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# The Impact of Animacy and Positioning on the Production of Second Language Referring Expressions

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THE IMPACT OF ANIMACY AND POSITIONING ON  
THE PRODUCTION OF SECOND LANGUAGE  
REFERRING EXPRESSIONS

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Master's Program in Linguistics

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2018

## **DEDICATION**

I dedicate this manuscript to all immigrants in the United States of America. Fearless individuals who, despite countless adversities, come to this nation to enrich people's lives with their culture, traditions and language.

THE IMPACT OF ANIMACY AND POSITIONING ON  
THE PRODUCTION OF SECOND LANGUAGE  
REFERRING EXPRESSIONS

**by**

ADONIS DE CARVALHO BORGES, B.A.

THESIS

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## ABSTRACT

Researches have investigated how referring expressions are produced based upon second language acquisition and psycholinguistics theories. A study of monolingual English speakers demonstrated that referent's salience and discourse factors might impact referring expression choice between noun phrases and pronouns. Participants demonstrated a higher production of pronouns when the referent expression was animate rather than inanimate and a preference for noun phrases when the referent was the second noun phrase of the referent's context sentence (Fukumura & Van Gompel, 2011). In addition, an investigation with Hispanic bilinguals, whose L2 is English, demonstrated, in general, a greater preference for pronouns rather than noun phrases in referring expressions even in semantically ambiguous environments (Contemori & Dussias, 2016). The current study tested if monolinguals and bilinguals presented differences or similarities in referring expression production when the referent was manipulated for animacy and positioning. Using a constraint completion method, two groups (one English monolingual and one Spanish/English bilingual) were tested for pronoun and noun phrase frequency when producing referring expressions. The results demonstrated that both groups have a similar production pattern of referring expression choice and are sensitive to animacy and positioning of the referent. Furthermore, there was a statistically significant higher production of pronouns when the referent was animate. In addition, when the referent was the second noun phrase in the context sentence, the participants of both groups presented a tendency for noun phrase repetition. Thus, this paper suggests that bilinguals do not produce more pronouns in comparison with monolinguals when salience and positioning are controlled; instead, the referring expression production of pronouns and noun phrases is equivalent to that of monolinguals.

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## INTRODUCTION

One essential aspect of the human communication system is the ability to refer to entities that have been previously mentioned in the discourse. When faced with this task, language users need to choose between explicit forms (such as proper nouns or noun phrases) or less explicit forms (such as pronouns).

Research has shown that native speakers craft referring expressions and choose between explicit or non-explicit forms quickly and consistently. Arnold & Griffin (2007) argue that usually pronouns are the preferred choice for native speakers when the referent is highly accessible (e.g., **Mickey**<sub>j</sub> is walking in the park. **He**<sub>j</sub> is not very busy today.) However, if competition for attentional resources occurs between the referent and another entity in the preceding clause, full noun phrases or proper nouns are preferred. This approach takes into account the speakers' ability to maintain attention directed to the referent. The presence of another entity can reduce the attention provided to the referent; thus, decreasing its accessibility (e.g., **Mickey**<sub>j</sub> is talking to Minnie in the park. **Mickey**<sub>j</sub> seems to be in love).

Although researchers have consistently investigated the mechanics behind processing and producing referring expressions in monolingual speakers of English, little is known with regard to second language speakers. Thus, one of the aims of the present study is to expand research on bilingual referential choice. For the purpose of this study, bilinguals are considered the language speakers who began learning a second language early or later in life. In addition, the term L2 is used to describe this population and the term L1 is used to describe the first acquired language. It is pertinent to analyze this aspect in this specific group because second language users are known for being susceptible to language interference (Clahsen & Felser, 2006a, 2006; Sorace, 2011). If this holds true, it is possible that L2 speakers may produce referring expressions differently when

compared to native speakers. Previous research demonstrated that choosing referring expressions can be a challenging task for second language speakers (Contemori & Dussias, 2016). Furthermore, this paper intends to elucidate possible mechanisms present behind this process. Native Spanish speakers who speak English as a second language are the focus of the present study. The relevance of analyzing this population is clear as it is one of the groups showing the greatest growth in the United States. In addition, English and Spanish present typological differences when it comes to the set of referential expressions available. Thus, it is worth investigating whether these dissimilarities influence native Spanish speakers' productions in the L2 English.

In Spanish, a null pronoun is typically used to refer to a topic antecedent (or sentential subject), whereas a pronoun or a full NP can be used to refer to a non-topic antecedent as illustrated in (1) and (2) (Contemori & Dussias, 2016).

1.

Luis<sub>i</sub> compró el carro que Ana quería. pro<sub>i</sub> Gastó mucho dinero.

Luis purchased the car that Ana wanted. pro<sub>i</sub> Spent a lot of money.

Luis purchased the car that Ana wanted. (He/Luis) spent a lot of money.

2.

Luis compró el carro que Ana<sub>i</sub> quería. Ana/Ella<sub>i</sub> se puso muy contenta.

Luis purchased the car that Ana<sub>i</sub> wanted. Ana/She<sub>i</sub> became very happy.

Luis purchased the car that Ana wanted. Ana/She became very happy.

In a study conducted by Contemori & Dussias (2016), the authors investigated referring expression's production in L2 learners of English, whose L1 is Spanish. They found that similar

to native speakers, L2 learners consider the listener's perspective when producing referring expressions; meaning that they formulate them in an unambiguous way in order to maximize the listener's comprehension. In addition, their results demonstrated an overproduction of pronouns, which could be related to the cost associated with processing and producing referring expressions in a second language.

One relevant aspect of referring expression production elaborated in the present paper is animacy. Fukumura & Van Gompel (2011) proposed that animacy could influence native speaker's choices. That is, animacy tends to make the referent highly accessible, which favors production of pronouns over explicit forms. Conversely, Fukumura & Van Gompel explain that animacy competition between an animate referent and another animate entity in the antecedent clause can cause a semantic interference, which leads speakers to increase the amount of explicit forms over pronouns. Furthermore, Fukumura & Van Gompel's results revealed that more pronouns are produced for referents in subject position when compared to direct object position referents.

Animacy is a feature that has not yet been analyzed in L2 production, therefore a question remains as to whether L2 learners of English show a similar pattern of use of referring expressions as native speakers in this context. This study's goal is to investigate how second language speakers handle contexts where animacy is present as well as discourse factors such as subject/object positioning. Previous research demonstrated that L2 language speakers are more susceptible to interferences associated with referring expressions' interpretation preferences (Cunnings, 2016). This paper intends to test this claim and verify what type of patterns L2 speakers present when producing referring expressions when compared to native speakers.

Finally, the study explores which theories and hypotheses might be the most successful in explaining how bilinguals produce referring expressions in a second language.

In the next section, I will provide an introduction about referential choice in a native and in a second language. Then, I will present the results of a sentence production task. Finally, I will discuss the results and explore which theoretical approach(es) may better explain the observed results.

# **HOW DO MONOLINGUAL SPEAKERS OF ENGLISH PRODUCE REFERRING EXPRESSIONS?**

In this section, I will focus on previous studies that looked at the production of referring expressions in English monolingual adults.

