptable?

1.3.   Thesis outline

In section 2, this part of this paper will be dedicated to the literature review. There will be a brief review of the double-object construction and some of its particularities; the acquisition of the construction by native speakers of English and native Brazilian Portuguese speakers who have English as their second language; evidence for the existence of the

construction in BP; a brief characterization of the bilingual individual; evidence in favor of L2 effects on the L1 observed in experimental studies with bilinguals; finally, a review of the construction grammar approach and its relevance for this study.

In section 3, I will present the experimental methodology employed in this thesis: two experiments (the first in BP and the second in English) which consisted of a self-paced reading task followed by a timed acceptability judgement task with a 5-point Likert scale. In section 4, the data from the experiments will be analyzed, and there will be a discussion of the results of each experiment. Lastly, section 5 will be dedicated to the conclusions, the implications of the results and possible future research directions.

2. LITERATURE REVIEW

2.1.   The double-object construction

Many interesting questions can be raised related to what linguists refer to as "the dative alternation" or variations of argument structure (GOLDBERG, 1995, 2003; LARSON, 1998; HOVAV & LEVIN, 2008; PINKER, 1989). For instance, how do native speakers acquire the double-object construction? In terms of language use, what is the relation of the double object to its prepositional counterpart; that is, under what circumstances do speakers choose to use one construction over the other? Is there optionality regarding the use of both forms or is this choice guided by semantic and/or pragmatic constraints? What properties related to the two internal arguments condition the preference of one structure over the other? Is the preference of one form over the other motivated by frequency effects? These are just a few questions which arise when researchers contemplate variations of syntactic patterns under the lens of linguistic theory. We will not attempt to answer these complex theoretical questions in the present work; however, they serve to demonstrate why so much attention has been given to not only the dative alternation but alternations in general.

There is a debate whether this alternation modifies the basic meaning of certain verbs (e.g. *give*, *send*, *buy, etc.*), or if their meaning remains the same while being expressed by two distinct syntactic constructions (HOVAV & LEVIN, 2008). These authors argue that a verb such as *give* is only associated with the caused possession meaning, whereas a verb such as *send* is associated with both the caused motion and caused possession meaning. In the examples above, the verbs in question can take the two forms, as it was presented in the introduction. For Larson (1988), these two structures are a product of a single underlying representation realized by distinct syntactic configurations.

However, while these questions raise interesting theoretical implications, they will not be expanded upon in the present study. The theoretical perspective adopted in this thesis contemplates two forms which express independent syntactic-pragmatic content (GOLDBERG, 1995; HOVAV & LEVIN, 2008; PINKER, 1989). More specifically, I adopt the Construction Grammar approach (GOLDBERG, 1995, 2003), in the sense that syntactic patterns motivated by pragmatic factors exist independently of the meaning of verbs.

One particularity regarding this type of construction is related to the semantic features of the arguments. For Pinker (1989, p.75), dativization converts, through lexical rules, the predicate "cause X to go to Y" into "cause Y to have X". In the first semantic structure the argument which is adjacent to the verb is a theme, whereas in the second structure the same position is occupied by a possessor (or a recipient) argument, that is, an entity conscious of their ability to possess the theme argument.

Goldberg (1995, p.22) also commented on the restrictions related to recipient arguments being able to possess the object denoted by the theme, as it is demonstrated below.

5a. Joe cleared Sam a place on the floor.

5b. *Joe cleared Sam the floor.

Sam cannot successfully receive the entire floor, but he can occupy part of it. The examples (6) and (7) demonstrate that for verbs such as *send* and *throw*, the recipient argument of a ditransitive prepositional construction can be an inanimate entity, whereas these verbs can only license the DOC if the adjacent argument is an animate recipient.

6a. John sent a letter to the university.

6b. *John sent the university a letter.

6c. John sent Mary a letter.

7a. Smith threw the ball to the first base.

7b. *Smith threw the first base the ball.

7c. Smith threw the first baseman the ball. (GREEN, 1974,; OEHRLE, 1976, *apud* HOVAV & LEVIN, 2008, p.144)

Another relevant constraint involving the DOC is with respect to verbs that are very similar in meaning, but do not pose the same grammaticality status for the two forms of the alternation. Harley (2007) demonstrated that verbs with a Latinate root do not license the

double object argument structure, while verbs that have a Germanic root do allow the construction. These nuances help to contribute to learning challenges of speakers of English as a second language. Verb pairs such as *buy* and *purchase*, and *give* and *donate* are some of these examples (8a-b) and (9a-b) below, respectively.

8a. John bought Mary a car.

8b. *John purchased Mary a car.

9a. John gave Mary his money.

9b. *John donated Mary his money.

Goldberg (1995) argued on similar grounds that verbs which allow two direct objects have to involve a volitional agent as subject, and its basic object must be a conscious or animate recipient. However, the author presents some examples (p.144-151) which violate these animacy restrictions:

10. The medicine brought him relief. (p144)

11. The rain bought us some time.

12. He got the ideas across to Jo. (p.148)

13. His thoughts came across from his speech.

14. The view knocked me over. (p. 149)

15. I caught a glimpse of him.

The same author justifies that such constructions are instances of a productive class of expressions based on systematic metaphors. These types of uses of the DOC will not be expanded upon here, since the experimental items used in this study represent more basic instances of the construction.

Hovav & Levin (2008) state that for the most part an argument expressible as the first object of a dative construction can also appear as the object of the preposition "*to*" in a prepositional construction, but in many instances an argument which can appear in a ***to-phrase*** cannot appear as **a first object**. The authors also point out that certain expressions only allow the double-object variant:

16a. The noise gave Terry a headache.

16b. *The noise gave a headache to Terry.

17a. The recession cost my grandfather a raise.

17b. *The recession cost a raise to my grandfather.

Considering these arguments, constructions which allow two direct objects do indeed represent quite a challenge for the learner of English as a second language. This learnability challenge will be demonstrated in the next section, along with the L1 acquisition of the construction.

2.2. The acquisition of the double-object construction

In this section, there will be a brief exposition of the acquisition of the DOC in a native setting and in second language learning, followed by some contextualization for the status of the DOC in BP.

2.2.1. L1/L2 acquisition in English

As it was shown in the previous section, how and when learners internalize the grammatical information related to the DOC and its constraints, whether in L1 or L2 acquisition, also instigates a lot of interest from researchers involved with research in first language acquisition. In L1 acquisition of English, Campbell & Tomasello (2001) showed that out of all constructions in the English language, dative constructions are acquired first by young children. Additionally, the DOC is the most prevalent in comparison to its

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prepositional counterpart, and because of its semantic content which denotes a transfer between two entities, and due to the kind of interaction between the child and its parental figures, it is acquired earlier by English-speaking children. The same authors also noted that from a developmental point of view the acquisition of dative constructions are quite interesting for three reasons:

(a) Each [form of dative constructions] refers to a salient semantic situation for children and so is acquired relatively early.

(b) It is relatively coherent semantically in that it is always used for some kind of transfer between people (either literal or metaphorical).

(c) It is cognitively complex in that it involves three participants (donor, recipient, gift). (DIXON, 1991 *apud* TOMASELLO & CAMPBELL, 2001, p. 254-255).

In L2 acquisition of English, a few studies have shown that learners acquire the DOC in the later stages (HAMDAN, 1994; KANG, 2011; MAZURKEWICH, 1984; OH, 2006; ZEDDARI, 2009)[7]. Zara et al. (2013) found that only highly proficient Brazilian-English bilinguals accepted sentences with two direct objects in English. The low proficiency group rejected the DOC in English, suggesting that they have not yet acquired this construction.

Zara (2014) concluded by means of corpora analysis that Brazilian learners of English as a second language who have achieved intermediary to high levels of proficiency were sensitive to the appropriate contexts for the use of the DOC in their L2. There is a higher association of the DOC with verbs such as *tell, give*, *teach* and *show*. This is also the case for native speakers of English. The same bilingual population was also able to distinguish the appropriate use of the DOC in written language.

According to this author's results, the prepositional ditransitive construction in BP is acquired earlier in the bilinguals' L2. This result supports the pattern found in Zara et al. (2013). Thus, L1 frequency effects influenced the acquisition (as well as the absence) of certain grammatical features inherent to BP's equivalent of the ditransitive structure, the

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[7] *apud* Zara (2014, p. 65-68)

prepositional double object. The chart below, translated from Zara (2014)'s PhD dissertation, shows the distribution of the different variants of the dative construction.

Distribution of dative constructions in English L1 and L2 corpora			
Corpus	Double direct object	Prepositional ditransitive	Inverted prepositional ditransitive
Written (L1)	79,01% (271)	20,12% (69)	0,87% (3)
Spoken (L1)	82,56% (426)	17,44% (90)	0,00% (0)
Br-ICLE (L2)	58,54% (120)	34,63% (71)	6,83%(14)
LINDSEI-BR (L2)	61,90% (13)	38,10% (8)	0,00% (0)

Chart 1 - Zara (2014, p.130) results from corpora analysis of Brazilian Portuguese

As it can be interpreted in the chart above, the double object variant represents a large majority of the instances of all dative construction variants in the L1 English corpora, *Written* and *Spoken*. These occurrences were significantly higher than those found in the L2 corpora, *Br-ICLE* and *LINDSEI-BR*. Moreover, these results show that sentences with the double direct object represented the majority of the instances in the corpora of L2 learners, suggesting that these bilinguals were able to acquire at least some of the appropriate uses of the DOC.

In the following section, I will present some studies which cover how and in what circumstances some linguistic communities acquire the DOC in BP. Furthermore, these studies provide evidence in favor of the co-existence of this construction with its more productive form, the prepositional ditransitive.

2.2.2. Brazilian Portuguese

As it was stated in the previous, the pattern for the acquisition of the DOC in English is different than what is observed in BP. In English, native speakers acquire the double-object ditransitive construction first, while its prepositional counterpart is commonly used but less frequent, especially in spoken language. Native speakers of BP acquire the prepositional

ditransitive construction first, whereas only some linguistic communities acquire its double-object counterpart later on. Thus, the status of the DOC seems to be marginal in the language.

Scher (1996) argued for the existence of the construction in some spoken varieties in the state of Minas Gerais, more specifically of the *Zona da Mata* region. She proposed that the dative shift witnessed in BP is not the same process attested in English and other Germanic languages. The author believes that the process motivating this alternation is the result of the deletion of the preposition *a* in BP (*to* or *for* in English). Furthermore, the inversion of the two complements is motivated by discursive factors, that is, the argument adjacent to the verb in both languages, the structures [V NP$_{recipient}$ NP$_{theme}$] in English and [V PP/NP$_{recipient}$ NP$_{theme}$] in BP, has the pragmatic function of topic.

Gomes (2003) provided evidence for the existence of the DOC in spoken vernacular of BP, although she conceded that the patterns exhibited in BP do not match those of Germanic languages or languages which have a true dative shift. The author argues that this alternation in BP is a consequence of variable position of the complement within the VP, as well as the variable use of the preposition in the dative complement. Gomes' data was gathered from the vernacular spoken Portuguese in Rio de Janeiro, thus there is more evidence for the occurrence of the DOC in more places in Brazil other than just the state of Minas Gerais.

Moreover, the author argued in favor of four structural possibilities involving verbs with two complements: [V NP$_{theme}$ PP], [V PP NP$_{theme}$], [V NP$_{recipient}$ NP$_{theme}$] and [V NP$_{theme}$ NP$_{recipient}$]. She proposed that these four variants are an effect of linguistic change in sociolinguistic terms, and that it involves the decline of the order [V PP NP$_{theme}$]. The quantitative data also showed that the preposition *a* in BP is being replaced by the preposition *para*, as a consequence of historical change. The quantitative analyses also showed that the unmarked order is favored when the dative complement is larger than the direct object.

Lucchesi & Mello (2009) conducted a sociolinguistic analysis of verbs with two direct objects of four isolated Afro-Brazilian rural communities in the state of Bahia. Since these communities have been in contact with Creole languages which possess this structure, the authors believe that its emergence may be due to the contact between both languages. The production of the DOC seems to be restricted to certain dialects based on socio-economic status (LUCCHESI & MELLO, 2009). Consequently, this argument could explain the lack of

data in favor of the widespread use of this construction. Exemplified below are the four possible post-verbal object distributions which the authors who studied the DOC in BP argued for:

I.   [V NP$_{theme}$ PP]

II. [V PP NP$_{theme}$]

III. [V NP$_{recipient}$NP$_{theme}$]

IV. [V NP$_{theme}$ NP$_{recipient}$]

Zara (2014) searched the structure (I) and (II) in spoken and written corpora of BP. The author found that, even though there is an occurrence of the structure [V PP NP$_{theme}$], it is significantly less common than the unmarked structure [V NP$_{theme}$ PP]. Zara (2014, p. 124, Table 5) analyzed two BP corpora for instances of five different constructions which are interrelated. In the following chart, these results were adapted to English from the author's PhD dissertation.

Construction in BP /example/translation	BP corpora analyzed	
	Humanas	*C-ORAL-BRASIL*
1. Prepositional ditransitive Maria deu um livro para João. Mary gave a book to John.	58,23% (601)	45,93% (79)
2. Inverted prep. ditransitive Maria deu para João um livro. Mary gave to John a book.	22,67% (234)	7,56% (13)
3. Ditransitive Maria deu João um livro. Mary gave John a book.	7,18% (74)	2,91% (5)
4. Inverted ditransitive Maria deu um livro João.	0,00% (0)	0,58% (1)

*Mary gave a book John.		
5. Verb pronoun Maria lhe deu um livro. *Mary him gave a book.	11,92% (123)	43,02% (74)

Chart 2 - Corpora analysis of five different constructions related to the dative construction from Zara (2014)

Additionally, Souza et al. (2016) reported, using an experimental methodology yielding off-line responses, that even high proficiency bilinguals rejected the acceptability of the construction with two direct objects in BP, their L1. This finding seems to suggest that the construction in question has very little productivity in the language, only occurring with a very small group of verbs and in more colloquial contexts, suggested by the authors.

The same authors also demonstrated that low proficiency bilinguals in fact tend to reject the DOC involving transfer-of-possession verbs more than the high proficiency bilinguals. These findings confirm native speakers of BP's preference for the structure [V NP$_{theme}$ PP]. Moreover, proficiency seems to be a determinative factor for the efficient processing of [V NP$_{recipient}$ NP$_{theme}$], the most common structure in L2, even in the L1. Sentences involving resultative constructions produced the same pattern of results (OLIVEIRA et al., 2017).

Nevertheless, as it will be reviewed in the next section bilinguals will tend to be more tolerant of the structure [V NP$_{recipient}$ NP$_{theme}$] in their L1, in this case BP, due to their bilingualism. On the other hand, low proficiency bilinguals will tend to reject the construction more due to the lack of knowledge in English, which was attested in Zara et al. (2013). There are no experimental studies which, for instance, compare the preference in the on-line processing of the construction in question in a strictly monolingual context.

In the following section, there will be a brief characterization of different types of bilinguals in a more broad sense, as well as of BP-English bilinguals who reside in Brazil.

2.3. The bilingual mind

Bilingual individuals correspond to the majority of the world's entire population (GROSJEAN, 2013). As Grosjean (1989) has famously pointed out, bilinguals are not two monolinguals in one mind: the languages in bilinguals' minds constantly interact in varying levels, depending primarily on factors such as age of acquisition, proficiency and dominance (BIRDSONG, 2014). Furthermore, the definition which only considers individuals who are highly proficient, "balanced" or "native" in two languages as bilinguals has long been abandoned by most researchers in the field of bilingualism and second language acquisition.

The diversity of the different types of bilingualism also raises an important issue. Some bilinguals learned their second (or weaker) language at a very early age from their family who had previously migrated to another country, and they mainly use their weaker language at home. Some bilinguals reside in countries which have two or more languages spoken everyday by the majority of the population; these languages are taught in schools and are officially recognized by governmental entities. In other countries, one language has a higher social status than the other, usually a minority language, so speakers tend to use their weaker language only for specific communicative contexts.

All these circumstances which affect how bilinguals use, process and represent their languages have led Grosjean (2013) to propose the Complementarity Principle, which posits the assertion that "bilinguals usually acquire and use their languages for different purposes, in different domains of life, to accomplish different things. Different aspects of life often require different languages" (GROSJEAN, 2013, p.12).

The fact is that most bilinguals acquire their second language successively, and there is some variation among this group as well. The two most relevant factors which condition L2 acquisition are age of acquisition and the amount of exposure (BIRDSONG, op. cit.). Individuals can attain near-native levels of performance[8] if they start learning their L2 at a pre-pubescent age while immersed in a context heavily favoring the use of L2. However, this type of bilingual is more of an exception than a rule. The majority of successive (or late) bilinguals start to learn their L2 in an exclusive or near-exclusive L1 context. This is precisely the state of affairs for the majority of the bilingual population residing in Brazil.

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[8] We do not subscribe to the view that near-native levels of performance are necessary conditions for bilinguals to achieve a high proficiency in any language, nor do we advocate the view that L2 learners must attain near-nativeness.

Most of the bilingual population living in Brazil chooses English as their second language. English is taught in public schools; however, most educational professionals question the quality of this formal instruction, since the public education system does not provide conditions akin to that of most developed nations. Notwithstanding, knowing English is an important milestone for job opportunities in Brazil, thus individuals seek private language courses in order to improve their income. Moreover, the role of the internet has changed the access that a lot people have to content in the English language, such as music, TV series and movies. These facts, however, are not enough to conclude that most of the Brazilian-Portuguese English bilingual population living in Brazil is very proficient in English.

In the next section, I will cover some previous work related to how bilinguals process and represent their known languages, with emphasis on how this population is able to access syntactic information for both languages even in a context which heavily favors the native language. I will also review some studies which provide evidence for the influence of L2, the weaker language, on L1, the strong language.

2.4. The influence of L2 representations on L1 behavior

There are a few studies in the fields of psycholinguistics and second language acquisition which provide evidence in favor of the cross-linguistic influence in the domain of lexical representation (VAN HELL & DIJKSTRA, 2002; KROLL & STEWART, 1994; MCELREE et al., 2000 *apud* HARTSUIKER et al., 2004; WEBER & CUTLER, 2004). Additionally, the influence of L2 representations on L1 production is also observed in the phonological domain (KUPSKE, 2017; KUPSKE & ALVES, 2016; PEREYRON & ALVES, 2016; SCHERESCHEWSKY et al., 2017).

As Hartsuiker et al. (2004, p. 409) pointed out, there has been little work done to answer whether syntactic representations from one language can influence the other in the bilingual mind, i.e., *the shared syntax account*. Moreover, Souza et al. (2014) explained that only a small minority of research directed attention to the influence of the weaker language (L2) on the stronger language (L1), specifically Dijkstra & Van Hell (2002) and Fernandez &

Souza (2016). The purpose of this section is to review some studies which found evidence for the influence of non-dominant language on the dominant one (L1), especially those of which involving sentences. We will begin with Dijkstra & Van Hell (2002)'s work with words, and then we will move on to studies which yielded evidence for this phenomenon at the syntax level.

Dijkstra & Van Hell (2002) tested trilinguals who knew Dutch (L1), English (L2) and French (L3). The authors investigated whether a list of words containing cognates and homographs would produce a facilitation effect in a strictly monolingual context. They hypothesized that if they found such an effect, it would suggest the lexicons of the two (or three) languages were tapped into even in an exclusive monolingual context. In other words, representations from the L2 and the L3 would influence the response times for the participants. Thus, the results indeed confirmed a facilitation effect. As it will be shown below, the same kinds of effects also seem to occur in the syntactic domain.

Souza (2012) found a bilingualism effect on the L1, Brazilian Portuguese. Using a self-paced reading task, the author tested the L1 processing of manner-of-motion verbs which are licit in English but ungrammatical in BP across two groups, low-proficiency and high-proficiency bilinguals. The results show that the latter group was able to process these illicit structures in their L1 significantly faster, suggesting a divergence from the grammatical restrictions of their L1. Therefore, some activation of the L2, the non-dominant language, has taken place even in a task that only requires L1 use and with a population exposed to a heavily-favored L1 context.

Guimarães (2016) noted by way of corpus data analysis that there is a distributional discrepancy between passive constructions when it comes to English and BP. This construction is much more common in English than in BP. She explains this cross-linguistic asymmetry by demonstrating that other types of constructions cover the pragmatic function of passives in BP. This fact prompted the assumption that native speakers of BP which are highly proficient in English would produce more passive sentences in their L1 in comparison to their monolingual counterparts. Through the employment of two sentence elicitation tasks (written and oral), the author found that bilinguals consistently produced more passives. These results were interpreted as evidence for the permeation of L2 representations in the L1 grammar.

Oliveira et al. (2017) also focused on the influences of the non-dominant language on the dominant one. The authors conducted a maze task to assess participants' linguistic processing and a speeded acceptability judgement task (SAJ) to evaluate their linguistic representation. Participants read in their native language (BP) the equivalent of an L2-specific structure, the resultative construction in English. Bilinguals processed the L1-equivalent of resultative constructions significantly faster than monolinguals, while there was no difference between groups for the SAJ task. The results were interpreted as there being a reverse transfer effect for the on-line processing but no such effect for the off-line measurement.

In the next section, the construction grammar approach will be reviewed, as well as why this theoretical construct is relevant for the present study.

2.5.   The construction grammar approach

Goldberg (1995, p.1) defines constructions as a pair of form-meaning correspondences which exist independently of particular verbs. Constructions are not compositionally derived from other constructions existing in the language (p.4). In other words, each construction carries its own meaning and can select verbs which abide by its constraints in terms of certain semantic features. In this view, arguments are licensed by the construction, not by the verb, as it was viewed in other fields of linguistics.

As Goldberg (1995, p.11) points out, the verb *kick* can have at least 8 different argument structures, independently of the verb.

a) Pat kicked the wall.
b) Pat kicked Bob black and blue.
c) Pat kicked the football into the stadium.
d) Pat kicked at the football.
e) Pat kicked his foot against the chair.
f) Pat kicked Bob the football.
g) The horse kicks.
h) Pat kicked his way out of the operating room.

It is not that this verb has eight slightly different meanings. If that were the case, speakers would have to learn each separate use of this verb. Instead, the author argues that it is syntactic frames, not different verb meanings, which are directly associated with meaning.

A distinct construction is defined to exist if one or more of its properties are not strictly predictable from knowledge of other constructions existing in the grammar. The ditransitive construction or (DOC) is syntactically unique in allowing two nonpredicative noun phrases (NPs) to occur directly after the verb; it is the only construction which links the recipient role with the grammatical function of the basic object (GOLDBERG, 1995, p. 142). The construction is represented in figure 1, below:

The double-object construction
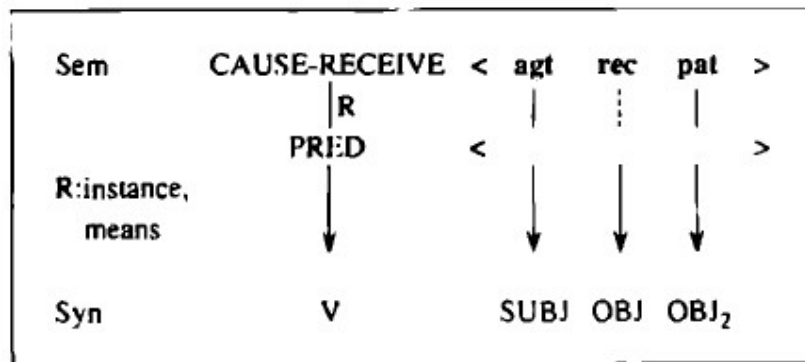
Figure 1 - Representation of the double-object construction according to Goldberg (1995)

The construction's agent and patient roles must be fused with independently existing participant roles of the verb, indicated by the solid lines between the agent and patient argument. The author argues that the recipient role may be contributed by the construction, indicated by the dashed lines between the recipient argument role and the array of predicate participant roles.

Subtle semantic and pragmatic factors are crucial to understanding the constraints related to grammatical constructions. In a sentence such as *Sally baked her sister a cake*, the author states that this sentence can only mean that Sally baked a cake with the intention of giving it to her sister. Not only the action must be performed agentively by the verb but the transfer intended as well; that is, it cannot mean that Sally had meant to bake someone else a cake and then gave it to her sister at some later point. She argues that the intended transfer

meaning must be associated with the construction itself, rather than this meaning be contained in the meaning of the verb *bake*.

As it was discussed previously, the prepositional ditransitive construction is the most productive in BP, whereas the double-object construction seems to be only partially productive. Zara (2014) and Souza et al. (2016) both corroborated this account. For Goldberg (2016), a construction is more productive when it encompasses more attested instances of verbs or verb classes. These attested examples cluster together to form a constructional category. Considering this claim, we proceeded to test the acceptance of the DOC with eight different ditransitive verbs in BP, which are disclosed in the Materials subtitle of Experiment I located in the following section, entitled Methods.

3. METHODS

With the employment of an experimental methodology, the first part of Experiment I and Experiment II measured the processing time, or reaction time, for the target segment or the post-verbal portion of the sentences with two direct objects in Brazilian Portuguese (Experiment I) and in English (Experiment II). In other words, both experiments consisted of the same kind of task created to test the speed in which participants read the two objects, represented in Fragments 3 and 4, as well as the inclusion of an adjunct. The addition of an adjunct at the end of each sentence, which is located in Fragment 5, is justified as an attempt to capture a possible spill-over effect, or a latency effect which "spills over" to the next fragment, in this task, Fragment 5.

The second part of Experiment I and Experiment II consisted of two types of measurements: the reaction time for the emission of an acceptability judgement and the value of the judgement in a five-point Likert scale, one being the lowest value and five being the highest value. More details regarding the scale implemented are discussed in the following section.

3.1. Experiment I

In Experiment I, Brazilian monolinguals and Brazilian-Portuguese English bilinguals read sentences in Brazilian Portuguese. This task comprised of target sentences (the double direct object type), control sentences (the prepositional double object type) and distractor sentences. The distractors consisted of a few different sentence types and were split in half between grammatical and ungrammatical stimuli, which are displayed in the Materials section of Experiment I. In the following sections of Experiment I, more details are given in relation to the participants, the materials and the procedures implemented in this task.

For our first hypothesis for this study, we predict that the prepositional double object will have the lowest processing cost, while the inverted DOC will have the highest. For our second prediction, we stated that monolinguals will process the DOC slower than the controls if they judged the same sentences lower than the controls. For our third prediction, the DOC

will be judged significantly higher than the inverted DOC by all groups. In our forth hypothesis, the low proficiency group is expected to process the DOC very similarly to the monolinguals. In the fifth hypothesis, the high proficiency group is supposed to display no significant processing difference for the DOC and the other two prepositional double object variants.

3.1.1. Participants

51 participants were selected; 15 monolinguals of BP, 18 low proficiency English bilinguals, and 18 high proficiency bilinguals. They were all in the age range of 18 to 36 years, and have all reached a higher level of education, i.e., college or graduate students who were studying at Universidade Federal de Minas Gerais (UFMG).

The monolingual group was selected by self-reporting and a brief interview regarding their past experience with formal instruction in English. The vast majority of them declared they could not read at all in English. The three participants who declared they could read reported that they could only do so with the aid of a dictionary, and they did not have any ability to speak in English.

In order to assess the proficiency of the bilingual group, these participants were asked to take a vocabulary test, Vocabulary Levels Test (NATION, 1990). The 18 participants who achieved above 72% on this test (65 correct out of 90 questions) were considered to have attained a high proficiency, while the 18 participants who scored below 65% were considered to be in the medium to low proficiency range. All participants read and judged the same experimental items.

No participants were excluded because they achieved a lower than 80% accuracy rate for the judgement of the 32 grammatical distractor sentences and the 16 control sentences. This measure ensures that the participants were heeding full attention to the task.

3.1.2. Materials

For the creation of the target sentences, eight verbs were chosen based on Lucchesi & Mello (2009)'s double direct object verb typology for BP.

Typology	Verb in BP	Translation in English	Frequency in BP per million
Benefactive verbs – (i.e. verbs of transfer between two entities)	*dar*	*to give*	570.57
	enviar	*to send*	84.64
	entregar	*to deliver*	55.63
	emprestar	*to lend*	15.78
	mostrar	*to show*	405.70
	pedir	*to ask*	134.03
Discendi verbs – (i.e. verbs that denote verbal communication)	*contar*	*to tell*	215.67
	ensinar	*to teach*	56.63

Chart 3 - Lucchesi & Mello (2009) verb typology used to create items for Experiment I

The words for every target sentence were controlled for their frequency in the Brazilian Portuguese corpus. The number of syllables for the post-verbal objects were also controlled (five and six syllables per object), as well as the concreteness of the arguments. In order to attempt to isolate the participants' syntactic computation, we wanted the sentences to be as easy as possible to comprehend.

Participants read and judged a total of 96 sentences in BP (for all the sentences used in this study see Appendix A on page 81). There were 32 target sentences which represent sentences created with the eight verbs in four conditions, the four possible syntactic configurations in BP, shown below:

I. [V NP$_{theme}$ PP]

Mariana deu uma bicicleta para sua amiga mais querida.

Mariana gave a bicycle to her dearest friend.

II.   [V PP NP~theme~]

Ana Paula mostrou para o cliente as roupas da loja em promoção.

Ana Paula showed to the client the clothes in the store for sale.

III.   [V NP~recipient~ NP~theme~]

Eduardo ensinou seu filho mais novo futebol de botão na sala de TV.

Eduardo taught his youngest son table football in the TV room.

IV.   [V NP~theme~ NP~recipient~]

Felipe enviou chocolates suíços sua namorada de presente.

*Felipe sent Swiss chocolates his girlfriend as a gift.

There were 64 distractor sentences (see Appendix A on page 81). 32 stimuli were considered perfectly acceptable sentences and 32 were considered completely bad or ungrammatical sentences. The following examples and their translation below represent some of the distractors used in this task.

Grammatical distractor sentences:

18. *A garçonete anotou o pedido do casal sem muita atenção.*
    The waitress wrote down the couple's order inattentively.
19. *O mecânico consertou o caminhão em menos de dois dias.*
    The mechanic fixed the truck in less than two days.
20. *O cliente analisou a moto e a comprou nova.*
    The client analyzed the motorcycle and bought it new.
21. *Isabela está feliz porque ela assistiu uma comédia.*
    Isabela is happy because she has watched a comedy.

Ungrammatical distractor sentences:

22. *O taxista ofendeu vulgares com comentários a frequente cliente.*

The taxi driver offended vulgar with comments the frequent client.