Arnold & Griffin (2007) investigated the process of choosing proper nouns and pronouns in monolinguals using a picture description task. The participants were asked to observe two-panel cartoons containing one or two Disney characters. In addition, they heard a story contextualizing the image (e.g., Mickey went on a walk (with Daisy) in the hills one day). Subsequently, the participants were asked to provide a continuation of the story based on what they heard and saw in the second panel. The experiment had three conditions. In the one-character condition, the main character was alone performing an action in both panels, as illustrated in Figure 1. In the two-character condition, the first and second panels were manipulated so that they contained the main character performing an action along with a second character. The second character's gender differed from the main character's, as shown in Figure 2. In the third condition, the first panel contained two characters performing an action, but the second panel only contained the main character, as illustrated in Figure 3. The authors measured if the presence of another character influenced the participants' responses and whether they tended to use more pronouns or proper nouns when referring to the main character in the continuations of the three conditions.

one-character condition



Figure 1. (Arnold & Griffin, 2007)

“Mickey went on a walk in the hills one day.”

two-character condition

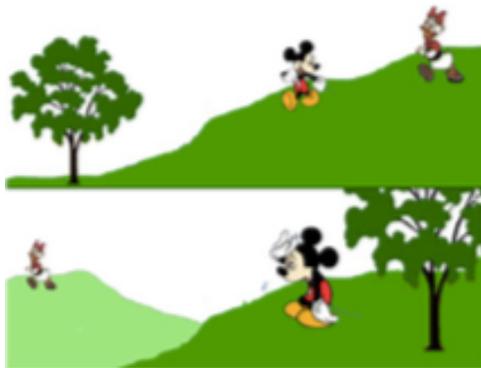


Figure 2. (Arnold & Griffin, 2007)

“Mickey went on a walk with Daisy in the hills one day.”

two-character/one-character condition



Figure 3. (Arnold & Griffin, 2007)

“Mickey went on a walk with Daisy in the hills one day”

The results of the study demonstrated that the participants tended to use more pronouns when there was only one character (e.g., Mickey went on a walk in the hills one day. **He felt tired from the walk and decided to take a break.**) However, when two characters were present in the first panel or in both panels, pronoun use was substantially reduced (e.g., Mickey went on a walk with Daisy in the hills one day. **Mickey felt tired and decided to take a break.**) The authors proposed that the presence of a secondary character may impact the amount of attention that the language user is able to provide to each character. That is, the referent (main character) competes for attentional resources with the other entity (secondary character). The competition for attentional resources reduced the main character’s accessibility, which caused the participants to be more explicit, by repeating the proper name in continuations rather than using pronouns.

Another study that looked at the production of referring expressions in English monolinguals is the study by Fukumura & Van Gompel (2011). This paper is particularly relevant for the purpose of the present research, because I adopted their experimental design to investigate the production of referring expressions in bilinguals. Fukumura & Van Gompel

investigated how pronouns or noun phrases (NPs) are selected by monolingual speakers of English when choosing a referring expression. The aim of this study was to discover what type of information influences the referent's accessibility and consequently the referring expression production. The authors point out that animacy may not only affect the referent's accessibility but also the accessibility of its predicate. Pronouns, which are reduced expressions, may be more frequent when the referent is more accessible (when it presents an antecedent animate referent), because they yield faster production of the predicate compared to more explicit referring expressions (NPs). E.g., 'The man played with the knife. Apparently, he likes dangerous games.' Rather than 'The man played with the knife. Apparently, the man likes dangerous games.' In the example, 'the man' is an animate entity, which favors the use of pronouns over noun phrases in the referential choice.

In Fukumura & Van Gompel's task, when a reference is made to the first noun phrase subject (NP1), the subject NP1 is the referent, whereas its competitor is the object noun phrase (NP2). Similarly, if a reference is made to the object (NP2), the object NP2 is the referent, whereas the subject NP1 is its competitor, as (1) demonstrates:

1.

1.1. (NP1- referent) (NP2 - competitor)

The hikers carried the canoes a long way downstream. Sometimes the hikers are proactive.

1.2. (NP1 – competitor) (NP2 – referent)

The hikers carried the canoes a long way downstream. Sometimes the canoes can be extremely heavy.

Arnold & Griffin (2007) demonstrated that pronoun production was less frequent in referring expressions when the context sentences included a competitor and a referent. Fukumura & Van Gompel (2011) claim that animacy can play a similar role. If both referent and competitor have the same animacy, they become semantically more similar, which may reduce the referent's accessibility. If, in a discourse, an entity is more accessible, it demands more attention, which reduces the attention given to the other entities. Therefore, the authors predicted that more pronouns should be produced for animate referents than inanimate referents, by investigating the role of animacy of competing entities in the antecedent clause.

Finally, another factor investigated by Fukumura & Van Gompel, which is involved in referring expression production, is the antecedent's grammatical role and positioning. They demonstrated a higher production of animate referring expressions for sentential subject referents than other grammatical categories, which is in line with previous studies (Clark & Begun, 1971; Itagaki & Prideaux, 1985; Pearson et al., 2001, as cited in Fukumura & Van Gompel, 2011).

To illustrate Fukumura & Van Gompel's task (2011), the authors used a sentence completion task to investigate how and to what extent animacy affected the choice of referring expression. Experimental context sentences were constructed to analyze the following four conditions: animate-animate, animate-inanimate, inanimate-animate and inanimate-inanimate. In order to test the four conditions, the authors used arrows above one of two NPs in each sentence in order to indicate the referent to which the participants should refer when completing the fragment sentence as illustrated in (2).

2.



2.1. The manager replaced the worker in the end. Clearly...

(animate)                      (animate)



2.2. The manager replaced the machine in the end. Clearly...

(animate)                      (inanimate)



2.3. The computer replaced the worker in the end. Clearly...

(inanimate)                      (animate)



2.4. The computer replaced the machine in the end. Clearly...

(inanimate)                      (inanimate)

The sentences in (2) demonstrate that Fukumura & Van Gompel's (2011) experimental items included context sentences that were manipulated for animacy followed by sentence fragments, which were completed by the participants. The context sentences contained an animate or inanimate subject, a verb and an animate or inanimate direct object followed by an adverbial phrase. The sentence fragments were composed by a single adverb. The participants were asked to complete the fragment sentences beginning with a reference to the word (NP) with an arrow above it. The instructions specified that the participants could use either a pronoun (e.g., they) or a noun (e.g., the machines).

The results demonstrated that, consistent with previous research, more pronouns were produced for referents in NP1 position than NP2. Most importantly, animacy affected the choice

of referring expressions. Hence, more pronouns were chosen when the referent was animate than inanimate. However, competitor animacy had no independent effect on the chosen referring expression, which indicates that the referent's salience relative to the competitor's does not affect the choice of the referring expression. On the other hand, animacy congruency between referent and competitor reduced the number of pronouns when compared to repeated NPs in the referring expressions, which is in line with the semantic interference hypothesis. Similar to Arnold & Griffin's (2007) study, when the referent and competitor are both animate (semantically more similar), semantic interference occurs. In addition, the position of the referent in the antecedent clause influence referential choice. The results are in line with the hypothesis that certain arguments in a clause can be more accessible than others. Pronouns tend to be favored over nouns when referring to a referent in subject argument position in the antecedent clause (Arnold, 2010). Studies have demonstrated that the grammatical subject tend to be more accessible when compared to other arguments in a clause because it is syntactically more prominent (Brennan et al. 1987, Brennan 1995; Arnold et al 2000b, as cited in Arnold 2010). Thus, the results of Fukumura & Van Gompel indicate that the accessibility of the referent is increased when the referent is animate and is in the grammatical subject position leading to a higher production of pronouns.

## TENDENCIES IN BILINGUAL PRODUCTION

Experimental evidence suggests that the task of choosing referents can be challenging for bilingual speakers. When language users make references, they need to control lexical, syntactic and discourse information. Controlling, semantic, syntactic and discourse representations simultaneously in a second language might be particularly demanding for bilinguals because they concurrently activate the target language and suppress the unwanted one. Therefore, for bilinguals, the processing of information at the lexical, syntactic and discourse level may be particularly demanding (e.g., Sorace, 2011).

For instance, a study conducted by Sorace, Serratrice, Filiaci, & Baldo (2009) examines the behavior of L1 and L2 speakers of two pro-drop (null-subject) languages, being L1 Italian and L2 Spanish. The participants from both groups completed elicited grammaticality judgment tests in which they had to choose the most suitable referent for subjects in antecedent clauses. The results revealed that bilingual children tend to select overt pronouns for topic antecedent subjects (the first noun phrase) as a default when using their L2 although a null-subject would be more suitable for the utterance's context in both their first and second language. The monolingual participants, on the other hand, tend to use a null pronoun for topic antecedent subjects in the above-mentioned languages which contrasts with the pattern demonstrated by the L2 speakers. The use of this type of non-target form could have been the result of a tactic to mitigate the cognitive processing load (Sorace, 2009).