23. *O psiquiatra internou à recaída o doente devido crônico.*

The psychiatrist interned the relapse the sick due to chronic.

24. *Ronaldo comprou fria e a comeu a pizza.*

Ronaldo bought cold and it ate the pizza.

25. *Desde ela que Cíntia prepara o almoço se casou.*

Since she that Cynthia prepares the lunch married itself.

This experiment was run on a Windows laptop. The software *Psychopy* was used to present the stimuli to the participants. This program allows the items to be fully randomized in every experimental session, and it also records the reaction times for each sentence fragment for the self-paced reading part, as well as for the timed acceptability judgement portion of the task.

In figure 2 below, there is a simplified representation of Experiment I. Participants started at a fixation point located in the middle of the screen depicted by the plus sign (+).
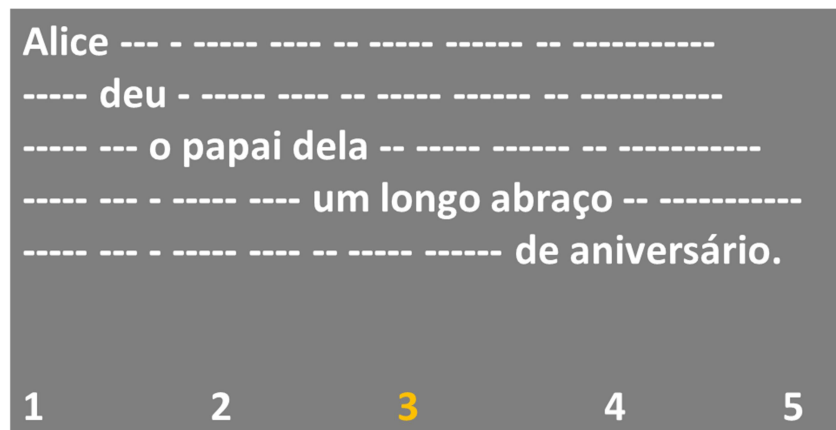
Figure 2 - Representation of how the stimuli were presented in Experiment I

3.1.3. Procedures

The participants volunteered to participate in the experiment by responding to an email sent to UFMG students who attended a few different courses, or a post on the Letters college community of the social network *Facebook*. All the undergraduate students received credits for their participation.

The experiment started with the instructions and a practice session with 10 sentences, in order to familiarize participants with the task. One relevant experimental procedure was to inform the participants that their judgement was supposed to be made based on both speech and writing, i.e., things they could hear from a member of their linguistic community, expressions which were possible in their language, and not on normative writing conventions. This is important, since the phenomenon being analyzed is much more pervasive in spoken language.

Participants used the Space key to read past each sentence fragment. The first time they pressed the Space key, the first line of the figure above appeared. They pressed the same key four more times, each time corresponding to the following lines, until they reached the last line of the figure, the five-point Likert scale.

After reading the entire sentence, they were instructed to use an external Mouse to click on the rating they deemed most appropriate, a scale of five values (1, 2, 3, 4 or 5). The choice for the use of the mouse instead of the computer keyboard was that it made the task simpler: participants did not have to look at the keyboard in order to emit their judgements as quickly as possible. The chart below represents each of the numerical values of the Likert scale.

Points in the Likert scale in BP	Translation in English
1- Totalmente inaceitável	*1- Totally unacceptable*
2- Mal formada, quase inaceitável	*2- Very ill-formed, almost unacceptable*
3- Estranha, mas talvez aceitável	*3- Ill-formed, but maybe acceptable*
4- Um pouco estranha, mas quase perfeita	*4- Slightly ill-formed, almost perfect*
5- Totalmente perfeita	*5- Totally perfect*

Chart 4 - Representation of the Likert scale in BP, with five possible levels of classification

3.2.   Experiment II

In Experiment II, low and high proficiency Brazilian-Portuguese English bilinguals read sentences in English. This task consisted of target sentences (the illicit double direct object type), control sentences (the licit double direct object and the licit prepositional double object types) and distractor sentences. Similarly to what was done in the first experiment, the distractors for Experiment II were comprised of a few different sentence types, half of which were ungrammatical and half of which were grammatical. More details regarding the distractor stimuli are presented in the Materials section of Experiment II. Moreover, the following sections provide more details regarding the participants, the materials and the procedures of Experiment II.

For the first hypothesis of Experiment II, it is expected that the low proficiency bilingual group will have the tendency to reject both the licit and illicit forms of the DOC. For our second hypothesis, it is anticipated that the high proficiency group will exhibit the opposite behavior. They will tend to accept both the good and the bad sentences involving the DOC.

3.2.1. Participants

The same bilingual group who participated in Experiment I also participated in Experiment II. In order to ensure no kind of stimuli effect from the sentences in English on participants' performance of their L1, everyone completed the experiment in BP first (Experiment I). 36 participants performed the task in English; 18 were considered to be low proficiency bilinguals, and 18 were assessed as high proficiency bilinguals.

The low proficiency group reported an average age of 23.6 (range of 19 to 36), a mean age of acquisition of 13.9 (7 to 24 range), and only three participants spent from two to four

months in an English-speaking country. The high proficiency group reported an average age of 24.6 (range of 19 to 32), a mean age of acquisition of 12.4 (10 to 16 range), and three participants spent more than three months in a country in which English is the most spoken language; however, of those three only one lived for more than a one-year period.

3.2.2. Materials

Participants read and judged 72 sentences in English (for all the sentences see Appendix B on page 86). This experimental session consisted of 16 target sentences[9], 16 controls and 40 distractors. There were two conditions for each of the target sentences. The first condition (26-27) is comprised of sentences with verbs which do not license the DOC. We termed this kind of violation as "verb violation".

26. *The woman donated the student a laptop last week.
27. *The driver delivered the client the product very quickly

The second condition (28-29) represented the DOC with a violation of the recipient argument, i.e., arguments which do not fulfill the construction's semantic requirements (what we called "animacy violation"). These NPs were mainly inanimate entities, such as *the club* or *the butcher shop*.

28. *The mayor awarded the club a prize for its charity work.
29. * Taylor sold the butcher shop a fridge for a cheap price.

In chart 5 below, all the verbs used to create the target sentences are displayed along with their frequency according to the COCA Corpus.

Condition #1 – verb violation	Condition #2 – animacy violation of the

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[9]The target stimuli were adapted from research conducted by Oliveira (2016). However, this data specifically has not yet been published. The goal is to replicate the author's findings using a different task, the self-paced reading task.

		recipient argument	
Verb	**Frequency**	**Verb**	**Frequency**
carry	79513	*award*	7666
donate	6606	*forward*	78054
deliver	29169	*give*	384503
explain	80797	*offer*	106473
present	49659	*send*	96613
purchase	16064	*sell*	87865
report	88138	*show*	208037
whisper	15383	*tell*	388155

Chart 5 - All verbs used to create the target items and their frequency according to the COCA corpus

The target sentences were controlled for their frequency, and the number of syllables for most of the internal arguments. All words used to form the target stimuli were in the band of the five-thousand most frequent words. Almost all objects have from two to four syllables. The only exceptions (see Appendix B, p.86) are *a new factory* and *the university* with five and six syllables, respectively. Since these two noun phrases are fairly frequent in English, we believe it did not impose a processing onus for participants.

The control items depicted below were comprised of grammatical double-object sentences (30-31) and grammatical double prepositional object sentences (32-33).

Control sentences:

30. The grandma offered the boy a candy for dessert.
31. My uncle gave his sister a gift he liked.
32. Robert taught English to Alex last year.
33. James brought flowers to Mary for Valentine's Day.

The grammatical distractors also represented below are examples of clearly grammatical sentences, i.e. basic declarative sentences[10], (34-35) and the controls of a different study yet to be published[11] (36-37).

Grammatical distractors:

34. Jake hates math and history but loves science.
35. Tina plays video games every weekend.
36. The chef that ruined the food was in the kitchen.
37. The bird that ate the worm was small.

The ungrammatical distractors elucidated below are examples of categorically ungrammatical, i.e., completely scrambled, sentences[12], as well as the target sentences used in the same unpublished study mentioned above.

Ungrammatical/odd distractors:

38. *Ronald the play likes to guitar.
39. *Hudson well speak English very.
40. ?The food that ruined the chef was very famous.
41. ?The worm that ate the bird came from the garden.

Represented below is how the sentences were displayed to the participants in English.

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[10] Distractors borrowed from items used in Oliveira (2016)'s doctorate's dissertation.
[11] This data was collected for my advisor, Prof. Ricardo Augusto de Souza. It is part of his unpublished study.
[12] Items also borrowed from Oliveira (2016), with his permission, of course.
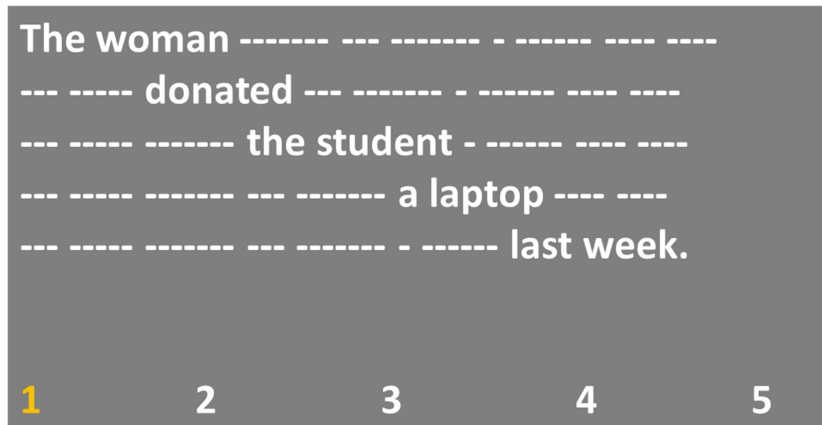
Figure 3 - Representation of how the stimuli were presented in Experiment II

3.2.3. Procedures

The same procedures of Experiment I were employed in Experiment II. The major difference, of course, was that the stimuli were different, and the instructions, practice items, and experimental items, the sentences, were in English. The chart below represents each of the numerical values of the Likert scale in English.

Judgement in English
1- Totally unacceptable
2- Very ill-formed, almost unacceptable
3- Ill-formed, but maybe acceptable
4- Slightly ill-formed, almost perfect
5- Totally perfect

Chart 6 - Representation of the Likert scale in English

After the Experiment II, the two bilingual groups completed the VLT test (NATION, 1990) and filled out a *Google* questionnaire which provided information about their linguistic experience. All the data regarding this questionnaire were not included in the analysis for the present study[13]. The data utilized can be viewed in the participants subsection of the current section. The following section entitled Results and Discussion will be concerned with the

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[13] This data will be included in a future version of this study to be published as an article.

analyses of Experiments I and II, as well as a short discussion of the results for each experiment.

4. ANALYSES AND DISCUSSION

This section is dedicated to the statistical analyses implemented followed by a brief discussion of the results. In both Experiments I and II, we analyzed the mean reaction times for Fragment 3; Fragment 4; Fragment 5; the sum of Fragments 3, 4, and 5; and the emission of a judgement. We also analyzed the mean judgement values for each sentence type in both experiments.

All data were analyzed in the software *IBM SPSS Statistics* (Statistical Package for the Social Sciences). A within-subjects design was employed. The sentence types are the independent variable, and the reaction times and the judgement values are the dependent measures. The statistical test ANOVA for repeated measures was conducted, adjusted by the Bonferroni correction.

4.1.   Analyses of Experiment I

4.1.1. Fragment 3

Table 1 - Averages and standard deviations in milliseconds for fragment 3 RTs by sentence type and groups

Fragment 3: 1st object	Type	Monolinguals (N=15)	Low bilinguals (N=18)	High bilinguals (N=18)
V NP_{theme} PP	Control 1	749 (342)	815 (375)	611 (203)
V **PP** NP_{theme}	Control 2	826 (358)	883 (377)	671 (261)
V NP_{rec} NP_{theme}	Target 1	887 (339)	995 (494)	693 (303)
V NP_{theme} NP_{rec}	Target 2	957 (377)	878 (386)	706 (270)

Graph 1 - Experiment I within-subjects comparison and standard errors of participants' mean RTs during fragment 3
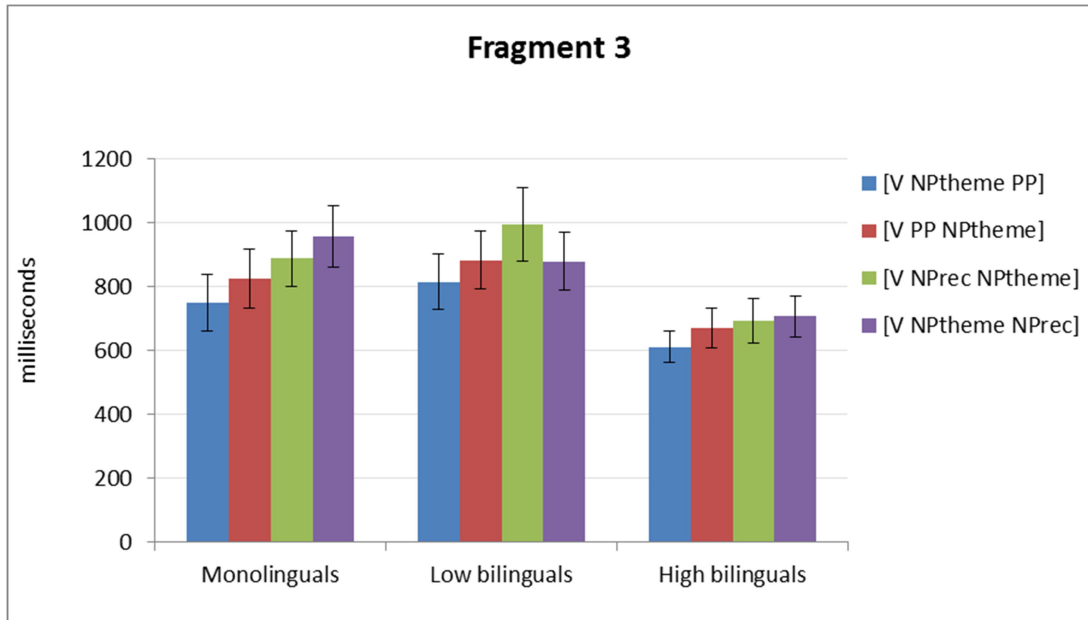
For the monolingual group, we observed a main effect of sentence type on participants' RTs when fragment 3 is displayed, both for subjects and for items – F1 (3,42)=6.83, p<0.01, partial η2 = 0.33; F2 (3,21)=3.29, p<0.05, partial η2 = 0.32. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained in the comparison between the linguistic variables present in the first argument of structure [V **NP_theme** PP] and the linguistic variables located in the same position of structure [V **NP_theme** NP_rec] for the same region, fragment 3 (p<0.001). In other words, monolinguals consistently processed the first post-verbal argument of [V **NP_theme** PP], a theme argument, over 200ms on average faster than [V **NP_theme** NP_rec], which is the same argument type. This result is unexpected for fragment 3 in the comparison of these two sentences, since at this instance of the on-line processing, there is no structural incongruence or animacy distinction among these two sentence types. It was assumed that the sentences with the structure [V **NP_theme** PP] could only become discrepant from [V **NP_theme** NP_rec] sentence types at fragment 4, where the second arguments are a prepositional phrase and a full recipient noun phrase, respectively. This pattern of data is also absent for the other two bilingual groups which are analyzed below.