Although researches have argued that this type of phenomenon could be the result of fossilization of discourse structures and or cross-linguistic interference (Belletti et al., 2007; Sorace, 2011; Sorace & Filiaci, 2006, as cited in Sorace, 2011), it is possible that the difficulty

may instead be associated with processing difficulties due to the fact that bilinguals have fewer cognitive resources available for the task.

Taking into account that processing a second language is less automatic than the first one (Clahsen & Felser, 2006) and that there may be a general difficulty associated with integrating lexical, syntactic and discourse information when using referential expressions (e.g., Burkhardt, 2005; Piñago & Burkhardt, 2005, as cited in Sorace, 2011), it is possible to predict that bilingual speakers may present certain distinct patterns of referential choice when compared to native speakers. This can be the result of cross-linguistic influences or default choices used to reduce the cognitive cost necessary to perform the task of choosing referents (Contemori & Dussias, 2016).

Conversely, some researchers argue that the difficulty associated with referential choice can be overcome in very advanced levels of proficiency (e.g., Montrul & Rodríguez Louro, 2006; Rothman, 2007, as cited in Sorace, 2011). Therefore, the mechanics behind bilingual referential choice is still unclear, which points to the relevance of this and future research on this topic. The central question in this dissertation is how animacy can influence bilingual referential choice. Little is known about the role of animacy in L2 referring expression production. As mentioned previously, syntactic and discourse factors can affect second language referential choice. Since animacy is an integral part of these factors, it is important to understand how and to what extent animacy influences L2 referring expression production.

Numerous studies have attempted to explain referential choice preferences by examining language users' comprehension (e.g., Cunnings, 2016; Clahsen & Felser, 2006; Roberts, Gullberg, & Indefrey, 2008; Wilson, 2009). However, research on L2 referring expression production is more limited. Notwithstanding, Contemori & Dussias (2016) investigated

referential choice production in L2 language users. The authors conducted a story-telling task based on a subset of the materials used by Arnold & Griffin (2007). The participants consisted of two groups: one English monolingual (control group) and one group composed of advanced second language speakers of English whose first language is Spanish. Similar to Arnold & Griffin's study (2007), the experiment's conditions contained two panels which presented one or two characters. The participants completed the story presented in the second panel. As observed in Arnold & Griffin's study (2007), Contemori & Dussias (2016) demonstrated that L1 speakers produced fewer pronouns in referring expressions relative to proper nouns when more than one character was present in the discourse. On the other hand, the L2 participants showed a higher production of pronouns compared to the native speakers.

Contemori & Dussias (2016) conducted a second experiment to deepen the understanding of L2 overuse of pronouns and identify what mechanisms are involved in L2 referring expression production. The second experiment showed a similar pattern of production as in experiment 1, with the L2 speakers producing overall more pronouns than the monolinguals. The authors then concluded that the participants set the use of pronouns in referring expressions as a default in order to mitigate the cognitive cost associated with maintaining referents as a L2 learner. The authors further hypothesized that pronouns are the simpler referential option to select (e.g., Sorace 2011).

Contemori & Dussias' results can be explained within Antonella Sorace's Interface Hypothesis (IH; e.g., Sorace 2011). According to the Interface Hypothesis, syntactic processing can be less automatic when processing a second language and bilinguals have a reduced ability to consistently and efficiently integrate different types of information. One relevant example is the production of referring expressions that requires the ability of integrating correct syntactic-

pragmatic information. When bilinguals and language learners choose and produce referring expressions, they need to map the information within the interface conditions and integrate it from different domains in real time. Sorace (2011) explains that such environments create instability and optionality. If bilinguals have limited capacity to integrate syntactic and pragmatic information at the same time, it is possible to expect that they use compensatory strategies to mitigate the cost associated. Sorace points out that bilinguals who speak null subject languages prefer to use overt pronouns (even when a monolingual would not) because of this limitation (as in Sorace, Serratrice, Filiaci, & Baldo study on Spanish and Italian bilingual speakers (2009)). Sorace (2011) claims that this form (overt pronouns) is preferred by bilinguals because it generally prevents ambiguity from occurring although in pro-drop languages the overuse of overt pronouns can be perceived as redundant. Accordingly, the current study intends to expand the research on the Interface Hypothesis and analyze whether the results are consistent with the previous findings by investigating bilingual speakers of Spanish and English.

Another theoretical approach attempts to explain the optionality in the comprehension and use of referring expressions observed in bilinguals, the Memory Retrieval Interference Model (MRIM, Cunnings, 2016). The MRIM explains that differences between native and second language speakers may occur due to distinctions that L2 users present when retrieving information from memory. According to the author, differences observed in high-proficient L2 speakers and native speakers may occur due to a higher susceptibility to interference during memory retrieval operations in L2 sentence processing. Likewise, he explains that L1/L2 differences are associated with memory encoding, storage and retrieval operations, which are essential operations when language users need to execute anaphora resolution. The term anaphora resolution is used to represent the concern of determining to which antecedent item a

referring expression (formed with a pronoun or a noun phrase) refers in a discourse, as illustrated in (3).

3. **Oprah Winfrey** has been endorsed by **Hillary Clinton**. **She** is very happy about it.

In the example above, a language user would need to decide whether the referring expression ‘she’ refers to ‘Oprah Winfrey’ or ‘Hilary Clinton’. The task of determining the right referent exemplifies the concept of anaphora resolution. In reference to the literature on anaphora resolution in L2, Cunnings claims that L2 learners might apply antecedent retrieval cues during anaphora resolution differently than native speakers. This operation seems to occur mainly because L2 learners weigh discourse-based cues to retrieval more heavily than L1 speakers. For instance, when a L2 learner is looking for an antecedent of a potentially ambiguous pronoun, as in the example (3), inhibitory interference may arise, due to the indexing competition between the two antecedents; meaning that when gender cues match in memory, L2 speakers are more susceptible to interference, because L2 learners may rely more heavily on discourse-based cues rather than L1 speakers.

Thus, Cunnings’ view on anaphora resolution and differences observed in L1 and L2 performance can be explained in terms of cues and information that need to be retrieved from memory during dependency resolution. I will extend this hypothesis to the production domain. Additionally, animacy is an aspect that could serve as a cue and has not been analyzed consistently in bilingual production, especially vis-à-vis referential contexts. If bilinguals rely on cues to retrieve information from memory and animacy is used as a cue, it may influence bilingual comprehension and production. Therefore, it is necessary to investigate to what extent

animacy and positioning play a role when language users produce referring expressions under the memory retrieval perspective.

In the following section, I will present some predictions for the experimental study presented in the present paper, based on Sorace's Interface Hypothesis and Cunnings' Interference Model.

## AIMS AND PREDICTIONS

The goal of this research's experiment is to bring to light how bilinguals choose and produce referents when dealing with the interaction between animacy and positioning of referents and competitor entities. To date, most studies have analyzed referential sentence comprehension, while very few studies have investigated bilingual referential choice in production in English. Although, with sufficient exposure, high proficient or native-like bilinguals can pursue a high and sophisticated command of their second language's syntactic structure similar to native speakers (e.g., Bowden, Steinhauer, Sanz & Ulman, 2013, as cited in Cunnings, 2016), it is possible to predict that their referring expression production may be different relative to the native speakers' as (1) bilinguals processing is less automatic because their ability to integrate different types of information, such as pragmatic and syntactic information, is less consistent than in monolinguals (IH, Sorace, 2011) or (2) bilinguals are more susceptible to interference when retrieving information from memory and may rely on cues differently than native speakers (MRIM, Cunnings, 2016).

According to the Interface Hypothesis, dealing with semantic, syntactic, and pragmatic information is costly for bilinguals because they need to integrate and map the information in real time. Thus, choosing the most appropriate referent (pragmatically) when the antecedent clause contains animacy (semantic information) in different positions (varying syntactic structure) can be cognitively costly as these components are interconnected in the interface which can cause delay in processing, consequently affecting the production, as shown by Contemori & Dussias (2016). Under this hypothesis, bilinguals may set a default form to reduce the cognitive cost associated to dealing with animate referents and competitors in NP1 or NP2 position, regardless of the animacy of the competitor referent. While Fukumura & Van Gompel

(2011) demonstrated that when an animate competitor is present in the antecedent clause, noun phrases are preferred over pronouns because the referent's accessibility is reduced. For bilinguals I may not find an effect of accessibility based on animacy, as bilinguals may produce more pronouns than monolinguals.

Another possibility is that the L2 speakers rely less or over-rely on cues to retrieve information from memory when choosing the most appropriate referring expression as illustrated by the Memory Retrieval Interference Model (Cunnings, 2016). Based on this model, it is possible to predict that even though L2 speakers use animacy as a cue, they may experience more interference when there is a match in animacy between the referent and the competitor, resulting in a different pattern of referential expressions produced in comparison to monolinguals.

An alternative prediction is that both monolingual and bilingual groups present a similar pattern of referring expression production. This scenario may occur due to the current study's experimental design which measures production of written sentences. The surveys used in this study were tailored to examine the participants' preferences for referential choice in specific conditions without a limitation of time. Thus, it is possible that the lack of time constraint to create and write the responses may lower the cognitive cost associated with referential production which could help approximate the responses of high proficient L2 speakers to their monolingual counterparts. In Contemori & Dussias' study (2016) an overproduction of pronouns may have occurred because the participants had a very short period of time to elicit their responses in spoken language and this could have increased the demand for managing and activating the necessary cognitive resources needed to perform the task successfully. It is possible that in the latter study, the time constraint was key for obtaining the observed results.

Furthermore, the current experiment encompassed varying conditions in which third plural and singular person referents and competitors were used in the antecedent clauses, whereas the current experiment's plural/singular conditions can cause them to potentially establish a general production strategy that can be similar to the one used by monolinguals. Hence, similarities of production between the bilingual and monolingual participants are not ruled out in this study.

In the following section, the experimental design and the participants are presented.

## AN INVESTIGATION INTO BILINGUAL PRODUCTION

### Participants

Fifty-eight participants were recruited through the Amazon Mechanical Turk platform (25 males and 53 females; mean age = 35; SD = 6). All participants reported to be monolingual native speakers of English from and currently living in the United States. Participants who reported being fluent in a second language were automatically excluded from the survey. Data from six participants (4 males, 2 females) (10%) were excluded from further analysis because more than 25% of their responses had to be rejected. The participants received US\$ 1 as compensation for their participation.

In addition, eighty-three bilingual participants were recruited at the University of Texas at El Paso (32 males, 51 females; mean age = 23; SD = 6). The participants reported to being native speakers of Spanish. The students were born in Mexico or in the United States. They were immersed in an English speaking environment when the experiment took place. Thirty-nine bilingual participants were exposed to English during childhood and forty-four participants learned English in adulthood, being currently English for Speakers of Other Languages (ESOL) students (44). In order to assess the bilingual students' English proficiency, participants were tested with a subsection of the Michigan English Language Institute College English Test (MELICET). The subsection of the MELICET consisted of fifty multiple-choice questions divided in two sections – thirty grammar questions and twenty cloze questions from a reading passage. The participants who scored less than twenty-eight out of the fifty questions were excluded from further analysis (2 males) (2%). In addition, the bilingual participants took a language background questionnaire. The ESOL students were not required to take the language background questionnaire because as a homogeneous group they shared a similar age, age of L2

onset, and similar intermediate language proficiency level. Table 1 shows information on the language background of the bilingual and their proficiency in English measured with the English proficiency test. The bilingual participants who reported acquiring a native language other than Spanish or English were discarded from the data (1 male, 1 female) (2%). Data from fourteen participants (6 males, 8 females) (16%) were excluded from further analysis because more than 25% of their responses had to be rejected. The students received course credits as compensation for their participation.

Table 1. Participants' Information

Mean (SD)

|  | Spanish - L1  | English - L2  |
|--|---------------|---------------|
| Age of exposure (in years)   | 0 (0)         | 5.7 (4.7)     |
| Length of residence in country where the language is spoken (in years) | 15.1 (8.7)    | 18.18 (8.5)   |
| Average daily speaking (%)   | 52.2 (22.7)   | 49.1 (24.8)   |
| Average daily reading (%)  | 39.6 (22.5)   | 68.9 (25.6)   |
| Average daily exposure (%)   | 54.4 (20.2)   | 52.9 (23.4)   |
| Language dominance   | Spanish 23/46 | English 23/46 |
| <i>Language proficiency</i> (MELICET)                                  |               |               |
| Score (out of 50)  | -             | 41.5(5)       |

## Materials

The experiment consisted of a sentence completion task adapted from Fukumura & Van Gompel (2011). Twenty-four experimental items were used. The items contained a context sentence and a sentence fragment, as illustrated in (1).

1.

1.1 The Eskimos carried the child almost all day. Eventually,

1.2 The drivers hit the vehicle by accident. Undoubtedly,

1.3 The helicopter endangered the planes quite seriously. Clearly,

1.4. The newsreader mentioned the celebrities yesterday. Obviously,

The context sentence described an event using animate, human singular or plural NPs (e.g., the hiker or the hikers), or inanimate singular or plural NPs (e.g., the canoe or the canoes), a verb (e.g., carried) and a prepositional or adverbial phrase (e.g., a long way downstream). The sentence fragment consisted of a single adverb, followed by a comma and a line indicating that the participants had to provide a continuation (e.g., Naturally, (line)).

The 24 experimental items were manipulated for animacy in four different conditions (animate-animate, animate-inanimate, inanimate-animate and inanimate-inanimate), as illustrated in (2).

2.

2.1. The millionaires supported the artist in the past. Apparently, (animate-animate)

2.2. The sailor followed the steamboats for the whole day. Obviously, (animate-inanimate).

2.3. The tabloids mentioned the celebrity yesterday. Clearly, (inanimate-animate).

2.4. The warships transported the lifeboats to the south. Remarkably, (inanimate-inanimate).

The items were also manipulated for number. For each of the four conditions there were two versions of the stimuli, one in which the NP1 is in the singular and the NP2 is in the plural, and one in which the NP1 is in the plural and the NP2 is in the singular. This resulted in a total of 8 conditions, as illustrated in (3). Eight items in the original study were substituted as changing the number of some NPs resulted in somewhat implausible sentences such as (e.g., \*The tent surrounded the sheds during the night), or the sentence sounded unacceptable in American English (e.g., The hooligans influenced the councilor quite clearly).

Forty-six fillers were used in the experiment. The 46 filler sentences had similar structures to the experimental items although they varied in presenting passive or active voice constructions such as sentences (4).

Eight lists were created in order to comprise the 8 conditions for each one of the 24 items. The participants were randomly assigned to one of the 8 lists, each comprising the 24 experimental items and the forty-six fillers. The participants completed the sentence fragment by referring to one of the two NPs presented in the preceding context. A line under NP1 or NP2 indicated to which NP in the previous context sentence the participants should refer when they started the continuation.

The experimental items occurred in a semi-random order, with at least one filler between them. Similar to the experimental items, the fillers also presented an underlined referent NP in the context sentence and an adverb in the fragment sentence.

3.

3.1 The refugees affected the politician to some extent. Obviously,

3.2. The refugee affected the policies to some extent. Obviously,

3.3. The election affected the politicians to some extent. Obviously,

3.4. The election affected the policies to some extent. Obviously,

3.5. The refugee affected the politicians to some extent. Obviously,

3.6. The refugees affected the policy to some extent. Obviously,

3.7 The elections affected the politician to some extent. Obviously,

3.8 The elections affected the policy to some extent. Obviously,

4.