Another intriguing result is that there was no reliable distinction for this group between the recipient argument contained in [V NP$_{rec}$ NP$_{theme}$] and the arguments present in the other three sentence types. It seems to suggest that for this population either there is no processing effect for this argument inversion, or the measuring instrument, the self-paced reading paradigm, is not precise enough to capture such an effect. All comparisons among other sentence types failed to yield statistically significant differences for this target region.

For the low proficiency bilingual group, a main effect of sentence type was observed for participants' RTs when fragment 3 was displayed, for subjects – F_1 $(1,17)=8.59$, $p<0.01$, partial $\eta^2 = 0.34$ – and marginally for items F_2 $(3,21)=2.95$, $p=0.06$, partial $\eta^2 = 0.3$. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained for the processing of fragment 3, the first post-verbal argument, in the comparison between the structures [V **NP$_{theme}$** PP] and [V **NP$_{rec}$** NP$_{theme}$] ($p<0.05$). This result indicates that the low bilingual population processed the theme argument of [V **NP$_{theme}$** PP] consistently faster than the recipient argument of [V **NP$_{rec}$** NP$_{theme}$], 180ms on average. This outcome is more aligned with our predictions, in that low proficiency bilinguals would show a higher processing cost for recipient post-verbal arguments if they have not yet acquired the double-object construction in English, and even more so if they do not use this construction in BP. There were no other effects of sentence type which reached statistically significant differences for this group.

As for the high proficiency bilingual group, we did not encounter a statistically significant effect for items F_2 $(3,21)=0.93$, $p=0.44$; and only a marginal effect for subjects F_1 $(3,51)=2.54$, $p=0.67$. Post-tests adjusted by the Bonferroni correction show that there was no difference in the comparison of the RTs for any of the linguistic variables presented in fragment 3. The interpretation of the data indicates that the high proficiency group behaved very similarly when exposed to the different stimuli presented in this region. This result is also aligned with our predictions, since there is some evidence which supports that highly proficient bilinguals are less sensitive to divergences from their L1 grammars.

4.1.2. Fragment 4

Table 2 - Averages and standard deviations in milliseconds for fragment 4 RTs by sentence type and groups

Fragment 4: 2nd object	Type	Monolinguals (N=15)	Low bilinguals (N=18)	High bilinguals (N=18)
V NP$_{theme}$ **PP**	Control 1	858 (296)	844 (363)	695 (203)
V PP **NP$_{theme}$**	Control 2	887 (298)	936 (379)	704 (212)
V NP$_{rec}$ **NP$_{theme}$**	Target 1	926 (232)	974 (393)	839 (212)
V NP$_{theme}$ **NP$_{rec}$**	Target 2	1120 (514)	991 (335)	826 (243)

Graph 2 – Experiment I within-subjects comparison and standard errors of participants' mean RTs during fragment 4
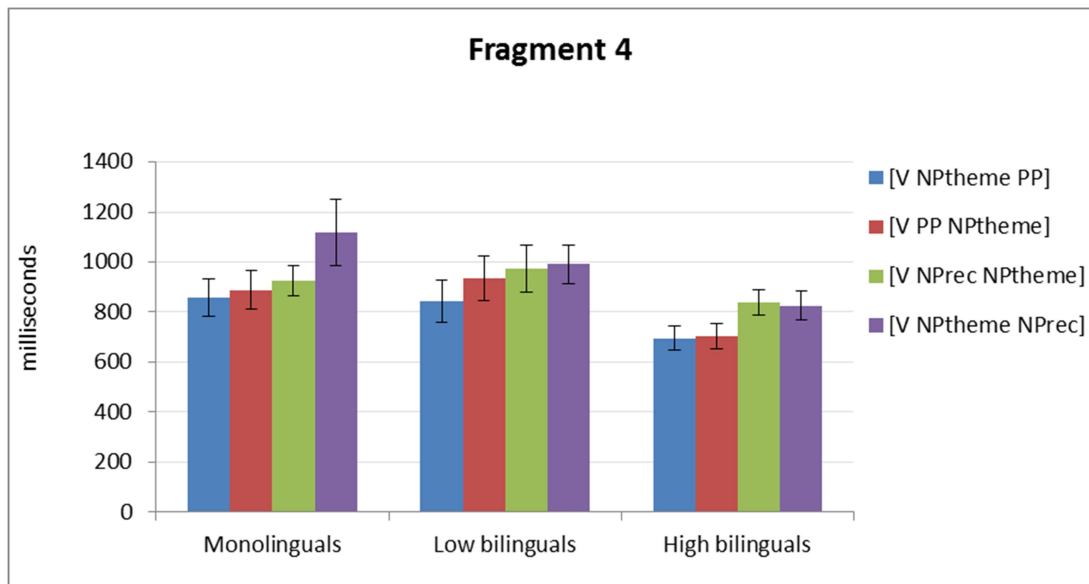
For the monolingual group, we witnessed a main effect of sentence type on participants' RTs when fragment 4 is displayed, both for subjects and for items – F1 $(3,42)=4.34$, $p<0.01$, partial $\eta 2 = 0.24$; F2 $(3,21)=5.95$, $p<0.01$, partial $\eta 2 = 0.46$. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by items in the comparison between the processing of the second object of the structures [V PP **NP$_{theme}$**] and [V NP$_{theme}$ **NP$_{rec}$**] $(p<0.001)$. The linguistic content located in fragment 4 was much more salient for monolinguals if the argument is a recipient than if the argument is a theme. Therefore, the absence of the preposition *para* to introduce a recipient object revealed a higher processing cost, which is reliable.

For the low proficiency bilingual group, a main effect of sentence type was observed for participants' RTs when fragment 4 was processed, for subjects – F_1 (3,51)=3.99, $p<0.05$, partial $\eta_2 = 0.19$ – and marginally for items F_2 (3,21)=2.63, $p=0.08$, partial $\eta_2 = 0.27$. Post-tests adjusted by the Bonferroni correction show that a dependable difference was obtained in the comparison between the linguistic content of the second object present in the structures [V NP_{theme} **PP**] and [V NP_{rec} **NP_{theme}**], ($p<0.05$). The prepositional phrase presented in [V NP_{theme} **PP**] was processed significantly faster than the theme argument in [V NP_{rec} **NP_{theme}**]. This result seems to imply that the processing of the second argument of the DOC brought forth more difficulties for low bilinguals. There were no other effects of sentence type which reached statistically significant differences.

As for the high proficiency bilinguals, we witnessed a main effect of sentence type on participants' RTs when this group read fragment 4, both for subjects and for items – F_1 (3,51)=8.08, $p<0.01$, partial $\eta_2 = 0.32$; F_2 (3,21)=4.04, $p<0.05$, partial $\eta_2 = 0.37$. Post-tests adjusted by the Bonferroni correction show that a reliable distinction was obtained when participants read the second post-verbal object of the structures [V NP_{theme} **PP**] and [V NP_{rec} **NP_{theme}**] ($p<0.001$); [V NP_{theme} **PP**] and [V NP_{theme} **NP_{rec}**] ($p<0.05$); [V PP **NP_{theme}**] and [V NP_{rec} **NP_{theme}**] ($p<0.05$), for subjects. There was also a significant difference between [V PP **NP_{theme}**] and [V NP_{theme} **NP_{rec}**] by items ($p<0.05$).

Some of these results seem quite surprising. We did not expect the high proficiency group to show reliable differences for [V NP_{rec} NP_{theme}], sentences with two direct objects, in comparison to the controls. On the other hand, the distinction witnessed in [V NP_{theme} NP_{rec}] was foreseen, since the structure [V NP_{theme} NP_{rec}] is not found in English and so it could not be a consequence of shared syntactic representations. The comparison between the mean reaction times for display of the other sentence types failed to yield statistically significant differences.

4.1.3. Fragment 5

Table 3 - Averages and standard deviations in milliseconds for fragment 5 RTs by sentence type and groups

Fragment 5: Adjunct	Type	Monolinguals (N=15)	Low bilinguals (N=18)	High bilinguals (N=18)
V NP$_{theme}$ PP **AdvP**	Control 1	1099 (563)	1025 (498)	838 (388)
V PP NP$_{theme}$ **AdvP**	Control 2	1190 (541)	1328 (729)	872 (252)
V NP$_{rec}$ NP$_{theme}$ **AdvP**	Target 1	1217 (501)	1203 (466)	952 (310)
V NP$_{theme}$ NP$_{rec}$ **AdvP**	Target 2	1206 (523)	1235 (514)	959 (316)

Graph 3 – Experiment I within-subjects comparison and standard errors of participants' mean RTs during fragment 5
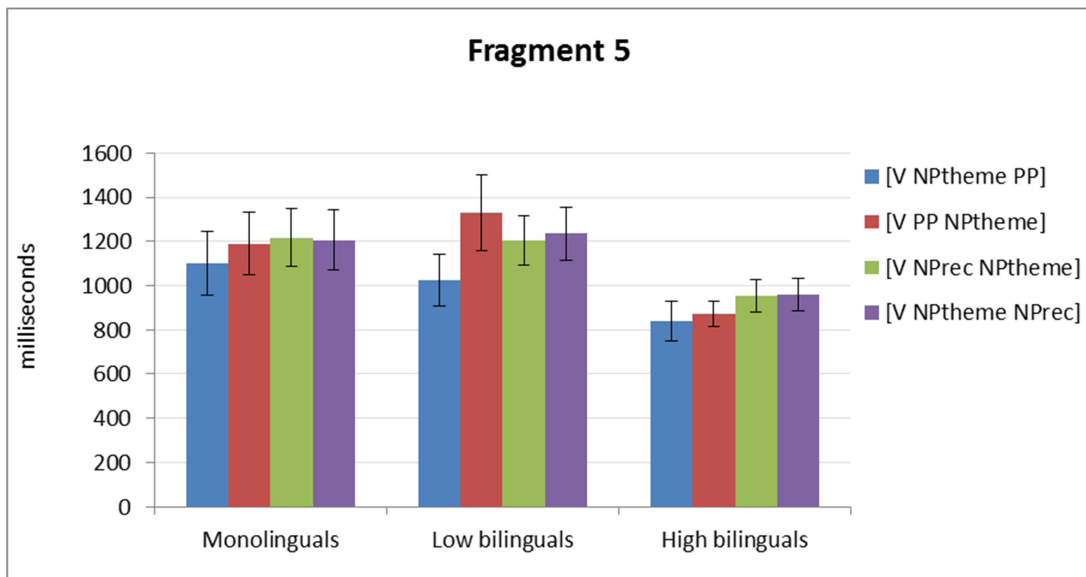
This fragment was included in order to capture potential spill-over effect from the previous fragments. There was no statistically significant distinction for fragment 5 for any of the three groups. Therefore, this finding demonstrates that there was no such effect found for the on-line processing of these stimuli. In other words, the processing costs attested in the previous two fragments, the two post-verbal arguments, did not influence RTs for fragment 5, which is an adjunct.

4.1.4. Sum of fragments 3, 4 & 5

Table 4 - Averages and standard deviations in milliseconds for the sum of fragments 3, 4 and
5 RTs by sentence type and groups

Sum of frags. 3, 4 & 5	Type	Monolinguals (N=15)	Low bilinguals (N=18)	High bilinguals (N=18)
NP$_{theme}$ PP AdvP	Control 1	2706 (986)	2683 (1165)	2144 (735)
PP NP$_{theme}$ AdvP	Control 2	2903 (1034)	3147 (1368)	2247 (663)
NP$_{rec}$ NP$_{theme}$ AdvP	Target 1	3031 (873)	3172 (1183)	2484 (725)
NP$_{theme}$ NP$_{rec}$ AdvP	Target 2	3283 (1203)	3103 (1064)	2490 (703)

Graph 4 - Experiment I within-subjects comparison and standard errors of participants' mean
RTs during fragments 3, 4 and 5
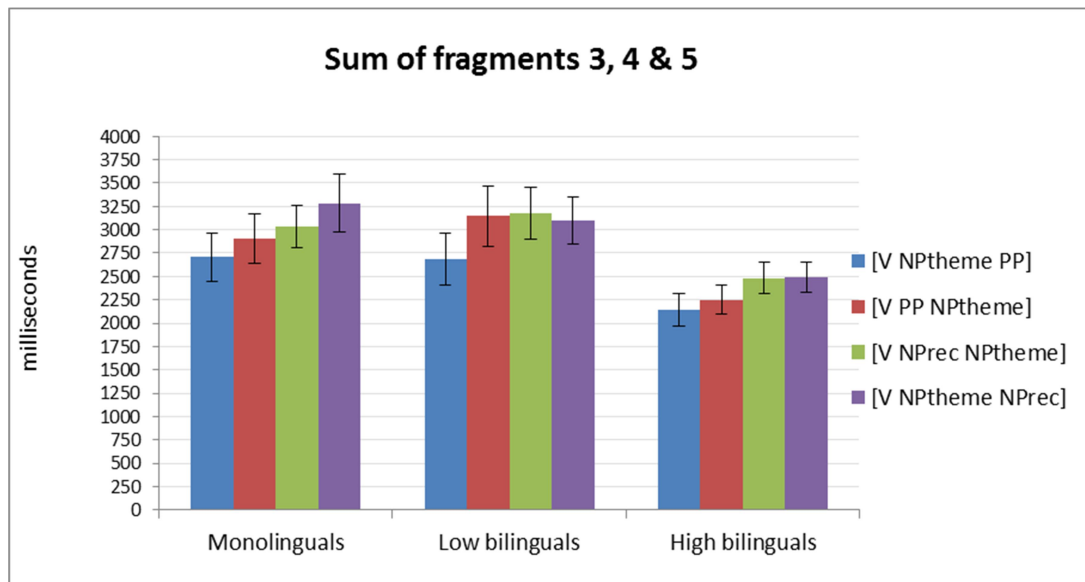
For the monolingual group, we witnessed a main effect of sentence type on participants' RTs for the sum of fragments 3, 4, and 5 were displayed, both for subjects and for items – F1 (3,42)=4.37, p<0.01, partial η2 = 0.24; F2 (3,21)=4.75, p<0.05, partial η2 = 0.4. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained in the comparison between the linguistic content in **[V NP$_{theme}$ PP]** and **[V NP$_{theme}$**

NP_{rec}] ($p<0.05$) by subjects and by items for the sum of fragments 3, 4 and 5. This discrepancy is the same found in fragment 3 for this group. However, this effect is more comprehensible as it spans over the entire sentence. Since the construction [V NP$_{theme}$ PP], is the most frequent construction in BP, it imposes no extra cost when participants read it. On the other hand, the structure [V NP$_{theme}$ NP$_{recipient}$] has at best a marginal status in both languages; hence, we would expect a greater cost across, regardless of groups. The comparison between the mean reaction times for display of the other sentence types failed to yield statistically significant differences.

For the low proficiency bilingual group, a main effect of sentence type was observed in participants' RTs for the sum of fragments 3, 4 and 5: $F1 (3,51)=5.4$, $p<0.01$, partial $\eta2 = 0.24$; $F2 (3,21)=4.75$, $p<0.001$, partial $\eta2 = 0.99$. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between the linguistic content conveyed in the following structures **[V NP$_{theme}$ PP]** and **[V NP$_{rec}$ NP$_{theme}$]** ($p<0.001$); **[V NP$_{theme}$ PP]** and **[V NP$_{theme}$ NP$_{rec}$]** ($p<0.05$). By items, all stimuli reached statistically significant differences ($p<0.01$). The higher processing cost for [V NP$_{rec}$ NP$_{theme}$] and [V NP$_{theme}$ NP$_{rec}$] seems to indicate that the low bilinguals are sensitive to these two syntactic configurations. Specifically in the case of sentence types described by [V NP$_{rec}$ NP$_{theme}$], it may indicate no influence of L2's syntactic representations for this group. As for the sentences with the structure [V NP$_{theme}$ NP$_{rec}$], the higher processing does confirm our expectations.