4.1. It was the banker that irritated the woman after playing tennis. Apparently,

4.2. Anthony was stabbed by Carol the day after the wedding. Suddenly,

4.3. The babysitter that spanked the child got scolded when the parents returned.

Suddenly,

## **Procedure**

The experiment was designed as a Qualtrics survey. The monolingual participants received a link through Amazon Turk which allowed them to access the survey. Likewise, the bilingual participants also received the online Qualtrics link via email, with the exception of 34 students who took a printed version of the survey.

At the beginning of the survey, participants were presented with instructions on how to complete sentence fragments. The participants were asked to produce a continuation with a reference to the underlined NP in the context sentence. The survey's instructions specified that the participants could either use a pronoun (they, it, he or she) or a noun phrase (e.g., the terrorists or the policewoman) to refer to the underlined NP. Moreover, the participants were instructed to respond with a continuation that sounded natural to them and avoid humor. Each sentence context and its respective sentence fragment followed by the completion field appeared in a single page and after completing the sentence, the participants moved to the next page to complete the following sentence fragment. The experiment typically lasted 30-40 minutes. Debrief questions were provided at the end of the task. The questions asked about the difficulty of the tasks, what the participants believed the experiment was trying to measure, how frequently the participant chose a NPs or a pronoun, and how informative the responses were according to the participant's opinion.

## **Transcription and coding**

The responses were scored based on whether a personal pronoun or a repeated NP were used, and whether the referential form matched the underlined NP. Based on these criteria, a total of 9% of the monolingual participants' responses were excluded (n=128). Responses were discarded because the participants did not refer to the underlined NP in the context sentence (n=64) or stated the right referent without completing the rest of the sentence (n=48). Other trials were discarded because the participants used non-target expressions (singular instead of plural and vice versa, n=6), began their completion with a possessive pronoun (e.g., 'their', n=4), started with an indefinite pronoun (e.g., 'nobody' n=4), or used an existential 'there' at the beginning of the sentence (n=2). With regard to the bilingual participants, a total of 5% of the bilingual participants' responses were excluded (n=298). Responses were discarded because the participants did not refer to the underlined NP in the context sentence (n=249) or stated the referent but did not complete the remaining of the sentence (n=13). Likewise, responses were discarded because the participants used non-target expressions (singular instead of plural and vice versa, n=6), began their completion with a possessive or object pronoun (e.g., 'their', 'them', n=16), opened the continuation with an indefinite pronoun (e.g., 'nobody' n=2), began with a demonstrative pronoun (e.g., those, n=11) or used an existential 'there' as the subject of the sentences (n=1).

## RESULTS

Table 2 shows the amount of NPs produced by the two groups out of the total number of pronouns and NPs produced.

Table 2. Proportion of NPs' production out of pronouns' and NPs' across the eight conditions

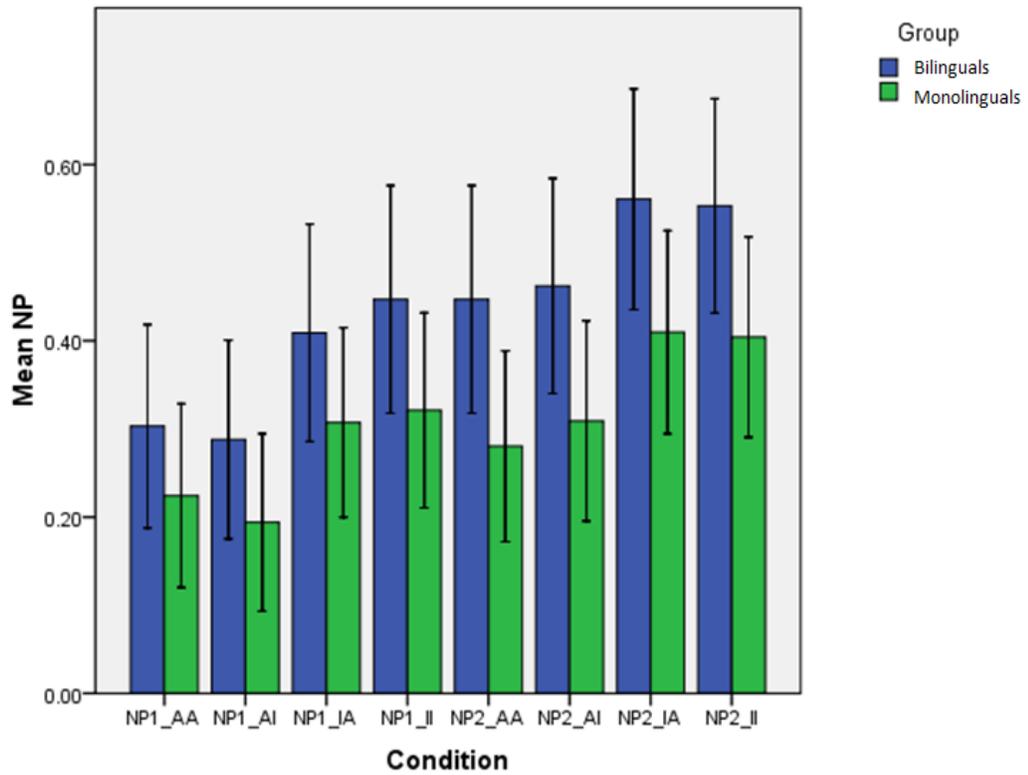


Table 3. Conditions' Legend

| (animacy of the referent vs. animacy of the competitor) |           |            |           |            |           |
|---|-----------|------------|-----------|------------|-----------|
| NP1   |           | NP2        |           | NP1        |           |
| Referent  |           | Competitor |           | Competitor |           |
| Referent  |           | Competitor |           | Referent   |           |
| <b>AA</b>   | Animate   | Animate    | <b>AI</b> | Animate    | Inanimate |
| <b>AI</b>   | Animate   | Inanimate  | <b>AA</b> | Animate    | Animate   |
| <b>IA</b>   | Inanimate | Animate    | <b>II</b> | Inanimate  | Animate   |
| <b>II</b>   | Inanimate | Inanimate  | <b>IA</b> | Inanimate  | Inanimate |

E.g., (1) conditions with noun phrase one (NP1) referent and noun phrase two (NP2) competitor:

1.

**AA** The refugees affected the politician to some extent (animate – animate)

**AI** The refugee affected the policy to some extent (animate – inanimate)

**IA** The election affected the politicians to some extent (inanimate – animate)

**II** The elections affected the policy to some extent (inanimate – inanimate)

E.g., (2) conditions with noun phrase one (NP1) competitor and noun phrase two (NP2) referent:

2.

**AA** The refugees affected the politician to some extent (animate – animate)

**AI** The refugee affected the policy to some extent (animate – animate)

**IA** The election affected the politicians to some extent (inanimate – inanimate)

**II** The elections affected the policy to some extent (inanimate – inanimate)

The between subject factor used in the analysis is Group (Monolinguals vs. Bilinguals). The within subject factors are NP Position (NP1 vs. NP2) Animacy of the Referent (Animate vs. Inanimate) and Animacy of the Competitor (Animate vs. Inanimate). A Repeated Measures ANOVA showed a main effect of NP position ( $F(1,96) = 54.506, p < .0001$ ;  $F(1,46) = 21.534, p < .0001$ ), indicating significantly more NP completions in the NP2 condition compared to the NP1 condition. The analysis also revealed a main effect of Animacy of the Referent ( $F(1,96) = 28.977, p < .0001$ ;  $F(1,46) = 79.178, p < .0001$ ), indicating significantly more NP completions when the referent is animate, in comparison to when the referent is inanimate. No other main effect or interaction reached significance by subject and by item.