For the high proficiency bilingual group, a main effect of sentence type was found by subjects as well as by items, $F1 (3,51)=7.84$, $p<0.001$, partial $\eta2 = 0.32$; $F2 (3,21)=6.46$, $p<0.05$, partial $\eta2 = 0.48$. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between the linguistic content in **[V NP$_{theme}$ PP]** and **[V NP$_{rec}$ NP$_{theme}$]** ($p<0.01$); **[V NP$_{theme}$ PP]** and **[V NP$_{theme}$ NP$_{rec}$]** ($p<0.01$). There was also a significant difference between **[V NP$_{theme}$ PP]** and **[V PP NP$_{theme}$]** for the comparison by items ($p<0.001$). The interesting result, again, is that even that the high proficiency bilinguals took longer to process [V NP$_{rec}$ NP$_{theme}$] when compared to [V NP$_{theme}$ PP]. These contrasting data seem to suggest that there was no facilitation effect granted by their L2 in terms of the on-line component of this study.

4.1.5. Judgement RT

Table 5 - Averages and standard deviations in milliseconds for judgement RTs by sentence type and groups

Judgement RTs	Type	Monolinguals (N=15)	Low bilinguals (N=18)	High bilinguals (N=18)
V NP$_{theme}$ PP	Control 1	1137 (435)	987 (386)	961 (303)
V PP NP$_{theme}$	Control 2	1190 (541)	1397 (467)	1147 (395)
V NP$_{rec}$ NP$_{theme}$	Target 1	1336 (333)	1314 (317)	1207 (296)
V NP$_{theme}$ NP$_{rec}$	Target 2	1451 (443)	1389 (361)	1298 (480)

Graph 5 - Experiment I within-subjects comparison and standard errors of participants' mean RTs for the emission of a judgement
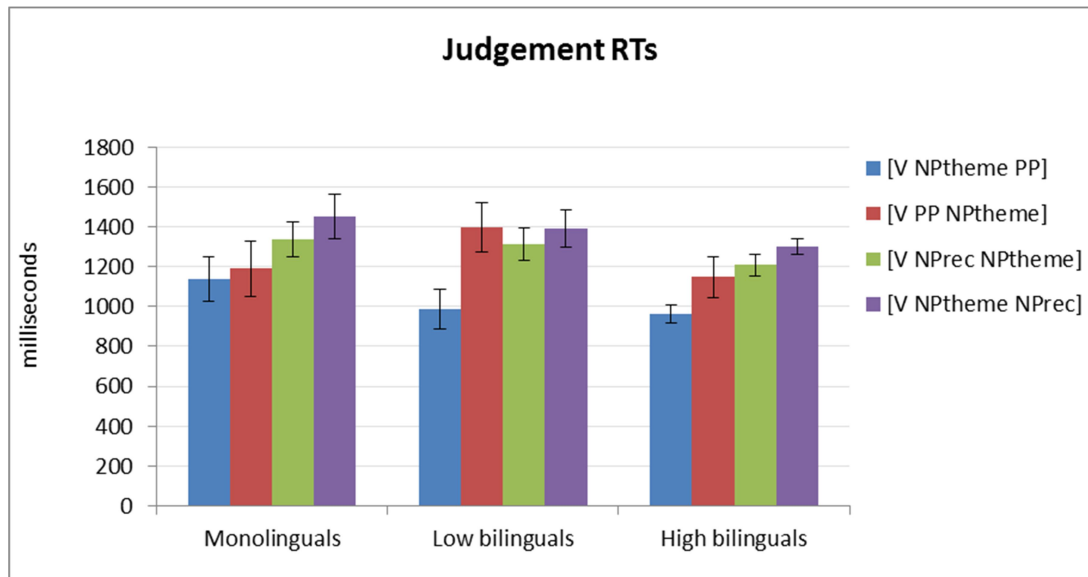
For the monolingual group, we witnessed a main effect of sentence type on participants' RTs to make a judgement call, for both subjects and for items – F1 (3,42)=3.26, p<0.05, partial η2 = 0.19; F2 (3,21)=3.06, p<0.05, partial η2 = 0.3. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between the linguistic content in **[V NP$_{theme}$ PP]** and **[V NP$_{theme}$ NP$_{rec}$]** (p<0.05). This population took longer to emit a judgement for sentences with the structure [V NP$_{theme}$

NP$_{rec}$]. This finding matches the pattern previously obtained in the analyses of the on-line processing of fragments for this group.

For the low proficiency bilingual group, a main effect of sentence type was observed in participants' RTs for the determination of the acceptability judgment: F1 (3,42)=6.27, p<0.001, partial η2 = 0.31; F2 (3,21)=8.79, p<0.001, partial η2 = 0.56. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between the judgment RTs in **[V NP$_{theme}$ PP]** and **[V PP NP$_{theme}$]** (p<0.05); **[V NP$_{theme}$ PP]** and **[V NP$_{rec}$ NP$_{theme}$]** (p<0.01); **[V NP$_{theme}$ PP]** and **[V NP$_{theme}$ NP$_{rec}$]** (p<0.05). By items, **[V NP$_{theme}$ PP]** was distinct from **[V NP$_{rec}$ NP$_{theme}$]** (p<0.05), as well as from **[V NP$_{theme}$ NP$_{rec}$]** (p<0.01). The interesting result in this analysis is that the average time of judgement responses for [V PP NP$_{theme}$] was significantly higher than for [V NP$_{theme}$ PP], on average 400ms. Instead of a facilitation effect, they may have taken longer to decide whether a sentence is good or not because of their bilingualism. We will discuss this possibility in the section dedicated to the discussion of experiment I.

For the high proficiency bilingual group, a main effect of sentence type was observed in participants' RTs for the emission of judgments: F1 (3,51)=6.25, p<0.01, partial η2 = 0.27; F2 (3,21)=4.5, p<0.05, partial η2 = 0.39. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between the following structures' judgment RTs **[V NP$_{theme}$ PP]** and **[V NP$_{rec}$ NP$_{theme}$]** (p<0.01); **[V NP$_{theme}$ PP]** and **[V NP$_{theme}$ NP$_{rec}$]** (p<0.05). The same tendency was observed for items, with the same degree of confidence. Therefore, even the highly proficient bilingual group took considerably longer to emit a judgement for both [V NP$_{rec}$ NP$_{theme}$] and [V NP$_{theme}$ NP$_{rec}$], the two less frequent syntactic configurations in BP (the target stimuli). Just as the low bilinguals, this population took longer to make a judgement call for all structures except [V NP$_{theme}$ PP], the most frequent. This pattern is expanded upon in the discussion section.

4.1.6. Judgement rating

Table 6 - Averages and standard deviations for participants' judgement rating by sentence type and groups

Judgement rating	Type	Monolinguals (N=15)	Low bilinguals (N=18)	High bilinguals (N=18)
V NP$_{theme}$ PP	Control 1	4.88 (0.14)	4.89 (0.18)	4.96 (0.09)
V PP NP$_{theme}$	Control 2	4.73 (0.29)	4.74 (0.27)	4.76 (0.21)
V NP$_{rec}$ NP$_{theme}$	Target 1	4.06 (0.54)	3.88 (0.88)	4 (0.58)
V NP$_{theme}$ NP$_{rec}$	Target 2	3.34 (0.66)	3.1 (0.83)	3.29 (0.71)

Graph 6 - Experiment I within-subjects comparison and standard errors of participants' mean scores for a judgement rating
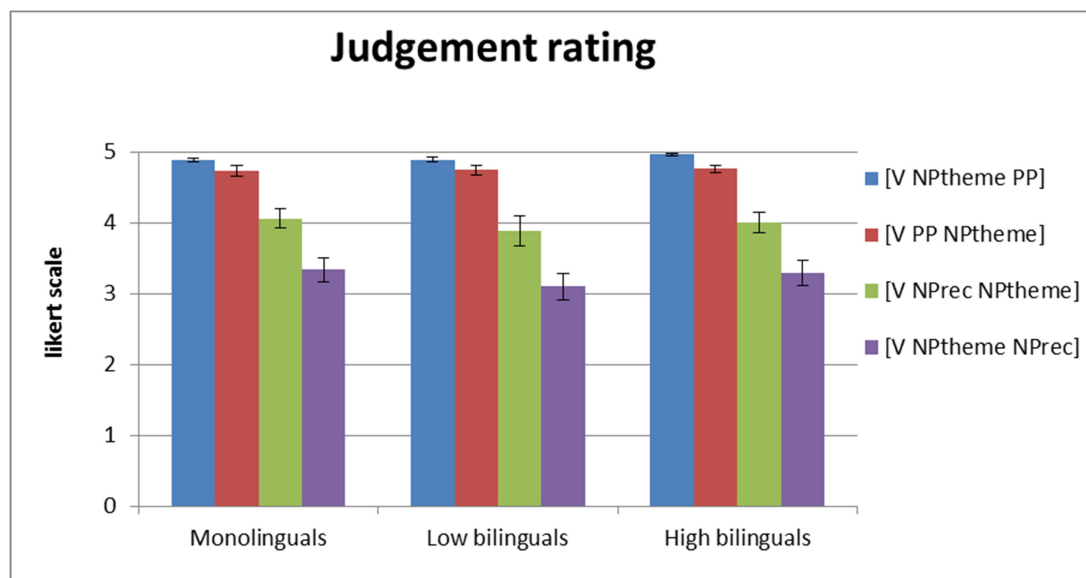
For the monolingual group, we witnessed a main effect of sentence type on participants' judgement rating, for both subjects and for items – F1 (3,42)=54.9, p<0.001, partial η2 = 0.8; F2 (3,21)=50.55, p<0.001, partial η2 = 0.88. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between the judgement values: with the exception of the comparison between **[V NP$_{theme}$ PP]** and **[V PP NP$_{theme}$]**, all judgement values in contrast reached statistical significance (p<0.001). **[V NP$_{rec}$ NP$_{theme}$]** and **[V NP$_{theme}$ NP$_{rec}$]** were also discrepant from the controls by items (p<0.05). These results imply that [V NP$_{rec}$ NP$_{theme}$] and [V NP$_{theme}$ NP$_{rec}$] do not have the same acceptance for speakers of BP residing in Minas Gerais.

Furthermore, [V NP$_{theme}$ PP] and [V PP NP$_{theme}$], the two controls, on average almost received a perfect rating, 4.89 and 4.74, respectively. On the other hand, [V NP$_{rec}$ NP$_{theme}$] received (3.88) and [V NP$_{theme}$ NP$_{rec}$] received (3.1) were considerably lower, which indicate that these two structures do not share the same grammaticality status in comparison to the two controls. However, the fact that [V NP$_{rec}$ NP$_{theme}$] and [V NP$_{theme}$ NP$_{rec}$] were also discrepant from each other suggests that speakers of BP residing in the state of Minas Gerais viewed the structures depicted in [V NP$_{rec}$ NP$_{theme}$] as more acceptable exemplars.

For the low proficiency group, we also uncovered a main effect of sentence type on participants' judgement rating, for both subjects and for items – F1 (3,51)=48.34, p<0.001, partial η2 = 0.74; F2 (3,21)=75.16, p<0.001, partial η2 = 0.91. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between the judgement values: all items reached statistical reliability (p<0.05), with the exception for the comparison of the two control sentences, [V NP$_{theme}$ PP] and [V PP NP$_{theme}$] (p=0.08), which was only marginally significant. All sentences were judged different by items (p<0.01) for low bilinguals, with the same exception for the comparison of [V NP$_{theme}$ PP] and [V PP NP$_{theme}$] (p=0.1). The pattern of results matched that of what was observed in the monolingual group.

For the high proficiency group, we also found a main effect of sentence type on participants' judgement rating, for both subjects and for items – F1 (3,51)=56.43, p<0.001, partial η2 = 0.77; F2 (3,21)=98.59, p<0.001, partial η2 = 0.93. Post-tests adjusted by the Bonferroni correction show that **all sentences** were reliably discrepant by subjects (p<0.01). The same tendency occurs in the by-item comparison, with the exception of [V NP$_{theme}$ PP] and [V PP NP$_{theme}$] (p<0.08). These results were also aligned with the pattern of data witnessed for the other groups. The only particularity involving this group's behavior is that there was also a reliable distinction found when the two controls were compared. Therefore, the high proficiency group was slightly more sensitive to the different structures employed in this experiment as they were evaluated. The size of the effects, measured by partial η2, witnessed in this portion of Experiment I were quite robust for all three groups. It indicates what proportion of the variance of the dependent variable (reaction times) is attributable to the independent variable (sentence types).

4.2.   Discussion of the results for Experiment I

The overall tendency observed in the results is the overwhelming preference for the unmarked structure in BP, the prepositional double object, by all groups in all measurements. Most of the data described in the previous section involved reliable differences in measurements for the comparison of the most frequent structure in BP, [V NP_{theme} PP], and the least frequent, [V NP_{theme} NP_{rec}], according to the data analyzed in Zara (2014).

A possible bilingualism facilitation effect was only observed locally in fragment 3 for the high proficiency group. However, this effect is lost when fragment 4 and the sum of fragments were analyzed. We interpret these results as the absence of a facilitation effect brought by their knowledge of a second language. Since there was no lower processing times over the span of the entire post-verbal region for either of the "marginal" structures, [V NP_{rec} NP_{theme}] and [V NP_{theme} NP_{rec}], in comparison to the two more common syntactic configurations, [V NP_{theme} PP] and [V PP NP_{theme}], we reject our original hypothesis for the DOC. Whether in the on-line or in the off-line component of this study, bilingual participants irrespective of proficiency were not more tolerant to the marginal syntactic structures, especially in relation to the DOC which is the most common construction in their L2.

The interesting pattern observed in the analyses of the mean judgement RTs for both bilingual groups is that while they read the on-line component of the task (the three fragments) consistently faster than the monolinguals, their times slowed down quite a bit for deciding on the proper judgement, which is an off-line measurement. We speculate that this effect could be due to their bilingualism. There is a known mismatch found between these two kinds of measurements. Some studies found that bilinguals will read or process stimuli which are divergent from their two grammars faster than monolinguals, whereas they will take longer to decide whether a certain structure or a lexical item is in accordance with their known grammars. For instance, Bialystok et al. (2009, p. 98) reviewed some studies which uncovered that bilingual children took longer to discern non-words in both of their languages than their monolingual cohorts. This effect may be due to bilinguals' increased metalinguistic awareness, and it may also be applicable to sentences. However, in terms of our data this assertion can only be viewed as speculation, since our analyses did not measure direct comparisons between groups.

The results for the judgement value displayed a similar pattern for all groups, as it was expected. The two controls, [V NP$_{theme}$ PP] and [V PP NP$_{theme}$], were on average judged higher, 4.8 and 4.7, whereas the two targets, [V NP$_{rec}$ NP$_{theme}$] and [V NP$_{theme}$ NP$_{rec}$], were much lower, averages of under 4 and of under 3.3, respectively. Moreover, the difference between the two targets is also significant, suggesting these two constructions have a different grammaticality status in the language. We will address the possible implications for this distinction in the concluding remarks.