## DISCUSSION

A close look at the experiment's results revealed two main effects: both bilingual groups are sensitive to the position as well as the animacy of the referent. That is, bilinguals produced referring expressions using more noun phrases when the referent was in the grammatical subject position (NP1); in addition, more pronouns were preferred when the referent was animate rather than inanimate. Furthermore, the evaluation of the L2 production demonstrated that the two bilingual groups had a similar performance although their English proficiency level is distinct (early bilinguals – high proficient, late bilinguals – intermediate). As no significant statistical effect was found, the data from both groups were merged. Finally, a similar production pattern was observed in the monolingual speakers of English relative to the bilingual groups. Thus, the results strongly indicate that the referent's position and animacy may increase considerably the accessibility of the referent for both bilinguals and monolinguals, which favors the production of pronouns. Remarkably, no other main effect was observed.

Similar to the results found in Fukumura & Van Gompel on monolingual English speakers' production (2011), the present study shows that the referent's inherent properties affect the referent's accessibility. In addition, structural properties can affect referring expression production. However, the monolingual speakers of English did not experience a decrease in the overall production of pronouns as seen in Fukumura & Van Gompel study (2011) when both referent and competitor matched for animacy. The discrepancy between the current and former study concerning animacy congruency can be explained in terms of experimental design. The experimental sentences of the current study encompassed referents and competitors varying in number (singular or plural), whereas number in the previous study was presented in a fixed pair position in two different experiments (plural/plural) and (singular/plural). It is possible that the

higher variety of number (singular/plural) of the current research increased the accessibility of the animate referents because the language users may have relied more on this element when compared to other discourse factors. On the other hand, in the previous study the fixed number order could have driven the participant's focus to the sentence morphosyntactic structures rather than other relevant discourse features such as animacy, which could have paved the ground to a decrease in accessibility of the referent. As a result of the referent's information loss, more noun phrases were produced. In addition, the participants of the current study had no time constraint when responding to the online survey questions. Notwithstanding, the participants from Fukumura & Van Gompel study (2011) responded to questions in a pen and pencil survey, possibly under a specific allotted time to finish the task; thus, this suggests that the lack of time pressure may have reduced the susceptibility to interference as the cognitive cost associated with time may have been considerably reduced.

Likewise, the time constraint may not only have been key to explaining the observed results in monolingual speakers' production, but also for bilinguals. As mentioned before in this paper, Contemori & Dussias (2016) demonstrated that bilinguals, during real-time production of referring expressions, may set a default option (pronouns). The cognitive overload that participants may have experienced in Contemori & Dussias' study could be related to the fact that the bilingual participants did not have time to formulate their responses; in other words, they were asked to tailor a spoken response in a real-time production task, which can be a challenging task when a language user needs to control linguistic information in a second language. The current study, however, did not impose this limitation, which may have substantially reduced the cognitive cost associated with choosing referring expressions. Hence, it is possible that the lack

of a time constraint increased the bilingual's speakers' ability to control cognitive resources which resulted in a more efficient production of referring expressions.

Although the results of this study did not confirm the predictions based on the Interface Hypothesis (e.g., Sorace, 2011), in which bilinguals set a default option in order of to mitigate the cognitive cost when formulating referring expressions, this possibility should not be completely discarded. L2 difficulty in mapping and integrating pragmatic, syntactic and discourse information may depend on the pressure imposed by real-time production. Thus, more research on L2 production is needed to elucidate this hypothesis.

With regard to the Memory Retrieval Interference Model (Cunnings, 2016), Cunnings explains that bilinguals can over-rely or under-rely on discourse or syntactic cues when compared to monolinguals. However, the data obtained from the analysis of the sentences' completions do not support this hypothesis. As mentioned previously, no substantial differences were observed when comparing the bilingual and monolingual production; in addition, the animacy and the referent's positioning influenced the participants' responses in a similar way. Hence, this study demonstrated that if animacy and positioning are used as cues, they are not weighted differently by the above-mentioned groups, which conflicts with Cunnings' model (2016). Thus, the MRIM concept is not supported in this study.

Finally, the present study complements previous research on bilingual referring expression production by demonstrating that bilinguals are sensitive to the referent's animacy and positioning. The question whether bilinguals are different than monolinguals when producing referring expressions under time constraint or during real-time spoken production and the relationship of these factors with animacy and positioning of the referent remains open.

Therefore, further studies which take these variables into account are necessary to elucidate the current topic.

## CONCLUSION

Spanish/English bilingual speakers whose English is their second language are sensitive to the positioning of the referent, as they tend to produce referential expressions with noun phrases when the referent of the antecedent clause is in the grammatical subject position. Likewise, this same population is sensitive to the influence that animacy has over the referent. More noun phrases are produced when the referent is animate rather than inanimate. Although the Interface Hypothesis (Sorace, 2011) was not confirmed by analyzing the current data, this theory needs to be examined in terms of real time production as the current study did not present this factor. In conclusion, this research demonstrated that bilinguals are able to approximate their production of referring expressions when positioning and animacy are present in the antecedent clause.

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## APPENDIX

### Experimental sentences

The refugee affected the policies to some extent. Obviously,  
The election affected the politicians to some extent. Obviously,  
The refugees affected the politician to some extent. Obviously,  
The election affected the policies to some extent. Obviously,  
The elections affected the policy to some extent. Obviously,  
The refugee affected the politicians to some extent. Obviously,  
The elections affected the politician to some extent. Obviously,  
The refugees affected the policy to some extent. Obviously,  
The Eskimo carried the sledges almost all day. Eventually,  
The snowmobile carried the children almost all day. Eventually,  
The snowmobile carried the sledges almost all day. Eventually,  
The Eskimos carried the child almost all day. Eventually,  
The snowmobiles carried the sledge almost all day. Eventually,  
The Eskimo carried the children almost all day. Eventually,  
The snowmobiles carried the child almost all day. Eventually,  
The Eskimos carried the sledge almost all day. Eventually,  
The fort protected the villagers from any danger. Obviously,  
The knight protected the castles from any danger. Obviously,  
The fort protected the castles from any danger. Obviously,  
The knights protected the villager from any danger. Obviously,

The forts protected the castle from any danger. Obviously,  
The knight protected the villagers from any danger. Obviously,  
The forts protected the villager from any danger. Obviously,  
The knights protected the castle from any danger. Obviously,  
The tourists passed the bus a couple of times. Apparently,  
The trams passed the protesters a couple of times. Apparently,  
The trams passed the bus a couple of times. Apparently,  
The tram passed the buses a couple of times. Apparently,  
The tram passed the protesters a couple of times. Apparently,  
The tourists passed the protester a couple of times. Apparently,  
The tourist passed the protesters a couple of times. Apparently,  
The tourist passed the buses a couple of times. Apparently,  
The drivers hit the cyclist by accident. Undoubtedly,  
The tractor hit the vehicles by accident. Undoubtedly,  
The tractors hit the vehicle by accident. Undoubtedly,  
The driver hit the cyclists by accident. Undoubtedly,  
The driver hit the vehicles by accident. Undoubtedly,  
The tractor hit the cyclists by accident. Undoubtedly,  
The drivers hit the vehicle by accident. Undoubtedly,  
The tractors hit the cyclist by accident. Undoubtedly,  
The sailors followed the steamboat for the whole day. Obviously,  
The ships followed the diver for the whole day. Obviously,  
The ships followed the steamboat for the whole day. Obviously,

The ship followed the steamboats for the whole day. Obviously,  
The ship followed the divers for the whole day. Obviously,  
The sailors followed the diver for the whole day. Obviously,  
The sailor followed the steamboats for the whole day. Obviously,  
The sailor followed the divers for the whole day. Obviously,  
The newsreader mentioned the celebrities yesterday. Clearly,  
The newsreader mentioned the magazines yesterday. Clearly,  
The tabloid mentioned the celebrities yesterday. Clearly,  
The tabloids mentioned the magazine yesterday. Clearly,  
The tabloids mentioned the celebrity yesterday. Clearly,  
The tabloid mentioned the magazines yesterday. Clearly,  
The newsreaders mentioned the magazine yesterday. Clearly,  
The newsreaders mentioned the celebrity yesterday. Clearly,  
The millionaire supported the artists in the past. Apparently,  
The millionaire supported the projects in the past. Apparently,  
The scholarships supported the project in the past. Apparently,  
The scholarship supported the artists in the past. Apparently,  
The scholarships supported the artist in the past. Apparently,  
The scholarship supported the projects in the past. Apparently,  
The millionaires supported the projects in the past. Apparently,  
The millionaires supported the artist in the past. Apparently,  
The plan influenced the decisions quite clearly. Apparently,  
The plans influenced the decision quite clearly. Apparently,