4.3. Analyses of Experiment II

4.3.1. Fragment 3

Table 7 - Averages and standard deviations in milliseconds for fragment 3 RTs by sentence type and groups

Fragment 3: 1st object	Type	Low bilinguals (N=18)	High bilinguals (N=18)
Verb violation	Target 1	885 (550)	619 (184)
Animacy violation	Target 2	869 (408)	625 (207)
Double object	Control 1	830 (404)	573 (181)
Prepositional obj.	Control 2	751 (416)	508 (166)

Graph 7 - Experiment II within-subjects comparison and standard errors of participants' mean RTs during fragment 3
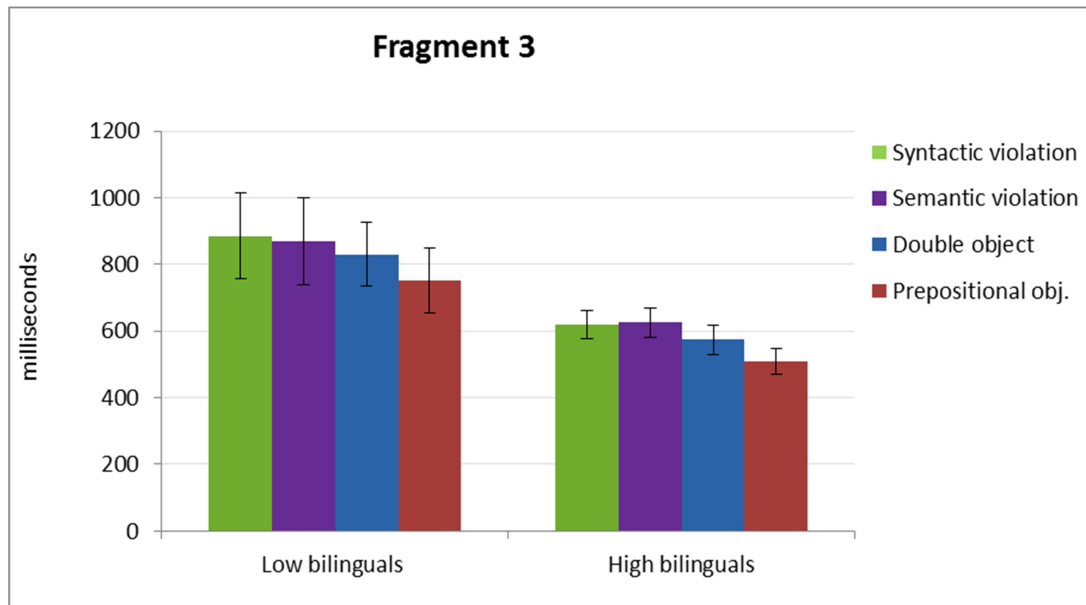
For the low proficiency bilingual group, a main effect of sentence type was observed for participants' RTs when fragment 3 was displayed, for subjects and for items – F_1 $(3,51)=3.52$, $p<0.05$, partial $\eta 2 = 0.17$; F_2 $(3,51)=9.19$, $p<0.001$, partial $\eta 2 = 0.35$. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained for the linguistic content located in fragment 3 in the comparison between sentences with **animacy violations** and **the prepositional double object** sentence types ($p<0.05$). The pattern of results implies that for the low bilingual group there was a contrast in the processing of the first post-verbal argument for the double direct object with an inanimate argument (i.e. an illicit recipient) and the prepositional double object (i.e. a theme argument). The latter is also the most common in BP, thus it was expected that this population would encounter a facilitation effect when exposed to a theme argument in the first post-verbal position.

As for the high proficiency bilingual group, a main effect of sentence type was observed for participants' RTs when fragment 3 was displayed, for subjects and for items F_1 $(3,51)=9.19$, $p<0.001$, partial $\eta 2 = 0.35$; F_2 $(3,21)=3.85$, $p<0.05$, partial $\eta 2 = 0.36$. Post-tests adjusted by the Bonferroni correction show that there was a reliable difference by subjects between sentences with **the prepositional double object** and **the three other sentence types**

presented in fragment 3 (p<0,05). A similar pattern encountered in the low proficiency group was also witnessed in the high proficiency group. This population processed the theme argument in prepositional double-object construction significantly faster than the other arguments. The lack of differences between sentences with a verb violation, sentences with a animacy violation, and constructions with two licit direct objects, all of which being double-object sentences, indicates that at this point this group did not behave differently when exposed to the two types of violations for the immediate post-verbal argument. There were no other effects of sentence type which reached statistically significant differences.

4.3.2. Fragment 4

Table 8 - Averages and standard deviations in milliseconds for fragment 4 RTs by sentence type and groups

Fragment 4: 2nd object	Type	Low bilinguals (N=18)	High bilinguals (N=18)
Verb violation	Target 1	1037 (653)	708 (351)
Animacy violation	Target 2	981 (672)	700 (284)
Double object	Control 1	841 (480)	613 (240)
Prepositional object	Control 2	846 (475)	576 (179)

Graph 8 - Experiment II within-subjects comparison and standard errors of participants' mean RTs during fragment 4
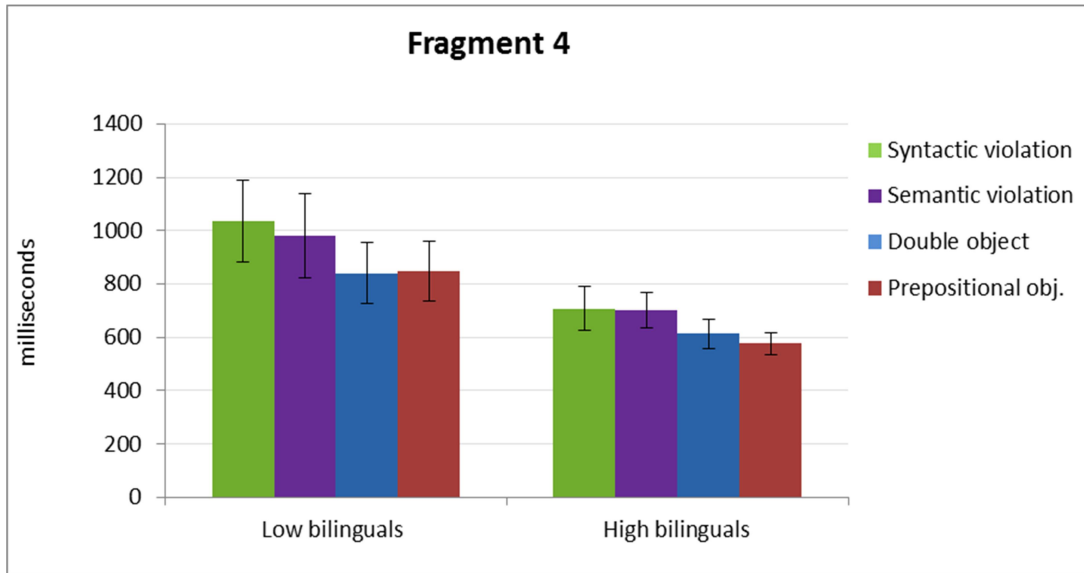
For the low proficiency bilingual group, a main effect of sentence type was observed for participants' RTs when fragment 4 was displayed, for subjects – F1 (3,51)=3.53, p<0.05, partial η2 = 0.17 – but not for items – F2 (3,21)=2.01, p=0.14, partial η2 = 0.22. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained in the comparison by subjects between the structures with **verb violations** and **the prepositional double object** sentences (p<0.05). There was also a significant difference by items between the structures with **animacy violations** and **the prepositional double object** (p<0.05). These results are surprising for this group. Even though this population is not highly proficient in English, they found the second post-verbal argument of the two target stimuli, which represent violations, harder to process by on average at least 150ms when compared to the licit form of the double direct object, the control stimuli.

As for the high proficiency bilingual group, we witnessed a main effect of sentence type on participants' RTs when fragment 4 is displayed, both for subjects and for items – F1 (3,51)=5.36, p<0.01, partial η2 = 0.24; F2 (3,21)=7.28, p<0.01, partial η2 = 0.51. Post-tests adjusted by the Bonferroni correction show that a reliable difference was observed by items in the comparison between linguistic content in fragment 4: sentences with **verb violations** were higher than **the prepositional double object** sentence types (p<0.01); sentences with

animacy violations were also higher than **the prepositional double object** (p<0.05). The results are similar to what was observed in the previous fragment. The comparison between the mean reaction times for the display of the other sentence types failed to yield any other statistically significant differences.

4.3.3. Fragment 5

Table 9 - Averages and standard deviations in milliseconds for fragment 5 RTs by sentence type and groups

Fragment 5: Adjunct	Type	Low bilinguals (N=18)	High bilinguals (N=18)
Verb violation	Target 1	1523 (858)	1000 (473)
Animacy violation	Target 2	1774 (858)	1173 (492)
Double object	Control 1	1601 (854)	1037 (492)
Prepositional obj.	Control 2	1266 (670)	942 (489)

Graph 9 - Experiment II within-subjects comparison and standard errors of participants' mean RTs during fragment 5
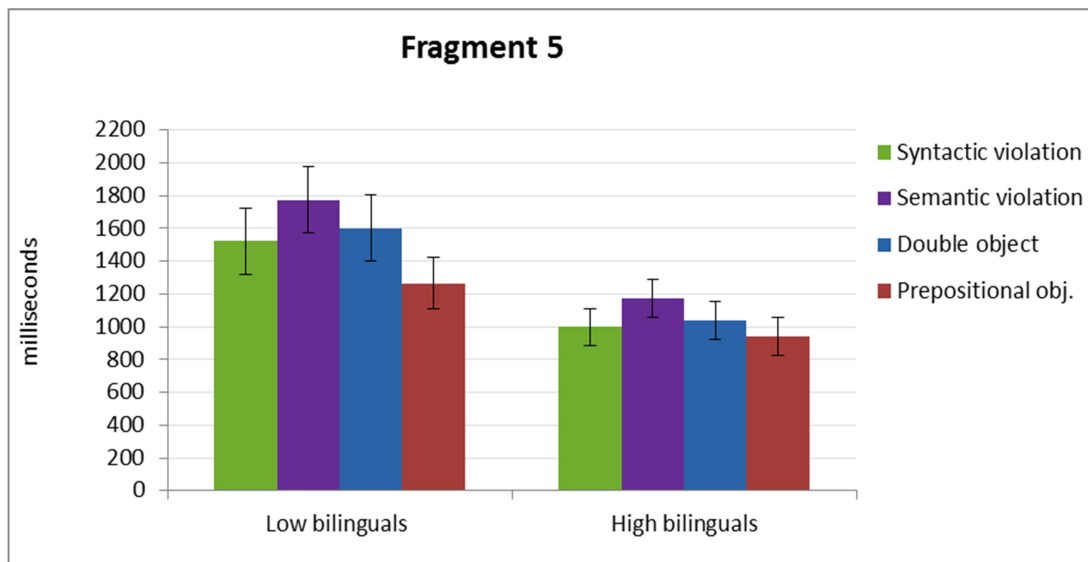
For the low proficiency bilingual group, we witnessed a main effect of sentence type on participants' RTs when fragment 5 is displayed, both for subjects and for items – F1 (3,51)=8.63, p<0.001, partial η2 = 0.34; F2 (3,21)=3.02, p=0.052, partial η2 = 0.3. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by items in the comparison between linguistic content in fragment 5: **the prepositional double object** is on average lower than structures with **verb violations** (257ms), sentences with **animacy violations** (500ms) and **the double direct object** (335ms), all comparisons reaching significance (p<0.05). We interpret this finding as a consequence of a spill-over effect for English sentences. Fragment 5 is an adjunct, thus we have no reason to assume that the linguistic variables in fragment 5 would induce higher RTs for any of the target stimuli measured above.

As for the high proficiency bilingual group, we witnessed a main effect of sentence type on participants' RTs when fragment 5 is displayed, both for subjects and for items – F1 (3,51)=3.71, p<0.05, partial η2 = 0.17; F2 (3,21)=7.28, p<0.01, partial η2 = 0.51. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by items in the comparison between linguistic content in fragment 5: **the prepositional double object** is reliably lower than the stimuli with **animacy violations** (p<0.05) by subjects. This average contrast of 231ms also seems to be a consequence of a spill-over effect. This finding may suggest that this population only encountered a higher latency for the stimuli with animacy violations, whereas the effect was absent for the stimuli containing verb violations, as well as for the licit double object, control 1. There were no other effects of sentence type which reached statistically significant differences for this group.

4.3.4. Sum of fragments 3, 4 & 5

Table 10 - Averages and standard deviations in milliseconds for the sum of fragments 3, 4 and 5 RTs by sentence type and groups

Sum of frags. 3, 4 & 5	Type	Low bilinguals (N=18)	High bilinguals (N=18)
Verb violation	Target 1	3446 (1769)	2328 (908)
Animacy violation	Target 2	3623 (1733)	2498 (878)

Double object	Control 1	3271 (1450)	2223 (771)
Prepositional obj.	Control 2	2863 (1379)	2025 (780)

Graph 10 - Experiment II within-subjects comparison and standard errors of participants' mean RTs during fragments 3, 4 and 5
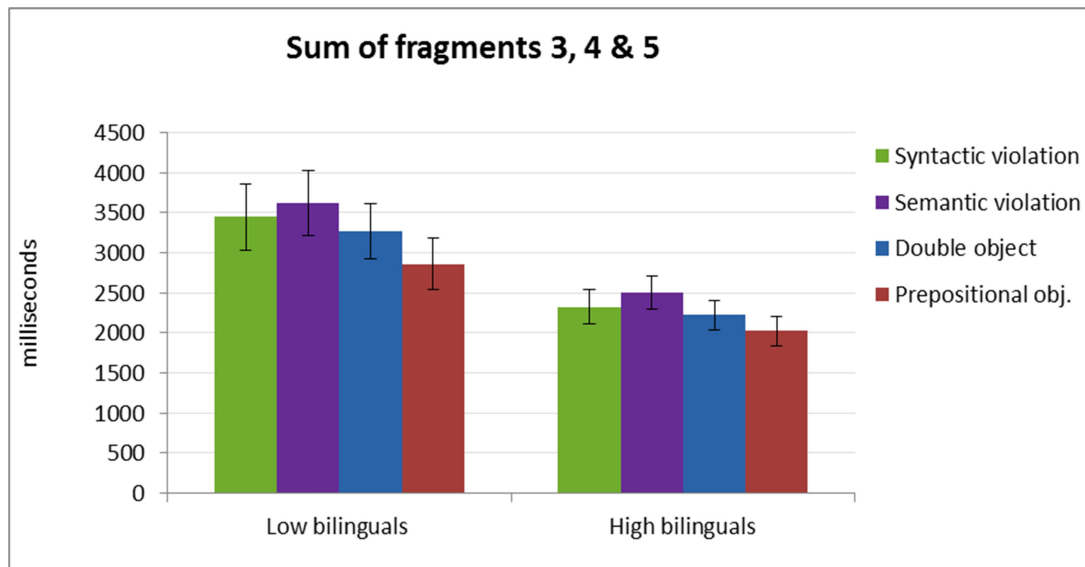
For the processing of the sum of fragments 3, 4 and 5, a main effect of sentence type was observed in low proficiency bilingual participants' RTs: $F1 (3,51)=10.05$, $p<0.001$, partial $\eta2 = 0.37$; $F2 (3,21)=6.1$, $p<0.05$, partial $\eta2 = 0.47$. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between the linguistic content in **the prepositional double object** and **all the other three sentence types** ($p<0.05$). It was determined that **the prepositional double object** is also discrepant by items in comparison to the sentences with **animacy violations** ($p<0.05$). These results match the tendency previously observed for this group. The prepositional double-object stimuli (Control 2) were processed consistently faster than their double direct object counterparts, even the perfectly acceptable exemplar, the licit instance of DOC. Additionally, there were no reliable differences between items with animacy violations, items with verb violations, and items containing the licit DOC. This result implies that this group processed all the double-object sentence types very analogously.

For the high proficiency bilingual group, a main effect of sentence type was found by subjects as well as by items, F1 (3,51)=10.83, p<0.001, partial η2 = 0.39; F2 (3,21)=5.99, p<0.05, partial η2 = 0.46. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between the linguistic content in **the double direct object** and the items with **verb violations** (p<0.05), as well as for **the prepositional double object** sentence types and sentences with **animacy violations** (p<0.001). There is also a significant difference between **the prepositional double object** and **the double direct object** for the by-items comparison (p<0.001). **The prepositional double object** is also divergent from sentences with **animacy violations** by items (p<0.05). We can also conclude that this population processed the prepositional double object faster, even in comparison with the licit double direct object cohort, the DOC. This data pattern also suggests that this population behaved very similarly toward sentences with two direct objects – the types with verb violations, the types with animacy violations and the licit instances of DOC.

4.3.5. Judgement RT

Table 11 - Averages and standard deviations in milliseconds for mean judgement RTs by sentence type and groups

Judgement RTs	Type	Low bilinguals (N=18)	High bilinguals (N=18)
Verb violation	Target 1	1240 (416)	1181 (519)
Animacy violation	Target 2	1388 (595)	1137 (354)
Double object	Control 1	1262 (402)	1052 (405)
Prepositional obj.	Control 2	976 (443)	862 (393)
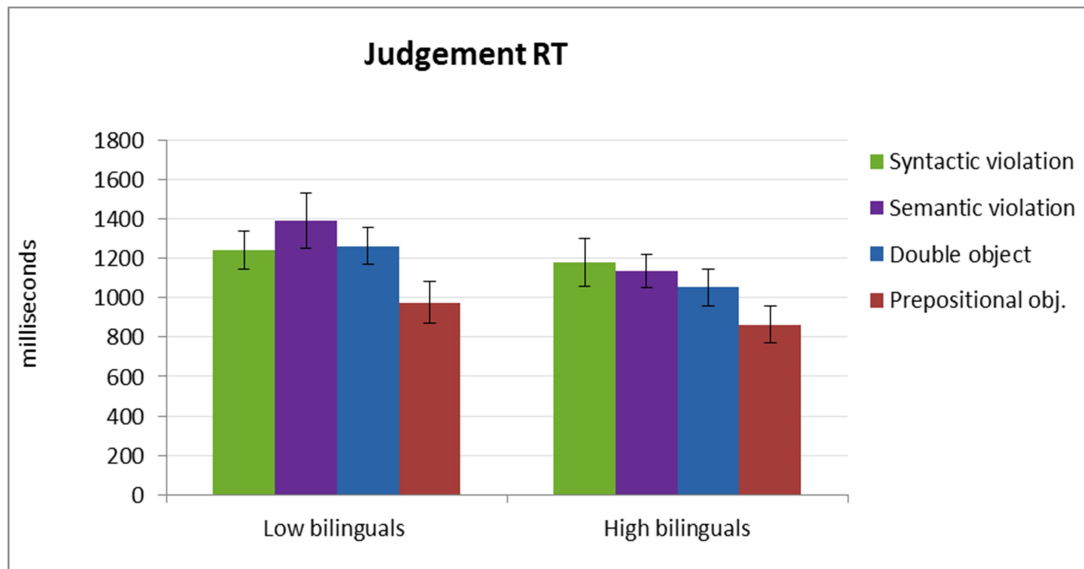
For the low proficiency bilingual group, a main effect of sentence type was observed in participants' RTs for choosing an appropriate judgment: $F1_{(3,51)}=4.38$, $p<0.05$, partial $\eta2 = 0.21$; $F2_{(3,21)}=3.22$, $p<0.05$, partial $\eta2 = 0.32$. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained in the comparison by subjects and by items between **the prepositional double object** stimuli and the stimuli with **animacy violations** ($p<0.05$) for the mean judgement RTs. The greater latency for judging sentences involving animacy violations can be interpreted in two ways: 1. Participants were still experiencing the delays brought forth by the spill-over effect. 2. Participants were able to detect, perhaps implicitly, some oddity in relation to the other sentence types. If the second alternative is true, then this population is more advanced in the process of acquiring the DOC than it was originally thought.

For the high proficiency bilingual group, a main effect of sentence type by subjects was observed in participants' RTs for eliciting judgments – $F1_{(3,51)}=3.95$, $p<0.05$, partial $\eta2 = 0.19$ – but only marginally by items – $F2_{(3,21)}=2.48$, $p=0.09$, partial $\eta2 = 0.26$. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between **the prepositional double object** and the double direct object with **verb violations** ($p<0.05$). This population encountered more difficulties in deciding whether

the sentences with verb violations were good or bad. The fact that the prepositional double object was the fastest in the comparison among stimuli is a tendency observed throughout the previous portions of this analysis for both groups. There were no other effects of sentence type which yielded statistically significant differences.

4.3.6. Judgement rating

Table 12 - Averages and standard deviations for participants' judgement ratings by sentence type and groups

Judgement rating	Type	Low bilinguals (N=18)	High bilinguals (N=18)
Verb violation	Target 1	4.33 (0.5)	4.16 (0.82)
Animacy violation	Target 2	4.23 (0.6)	4.47 (0.35)
Double object	Control 1	4.5 (0.5)	4.74 (0.33)
Prepositional obj.	Control 2	4.8 (0.12)	4.92 (0.12)

Graph 12 - Experiment II within-subjects comparison and standard errors of participants' mean scores for a judgement rating
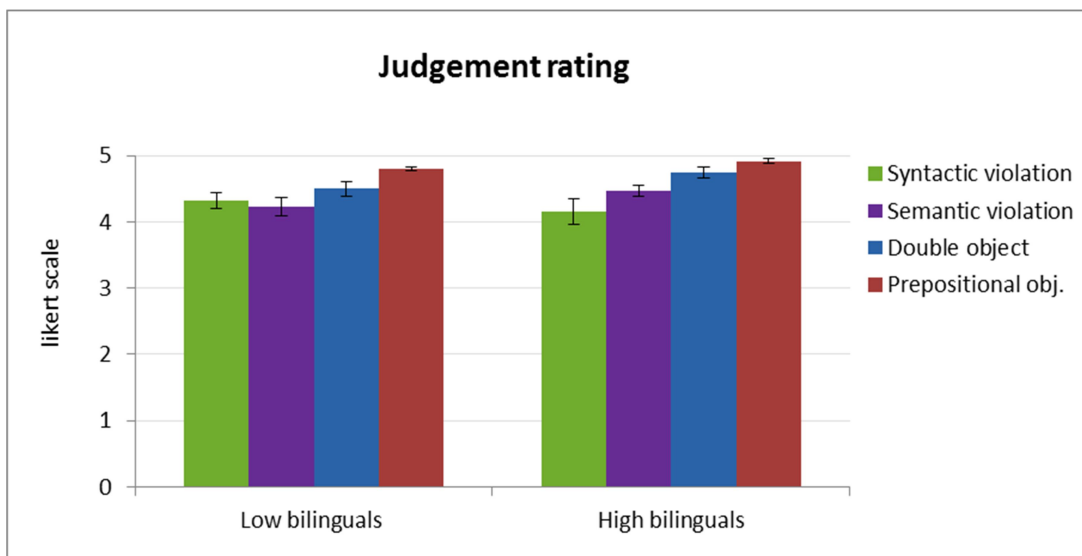
For the low proficiency group, we also uncovered a main effect of sentence type on participants' judgement rating, for both subjects and for items – F1 (3,51)=22.16, p<0.001, partial η2 = 0.57; F2 (3,21)=4.55, p<0.05, partial η2 = 0.39. Post-tests adjusted by the Bonferroni correction show that a reliable difference was obtained by subjects in the comparison between the judgement ratings: **the prepositional double object** is statistically higher than the sentences characterized by **verb violations**, **animacy violations** and **the double direct object** (p<0.01). Moreover, sentences with **animacy violations** were judged lower than sentences depicting **the double direct object** (p<0.001). These findings also match the overall tendency: the prepositional double object was deemed the most acceptable construction of the ones analyzed in this study. The observation that on average the double direct object with animacy violations (4.23) was judged lower than the licit instance of the DOC (4.5) can be taken as evidence in favor of this population's ability to distinguish the good DOC from the bad one.

For the high proficiency group, we also found a main effect of sentence type on participants' judgement rating, for both subjects and for items – F1 (3,51)=12.25, p<0.001, partial η2 = 0.42; F2 (3,21)=9.82, p<0.001, partial η2 = 0.58. Post-tests adjusted by the Bonferroni correction show that by subjects all judgement responses but one were reliably discrepant (p<0.05); the exception being the comparison between the stimuli with **verb violations** and the stimuli with **animacy violations**, reaching only marginal significance (p=0.07). By items, there were significant differences in the comparison of the sentences illustrating **verb violations** and **the prepositional double object** (p<0.01); **verb violations** and **the double direct object** (p<0.05). The data show that the prepositional double object was also evaluated as the most acceptable sentence (mean of 4.92) by the highly proficient bilinguals. Additionally, the double direct object received the second highest rating (4.74, on average), and this rating is reliably higher than the sentences with verb violations, the lowest rating (4.16, on average). Therefore, this group was also capable of differentiating the correct expression of the double direct object, but this contrast was made with the sentences with verb violations.

4.4.   Discussion of the results for Experiment II

Similarly to what was attested in Experiment I, both of the groups, low and high proficiency bilinguals, shared a preference for the prepositional double object. This structure was processed faster across the board, and it took on average the least amount of time to be judged. Additionally, the mean judgement rating for this sentence was significantly higher than the other three sentence types for both groups. These results can be interpreted as a possible influence of L1 on the preference for the prepositional double object construction in the L2.

The low proficiency bilinguals behaved very unexpectedly towards the stimuli displaying the licit double direct object. In fragment 4 or the second post-verbal position, they processed the second object of the DOC just as quickly as the same segment of the prepositional double object. In the same region, the processing latency of the DOC with verb and animacy violations was significantly higher than its licit instantiation. However, this pattern changes in all the other temporal measurements: the DOC is processed with RTs similar to the illicit stimuli, the sentences with verb and animacy violations. Nevertheless, this group also judged the licit DOC (on average, 4.5) significantly higher than the bad sentences incorporating the same construction, averages of (4.33) for the stimuli with verb violations and of (4.23) for the stimuli with animacy violations. Some of these results appear to indicate that, at least in the domain of processing or comprehension, the acquisition of DOC occurs relatively early.

Our findings also indicate that the high proficiency bilinguals displayed even lower RTs for the licit sentences with two direct objects in comparison to its illicit counterparts, especially those sentences with verb violations. In fragment 4, fragment 5 and the sum of fragments, a reliable difference was found among the licit DOC and the instances of the DOC with verb violations. Moreover, this group was also able to distinguish the illicit sentences in the judgement values: the bad sentences (means of 4.16 for stimuli with verb violations and of 4.47 for stimuli with animacy violations) were systematically rated lower than the licit structures with two direct objects. These results were also interpreted as this population's ability to perceive violations regarding the DOC.

The intriguing result for this experiment is that both groups took longer to emit a judgement response for the licit DOC. Hence, all structures with two direct objects, licit or otherwise, displayed a similar measurement. A comparable effect was also obtained in

Experiment I, involving the two types of "marginal" stimuli. Bilinguals took comparatively longer to decide on the appropriate judgement for sentences which are deviations of their L1 grammar. In experiment II, the fact that both bilingual groups, especially the high proficiency participants, took longer to determine the grammatical forms from the ungrammatical forms of the DOC can also be interpreted as a capacity for higher metalinguistic awareness. This delay did not influence the way the groups evaluated each sentence type, though. However, we do not have enough evidence to assert this claim. In order to uphold such a claim, data from English monolinguals would have to be gathered. This step will be left for future research.

Despite the lower reading times by the high proficiency bilingual group, which can be expected, both groups exhibited a similar pattern for all measurements. In the next section, the concluding remarks are presented. There will be an overall discussion of the results, its implications, its limitations and possible steps for future research.

5. CONCLUSION

For the final remarks, we will analyze all the relevant data from Experiment I and Experiment II in light of our original hypotheses. Then, we will briefly comment on how the results for this study can be related to previous research on the matter, as well as on some possible directions for future investigations. We will begin with Experiment I.

In the first hypothesis, we predicted that the structure [V NP$_{theme}$ PP] would involve the least amount of processing cost, whereas the structure [V NP$_{theme}$ NP$_{rec}$] would correspond to the sentence type which was most difficult to process. Both of these suppositions were confirmed. All groups processed, [V NP$_{theme}$ PP], the most common structure in BP, consistently faster than [V NP$_{theme}$ NP$_{rec}$], the least frequent structure. Therefore, the data gathered in this study is in complete alignment with the results obtained in BP corpora analysis by Zara (2014). There is definitely a frequency effect underlying participants' preference for the prepositional double-object construction. This tendency is also observed in the bilinguals' L2 as will be mentioned in the results for Experiment II. A possible future research question would be to inquire whether Brazilians immigrants residing in English-speaking countries display the same "preference" for [V NP$_{theme}$ PP] in their L1.

For our second prediction, it was stated that the processing cost for the monolingual group would be higher for the two target structures, [V NP$_{rec}$ NP$_{theme}$] and [V NP$_{theme}$ NP$_{rec}$], if they judged these structures lower than the two controls, the prepositional double object and the inverted prepositional double object. This prediction is confirmed. Monolinguals indeed took longer on average to process [V NP$_{rec}$ NP$_{theme}$] (+325ms) and [V NP$_{theme}$ NP$_{rec}$] (+576ms) in comparison to the most common sentence in BP, the structure [V NP$_{theme}$ PP]. The same group did judge on average the target sentences significantly lower, (4.06) for the structure [V NP$_{rec}$ NP$_{theme}$], and (3.34) for the structure [V NP$_{theme}$ NP$_{rec}$] in comparison to the construction [V NP$_{theme}$ PP], (4.88). These results are also in conformity with the findings in Zara (2014) if frequency is considered the most relevant criterion for predicting the processing speed of certain constructions.

For our third hypothesis, a reliable difference was found in how participants assessed the DOC and the "inverted" DOC. This finding suggests that the structure [V NP$_{rec}$ NP$_{theme}$] is

more acceptable in BP than [V NP$_{theme}$ NP$_{rec}$], and this difference is not due to a potential influence from another language. Therefore, it is possible to interpret that the DOC in BP for the population living in the state of Minas Gerais has a higher grammaticality status than the structure [V NP$_{theme}$ NP$_{rec}$]. Souza et al. (2016) also tested the acceptance of the DOC in monolinguals, low proficiency bilinguals and high proficiency bilinguals. Their monolinguals who resided in the same region as this study gave sentences with two direct objects in BP an average rating of 3.34 out of 5. That is considerably lower than how our monolinguals evaluated the same construction, (mean of 4.06). This disparity in scores could be a consequence of the kind of items used in each study. Nevertheless, the relevant conclusion here is to continue testing the productivity of the DOC in BP by employing different methodologies.