The citizens influenced the councillor quite clearly. Apparently,  
The citizens influenced the decision quite clearly. Apparently,  
The plans influenced the councillor quite clearly. Apparently,  
The plan influenced the councillors quite clearly. Apparently,  
The citizen influenced the councillors quite clearly. Apparently,  
The citizen influenced the decisions quite clearly. Apparently,  
The managers replaced the worker in the end. Clearly,  
The managers replaced the machine in the end. Clearly,  
The computers replaced the worker in the end. Clearly,  
The computer replaced the workers in the end. Clearly,  
The manager replaced the machines in the end. Clearly,  
The computers replaced the machine in the end. Clearly,  
The computer replaced the machines in the end. Clearly,  
The manager replaced the workers in the end. Clearly,  
The paramedics reached the car in time. Remarkably,  
The paramedics reached the boy in time. Remarkably,  
The ambulances reached the boy in time. Remarkably,  
The ambulance reached the boys in time. Remarkably,  
The paramedic reached the cars in time. Remarkably,  
The ambulances reached the car in time. Remarkably,  
The paramedic reached the boys in time. Remarkably,  
The ambulance reached the cars in time. Remarkably,  
The rowers approached the swimmer in the end. Clearly,

The rowers approached the yacht in the end. Clearly,  
The boats approached the swimmer in the end. Clearly,  
The boat approached the swimmers in the end. Clearly,  
The rower approached the yachts in the end. Clearly,  
The boats approached the yacht in the end. Clearly,  
The rower approached the swimmers in the end. Clearly,  
The boat approached the yachts in the end. Clearly,  
The sportscar followed the trucks throughout the night. Eventually,  
The detective followed the teenagers throughout the night. Eventually,  
The detective followed the trucks throughout the night. Eventually,  
The sportscars followed the teenager throughout the night. Eventually,  
The detectives followed the truck throughout the night. Eventually,  
The sportscar followed the teenagers throughout the night. Eventually,  
The detectives followed the teenager throughout the night. Eventually,  
The sportscars followed the truck throughout the night. Eventually,  
The hiker held the climbers on the cliff. Suddenly,  
The chain held the ropes on the cliff. Suddenly,  
The hiker held the ropes on the cliff. Suddenly,  
The chains held the climber on the cliff. Suddenly,  
The hikers held the rope on the cliff. Suddenly,  
The hikers held the climber on the cliff. Suddenly,  
The chain held the climbers on the cliff. Suddenly,  
The chains held the rope on the cliff. Suddenly,

The helicopter endangered the planes quite seriously. Clearly,  
The pilot endangered the passengers quite seriously. Clearly,  
The helicopters endangered the passenger quite seriously. Clearly,  
The helicopter endangered the passengers quite seriously. Clearly,  
The pilot endangered the planes quite seriously. Clearly,  
The pilots endangered the plane quite seriously. Clearly,  
The helicopters endangered the plane quite seriously. Clearly, .  
The pilots endangered the passenger quite seriously. Clearly,  
The lawyers described the prisoner in much detail. Undoubtedly,  
The documents described the form in much detail. Undoubtedly,  
The lawyers described the forms in much detail. Undoubtedly,  
The lawyer described the forms in much detail. Undoubtedly,  
The lawyer described the prisoners in much detail. Undoubtedly,  
The documents described the prisoner in much detail. Undoubtedly,  
The document described the forms in much detail. Undoubtedly,  
The document described the prisoners in much detail. Undoubtedly,  
The tanks attacked the jeep the following day. Apparently,  
The rebels attacked the guard the following day. Apparently,  
The rebels attacked the jeep the following day. Apparently,  
The rebel attacked the jeeps the following day. Apparently,  
The tanks attacked the guard the following day. Apparently,  
The rebel attacked the guards the following day. Apparently,  
The tank attacked the jeeps the following day. Apparently,

The tank attacked the guards the following day. Apparently,  
The warships transported the lifeboat to the south. Remarkably,  
The warriors transported the slave to the south. Remarkably,  
The warrior transported the lifeboats to the south. Remarkably,  
The warriors transported the lifeboat to the south. Remarkably,  
The warships transported the slave to the south. Remarkably,  
The warship transported the lifeboats to the south. Remarkably,  
The warrior transported the slaves to the south. Remarkably,  
The warship transported the slaves to the south. Remarkably,  
The newspaper mentioned the reports many times. Surprisingly,  
The newspaper mentioned the robbers many times. Surprisingly,  
The suspect mentioned the robbers many times. Surprisingly,  
The suspects mentioned the report many times. Surprisingly,  
The suspects mentioned the robber many times. Surprisingly,  
The suspect mentioned the reports many times. Surprisingly,  
The newspapers mentioned the report many times. Surprisingly,  
The newspapers mentioned the robber many times. Surprisingly,  
The tent protected the hunters during the night. Apparently,  
The tent protected the sheds during the night. Apparently,  
The guard protected the hunters during the night. Apparently,  
The guards protected the shed during the night. Apparently,  
The guards protected the hunter during the night. Apparently,  
The guard protected the sheds during the night. Apparently,

The tents protected the shed during the night. Apparently,  
The tents protected the hunter during the night. Apparently,  
The raft carried the explorers a long way downstream. Presumably,  
The raft carried the canoes a long way downstream. Presumably,  
The rescuers carried the canoe a long way in the river. Presumably,  
The rescuer carried the explorers a long way in the river. Presumably,  
The rafts carried the canoe a long way downstream. Presumably,  
The rescuers carried the explorer a long way in the river. Presumably,  
The rescuer carried the canoes a long way in the river. Presumably,  
The rafts carried the explorer a long way downstream. Presumably,  
The carriages reached the wagon before dawn. Obviously,  
The carriages reached the cowboy before dawn. Obviously,  
The natives reached the cowboy before dawn. Obviously,  
The native reached the cowboys before dawn. Obviously,  
The carriage reached the wagons before dawn. Obviously,  
The natives reached the wagon before dawn. Obviously,  
The carriage reached the cowboys before dawn. Obviously,  
The native reached the wagons before dawn. Obviously,  
The battleships approached the pilot during the battle. Clearly,  
The battleships approached the submarine during the battle. Clearly,  
The captain approached the pilots during the battle. Clearly,  
The battleship approached the pilots during the battle. Clearly,  
The captains approached the pilot during the battle. Clearly,

The battleship approached the submarines during the battle. Clearly,

The captains approached the submarine during the battle. Clearly,

The captain approached the submarines during the battle. Clearly,

The negotiations put the citizen in danger during the attack. Naturally,

The negotiations put the agreement in danger during the attack. Naturally,

The terrorist put the citizens in danger during the attack. Naturally,

The terrorists put the citizen in danger during the attack. Naturally,

The negotiation put the citizens in danger during the attack. Naturally,

The negotiation put the agreements in danger during the attack. Naturally,

The terrorists put the city in danger during the attack. Naturally,

The terrorist put the cities in danger during the attack. Naturally,

### **Filler sentences**

It was the banker that irritated the woman after playing tennis. Apparently,

The banker irritated the woman after playing tennis. Apparently,

It was the banker that irritated the woman after playing tennis. Apparently,

The banker irritated the woman after playing tennis. Apparently,

The babysitter chased the boy and tripped over the toy truck. Clearly,

It was the babysitter that chased the boy and tripped over the toy truck. Clearly,

The babysitter chased the boy and tripped over the toy truck. Clearly,

It was the babysitter that chased the boy and tripped over the toy truck. Clearly,

The pilot complimented the flight attendant and asked her out on a date. Eventually,

It was the pilot that complimented the flight attendant and asked her out on a date.