In the fourth prediction, based on results from Zara (2009) and Zara et al. (2013) we anticipated that low proficiency English bilinguals who had not acquired the DOC in their L2 would not exhibit a bilingualism effect in terms of the on-line processing of the equivalent construction in their L1. This prediction was erroneous in the assumption that low proficiency bilinguals would reject the DOC in their L2. As we witnessed in Experiment II, this population accepted sentences with two direct objects quite well. Moreover, this prediction did not succeed even for the highly proficient bilinguals as will be discussed in the following paragraph.

In the fifth hypothesis, it was stated that there would be no significant difference for the processing of the double direct object variant [V NP$_{rec}$ NP$_{theme}$] by the highly proficient bilinguals. This tendency was only confirmed locally in fragment 3, since there were no statistically reliable differences in the comparison of mean RTs for the four different sentence types analyzed. However, a discrepancy was observed in fragment 4, as well as in the sum of fragments 3, 4 and 5, for both bilingual groups. Thus, we can affirm that there is no consistent facilitation effect due to the bilinguals' knowledge of English. Our results do not match what was observed in (FERNÁNDEZ et al., 2017; GUIMARÃES, 2016; OLIVEIRA et. al, 2017; SOUZA, 2012; SOUZA et al., 2014). There might be many explanations for this mismatch. One possible explanation may be that the self-paced reading task is not precise enough to capture the difference. Another imaginable reason is that the construction itself does not have

the same degree of integration or saliency than the other constructions analyzed in these other studies.

Perhaps the facilitation effect can only be achieved if the bilinguals actually use the DOC in their L2. In Zara (2014), the corpora of Brazilian learners of English as a second language revealed that the prepositional double object represents the majority of the occurrences when all the related constructions are compared. This evidence suggests that even highly proficient bilinguals might not use the construction with two direct objects due to the influence of their L1. One way to analyze this in the future would be to create a production task, such as a sentence memorization paradigm. In this kind of task, bilinguals are instructed to read and to memorize sentences, and at a later point they would attempt to say the sentence aloud as it is being recorded. Certain hesitations or the production of a different structure may be taken as evidence against the acquisition of the construction. Nevertheless, whether a facilitation effect related to the DOC can be attested in our bilingual population still remains an enigma for future research.

For the first hypothesis of Experiment 2, we predicted that low proficiency bilinguals would reject the stimuli involving the DOC. This prediction was not confirmed. This population judged the licit double object at (4.5 out of 5). An average acceptance rate of 90% is a categorical rejection of the assertion that this population did not acquire the DOC in their L2. In fact, the results show a very surprising pattern: the low bilinguals were able to distinguish, even implicitly, the good sentences from the bad sentences involving the DOC.

Comparisons of mean RTs for fragment 4 revealed that this population took consistently longer to process the illicit sentences (two direct objects with verb or with animacy violations) than the licit one, the DOC. This effect was not observed in the high bilingual group, even though they also processed the good sentences faster. There are two possible explanations: they do not acquire knowledge of the construction very late, or different studies employ measures of proficiency which categorize this population differently. We believe the former is the more probable reason, especially if we differentiate processing from production. It is quite reasonable to posit that bilinguals will know when something is correct in their L2, and yet not possess the linguistic ability to use it.

The other way to explain this mismatch in evidence is that the studies mentioned above and our study used different methods for measuring the proficiency of the participants. Measurements of overall proficiency are still very diverse and a lot of times imprecise. One population might have more knowledge of English than another, yet their proficiency could be assessed as the same using different measuring tools. From this perspective, what can be concluded is that our participants who performed the Vocabulary Levels Test (NATION, 1990) and achieved lower than 65% displayed behavior which supports the acquisition of the DOC.

Our second hypothesis for Experiment II stipulated that highly proficient bilinguals would still have difficulty in rejecting the bad sentences involving the DOC and its equivalents with two distinct types of violations (verb and animacy). It was argued that this difficulty was due to the fact that this population would not know the constraints of this construction. This prediction was disproved, in the sense that they were able to detect the violations in both the on-line and off-line measurements. High proficiency bilinguals' judgement of the licit double direct object variant was significantly higher than the other two illicit counterparts. Surprisingly, this difference also occurred in the low bilingual group for the comparison of the licit structure and the analogous structure with animacy violations. However, qualitatively the sentences with violations were still assessed fairly high (>4 out of 5 points) by both groups. In order to understand how large the quantitative difference observed is in actuality, we must run the same experiment with native speakers of English. Due to time constraints, that is one of the shortcomings of the present study. For future research, we plan to investigate the behavior of English natives when exposed to the same kind of stimuli.

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APPENDIX A - Experimental items in Brazilian Portuguese

Total → 96 sentences, 32 targets (conditions 1-4);

32 grammatical sentences, 32 ungrammatical sentences

Dative constructions in Brazilian Portuguese

Condition #1 (control 1) – the structure [V NP$_{theme}$ PP]

1. Mariana deu uma bicicleta para sua amiga mais querida.
2. Rafael mostrou sua casa nova para seus amigos da faculdade.
3. O banco emprestou pouco dinheiro para o estudante de medicina.
4. A mãe do Pedro ensinou matemática para seus colegas durante anos.
5. Paulo enviou a correspondência para sua esposa em Brasília.
6. A aluna novata contou uma história legal para seus colegas na biblioteca.
7. A secretária entregou o pacote para a pessoa errada no escritório.
8. Pedrinho pediu um bombom de coco para seu avô na sobremesa.

Condition #2 (control 2) – the structure [V PP NP$_{theme}$]

1. O rapaz deu para um mendigo algumas moedas do seu bolso.
2. Ana Paula mostrou para o cliente as roupas da loja em promoção.
3. Leonardo emprestou para sua irmã uma blusa de frio em Nova York.
4. O treinador ensinou para os jogadores o contra-ataque em velocidade.
5. O garotinho enviou para o Papai Noel uma carta bonita no correio.
6. Alexandre contou para Maria Fernanda uma notícia ruim na reunião.
7. Marisa entregou para seu vizinho a chave de casa em sua ausência.
8. O jovem pediu para a garota um beijo carinhoso no baile da escola.

Condition #3 (target 1) – the structure [V NP$_{recipient}$ NP$_{theme}$]

1. Alice deu o papai dela um longo abraço de aniversário.
2. O vendedor mostrou Maria Joana o carro do ano mais barato.
3. Carlos emprestou Maria Fernanda a casa de praia por alguns meses.
4. Eduardo ensinou seu filho mais novo futebol de botão na sala de TV.
5. João enviou Maria Helena um cartão de Natal com um presente.
6. O palestrante contou os alunos presentes uma história emocionante.
7. O carteiro entregou o porteiro a correspondência com urgência.
8. O mendigo pediu o Pedro Henrique algumas moedas na porta do banco.

Condition #4 (target 2) – the structure [V NP$_{theme}$ NP$_{recipient}$]

1. Ricardo deu a chave do carro Maria Luiza emprestado.
2. O corretor mostrou o apartamento os recém-casados rapidamente.
3. O professor emprestou livros importantes o seu aluno mais dedicado.
4. O professor ensinou História do Brasil os estudantes do ensino médio.
5. Felipe enviou chocolates suíços sua namorada de presente.
6. O garoto contou um caso sério seu melhor amigo durante a aula.
7. O motoqueiro entregou a pizza de milho os clientes em trinta minutos.
8. Luiz Felipe pediu um favor importante seu melhor amigo na faculdade.

Distractor sentences for Experiment I

Grammatical distractors (=32 items)

1. O cabelereiro aparou o cabelo do rapaz antes do baile.
2. O juiz arquivou a denúncia do crime no início do mês.
3. A garçonete anotou o pedido do casal sem muita atenção.
4. Juliana afrouxou o vestido da festa antes da cerimônia civil.
5. O arquiteto projetou a construção moderna com muito entusiasmo.
6. Natália editou a matéria da capa da revista cuidadosamente.

7. O técnico consolou o jogador de futebol após a partida.

8. A advogada convenceu os jurados na primeira audiência.

1. O jogador empolgou a torcida da casa no primeiro jogo da temporada.

2. Os organizadores cancelaram o evento de música devido ao acidente.

3. A vendedora enganou o comprador ingênuo durante a negociação.

4. O mecânico consertou o caminhão em menos de dois dias.

5. O empresário acusou o político corrupto diante do tribunal.

6. O prefeito iludiu o eleitor paulista com falsas promessas.

7. Letícia ouviu uma bela música durante o concerto de jazz.

8. Patrícia convidou os alunos da Letras para uma conversa franca.

1. O rapaz cortou a cenoura e a comeu crua.

2. O bombeiro procurou a gata e a encontrou ferida.

3. A aluna perdeu o celular e o encontrou quebrado.

4. A águia pegou o peixe e o comeu vivo.

5. A mulher comprou a lasanha e a comeu fria.

6. O cliente analisou a moto e a comprou nova.

7. O jogador lavou a meia e a usou molhada.

8. O professor preparou o chá e o bebeu quente.

1. Eu estou sujo porque eu limpei a garagem.

2. Davi está cansado porque ele arrumou o quarto.

3. Leila está atrasada porque ela aguou a horta.

4. Flávia está sonolenta porque ela leu o livro.

5. Isabela está feliz porque ela assistiu uma comédia.

6. Rodrigo está tímido porque ele conversou com as mulheres.

7. Rafael está distraído porque ele assistiu a partida.

8. Wilson está molhado porque ele lavou seu tênis.

Ungrammatical distractors (=32 items)

1. O investigador xerocou de crimes rapidamente os registros.
2. O hacker digitou do banco no computador do vírus o código.
3. O taxista ofendeu vulgares com comentários a frequente cliente.
4. O coronel recrutou a guerra durante alemães os soldados.
5. A cientista concluiu no ano passado do câncer a pesquisa.
6. A pianista comoveu o recital sensíveis durante os ouvintes.
7. O prefeito irritou desvios de verbas corretos com os cidadãos.
8. A cineasta agradou o filme severo com o crítico ousado.

1. A apresentadora divertiu inteligentes a piadas com plateia atenta.
2. A promotora convenceu audiência criminais na primeira os juízes.
3. O artilheiro empolgou do time decisivo no jogo a torcida.
4. A bailarina cancelou ao acidente devido de dança o evento.
5. O psiquiatra internou à recaída o doente devido crônico.
6. A polícia intimou a acareação para de fraude o suspeito.
7. O policial torturou dos comerciantes diante do morro os bandidos.
8. O churrasqueiro fatiou a faca macia a picanha com afiada.

1. Mara fatiou cru e o comeu o salmão.
2. Érica perdeu morto e o encontrou o cão.
3. Júlia perdeu quebrado e o encontrou o telefone.
4. A gata pegou e o vivo comeu o rato.
5. Ronaldo comprou fria e a comeu a pizza.
6. Natália gostou do novo e o comprou computador.
7. Eu ensopei molhada e a usei a camisa.
8. Iara preparou quente e o bebeu o café.

1. Matheus estuda francês desde Europa que viajou para ele.
2. Desde era uma que Carlos fala inglês criança ele.
3. Desde ela que Cíntia prepara o almoço se casou.
4. Mudou joga futebol que Paulo se ele desde.
5. Ela vende que Ana se formou desde carros.

6. Desde famoso Walter ele que tornou se fuma charuto.

7. Desde ele usa o ônibus que seu carro Samuel vendeu.

8. Comprou ele joga RPG Alexandre um desde que computador.

APPENDIX B - Experimental items in English

Total of 72 items; 36 grammatical, 36 ungrammatical.

Dative constructions in English

Ungrammatical target #1 – DOCs with verb violations

1. The woman donated the student a laptop last week.
2. The boy presented his girlfriend a necklace for Christmas.
3. The driver delivered the client the product very quickly.
4. The father purchased the kids a computer full of games.
5. The mechanic explained the driver the problem with the car.
6. The scientist reported his colleague the findings of his research.
7. The lawyer whispered his client a comment during the meeting.
8. The man carried the lady the bags with groceries.

Ungrammatical target #2 – DOCs with animacy violations

1. Newton gave the school many books as a donation.
2. James forwarded the university an e-mail with urgency.
3. Rafaella told the government the truth about her actions.
4. The mayor awarded the club a prize for its charity work.
5. Tony showed the hospital the problem with its sanitation.
6. Taylor sold the butcher shop a fridge for a cheap price.
7. Lucas sent Brazil a letter asking for money.
8. The businessman offered the U.S. a new factory next year.

Grammatical control #1 → the licit instances of the double-object construction

1. The students showed the teacher the paper after class.
2. The musician sold his friend a guitar without strings.
3. The director sent the staff an email with the files.
4. The grandma offered the boy a candy for dessert.
5. My uncle gave his sister a gift he liked.
6. The girl forwarded her boyfriend a message with a joke.
7. The politician told the reporter a lie nobody believed.
8. The president awarded the soldier a medal during the ceremony.

Grammatical control #2 → the prepositional double object

1. John told a story to Mark during lunch.
2. Mary gave a pencil to Susan at school.
3. I promised a drink to David after work.
4. Robert taught English to Alex last year.
5. Kevin built a doll house for his daughter during springtime.
6. Lucy offered coffee to Susan when she came over.
7. James brought flowers to Mary for Valentine's Day.
8. Laura baked a cake for her sister on her birthday.

Distractor sentences for Experiment II

Grammatical distractor #1

1. Jansen likes to play the guitar every day.
2. Jake hates math and history but loves science.
3. Ursula studies Italian during the afternoons.
4. Hans speaks German very well.
5. Nathan prefers chocolate over vanilla.
6. Tina plays video games every weekend.
7. Timothy goes out running at night.
8. Ray drinks coffee in the morning before work.

Completely ungrammatical distractor #2

1. Hudson well speak English very.
2. Lucy video weekend play game every.
3. Tommy night computer used at his.
4. Ronald the play likes to guitar.
5. Christina morning the coffee in drinks.
6. Anthony History Math hates and.
7. Michael everyday Italian studies free time.
8. Lindsay his love brother and sister his.

Distractors (12 grammatical//12 odd sentences)

1. The dog that bit the man was in the yard.
2. The boy that bit the dog cried loudly.
3. The chef that ruined the food was in the kitchen.
4. The food that ruined the chef was very famous.
5. The bird that ate the worm was small.
6. The worm that ate the bird came from the garden.
7. The soldier that protected the villager was brave.
8. The village that protected the soldiers was destroyed.
9. The cat that chased the mouse was fast.
10. The mouse that chased the cat really loved milk.
11. The teacher that quizzed the student was in the classroom.
12. The students that quizzed the teacher were rather strict.
13. The cop that pursued the thief was driving a car.
14. The thief that pursued the cop knew what to do.
15. The waiter that served the customer was tall.
16. The customer that served the waiter can speak French.
17. The owner that fed the cat was sitting on a sofa.
18. The cat that fed the owner felt quite sleepy.
19. The detective that investigated the suspect was very tired.

20. The suspect that investigated the detective shocked the jury.

21. The doctor that treated the patient was female.

22. The patient that treated the doctor recovered quickly.

23. The frog that ate the fly was green.

24. The fly that ate the frog had very long legs.