Eventually,

The pilot complimented the flight attendant and asked her out on a date. Eventually,

It was the pilot that complimented the flight attendant and asked her out on a date.

Eventually,

The secretary married the businessman and raised three little boys. Naturally,

The secretary married the businessman and raised three little boys. Naturally,

It was the secretary that married the businessman and raised three little boys. Naturally,

It was the secretary that married the businessman and raised three little boys. Naturally,

The mechanic ignored the nurse after fixing her car. Presumably,

The mechanic ignored the nurse after fixing her car. Presumably,

It was the mechanic that ignored the nurse after fixing her car. Presumably,

It was the mechanic that ignored the nurse after fixing her car. Presumably,

The waitress divorced the doctor and married a wealthy lawyer. Remarkably,

The waitress divorced the doctor and married a wealthy lawyer. Remarkably,

It was the waitress that divorced the doctor and married a wealthy lawyer. Remarkably,

It was the waitress that divorced the doctor and married a wealthy lawyer. Remarkably,

The director admired the dancer and gave her the leading role. Suddenly,

It was the director that admired the dancer and gave her the leading role. Suddenly,

It was the director that admired the dancer and gave her the leading role. Suddenly,

The director admired the dancer and gave her the leading role. Suddenly,

The actress visited the director and demanded the starring role in the movie. Surprisingly,

It was the actress that visited the director and demanded the starring role in the movie.

Surprisingly,

The actress visited the director and demanded the starring role in the movie. Surprisingly,  
It was the actress that visited the director and demanded the starring role in the movie.

Surprisingly,

It was the manager that angered his assistant and fired the entire staff. Apparently,

The manager angered his assistant and fired the entire staff. Apparently,

It was the manager that angered his assistant and fired the entire staff. Apparently,

The manager angered his assistant and fired the entire staff. Apparently,

It was the burglar that scared the policewoman after robbing three houses in one night.

Clearly,

It was the burglar that scared the policewoman after robbing three houses in one night.

Clearly,

The burglar scared the policewoman after robbing three houses in one night. Clearly,

The burglar scared the policewoman after robbing three houses in one night. Clearly,

It was the plumber that helped the nun and retired after twenty years on the job. Eventually,

It was the plumber that helped the nun and retired after twenty years on the job. Eventually,

The plumber helped the nun and retired after twenty years on the job. Eventually,

The plumber helped the nun and retired after twenty years on the job. Eventually,

The cheerleader criticized the waiter and turned away. Presumably,

It was the cheerleader that criticized the waiter and turned away. Presumably,

It was the cheerleader that criticized the waiter and turned away. Presumably,

The cheerleader criticized the waiter and turned away. Presumably,

Eric was slapped by Monica after a long argument. Apparently,

Eric slapped Monica after a long argument. Apparently,

Eric was slapped by Monica after a long argument. Apparently,  
Eric slapped Monica after a long argument. Apparently,  
Mary was rescued by John during the fire. Clearly,  
Mary rescued John during the fire. Clearly,  
Mary was rescued by John during the fire. Clearly,  
Mary rescued John during the fire. Clearly,  
Susan interviewed Marc at the radio station. Eventually,  
Susan was interviewed by Marc at the radio station. Eventually,  
Susan was interviewed by Marc at the radio station. Eventually,  
Susan interviewed Marc at the radio station. Eventually,  
Charles was accused by Jane at the courthouse yesterday, Naturally,  
Charles was accused by Jane at the courthouse yesterday, Naturally,  
Charles accused Jane at the courthouse yesterday, Naturally,  
Charles accused Jane at the courthouse yesterday. Naturally,  
Janet was fired by Robert after the stock price fell. Presumably,  
Janet was fired by Robert after the stock price fell. Presumably,  
Janet fired Robert after the stock price fell. Presumably,  
Janet fired Robert after the stock price fell. Presumably,  
Simon was saved by Zoe at the swimming pool. Remarkably,  
Simon was saved by Zoe at the swimming pool. Remarkably,  
Simon saved Zoe at the swimming pool. Remarkably,  
Simon saved Zoe at the swimming pool. Remarkably,  
Anthony was stabbed by Carol the day after the wedding. Suddenly,

Anthony was stabbed by Carol the day after the wedding. Suddenly,  
Anthony stabbed Carol the day after the wedding. Suddenly,  
Anthony stabbed Carol the day after the wedding. Suddenly,  
Sarah killed Martin after a violent fight. Surprisingly,  
Sarah was killed by Martin after a violent fight. Surprisingly,  
Sarah killed Martin after a violent fight. Surprisingly,  
Sarah was killed by Martin after a violent fight. Surprisingly,  
Cindy trained Mike before starting the new job. Apparently,  
Cindy was trained by Mike before starting the new job. Apparently,  
Cindy trained Mike before starting the new job. Apparently,  
Cindy was trained by Mike before starting the new job. Apparently,  
Joe was advised by Rachel before making a final decision. Clearly,  
Joe advised Rachel before making a final decision. Clearly,  
Joe advised Rachel before making a final decision. Clearly,  
Joe was advised by Rachel before making a final decision. Clearly,  
Laura escorted Justin to the ceremony. Eventually,  
Laura escorted Justin to the ceremony. Eventually,  
Laura was escorted by Justin to the ceremony. Eventually,  
Laura was escorted by Justin to the ceremony. Eventually,  
George attacked Anne at the fashion show. Naturally,  
George attacked Anne at the fashion show. Naturally,  
Brian and Kristi enjoyed the rock concert. Remarkably,  
Emily amused Bruce at the office yesterday. Suddenly,

Henry was beaten by Grace at tennis. Surprisingly,  
Cheryl offered a job to Derek last month. Undoubtedly,  
Steve went skiing with Chloe last winter. Apparently,  
Oliver punished Erika for her behavior. Clearly,  
Jack made a sandwich for Holly this morning. Eventually,  
Kate liked Alan's jacket last night. Naturally, ...  
Angela and Dominic went to the movies all summer. Presumably,  
Judy thanked Ian at the mall. Remarkably,  
Brian was angry with Rhonda after work. Suddenly,  
The tenant that despised the landlord called the newspaper to complain. Surprisingly,  
The soldier that assisted the civilian received a medal from the army. Undoubtedly,  
The jury that convicted the defendant was upset about the sentence. Apparently,  
The murderer that killed the old lady entered the house through the back door. Clearly,  
The comedian that entertained the student received a degree from Boston College.  
Eventually,  
The diplomat that exposed the spy was expelled from the country. Naturally,  
The consultant that advised the client developed the company's marketing plan.  
Presumably,  
The terrorist that captured the hostage delivered a speech on the video. Remarkably,  
The babysitter that spanked the child got scolded when the parents returned. Suddenly,  
The priest that blessed the infant cried after the ceremony was over. Surprisingly,  
The doctor that diagnosed the patient walked through the hospital's lobby. Undoubtedly,  
George was attacked by Anne at the fashion show. Naturally,

George was attacked by Anne at the fashion show. Naturally,

## VITA

Adonis de Carvalho Borges is a linguistics graduate student and teaching assistant at the University of Texas at El Paso and a future second language acquisition Ph.D. student and graduate assistant at the University of Maryland, College Park. He pursued a bachelor's degree in English and Portuguese Translation and Interpreting from the Ibero-American University Center in Sao Paulo, Brazil. Adonis is a certified language tester by the United States Department of State. With more than ten years of teaching experience, he was the coordinator of Fast Forward Language Institute - Brazil, where he trained instructors to apply an eclectic teaching approach. Currently, Adonis researches second language production and cross-linguistic influence in the acquisition of a second language. Adonis' primary goal is to contribute to the academic community and society by expanding research in the field of applied linguistics.

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