

Master's Degree in Language Sciences

Final Thesis

Lexical triggering effect and interactive alignment in Italian-English
bilingual dialogue: When cognates disfavor code-switching

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To my parents,
papà Paolo and mamma Lucilla

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ABSTRACT

In an increasingly interconnected world, bi- and multilingualism have become distinguishing traits of society, and Code-switching a pervasive phenomenon in daily life, making its investigation essential. Evidence from corpus studies shows that code-switching is enhanced by priming mechanisms and by cognates – two words in two different languages that overlap in form and meaning. Kootstra et al. (2020), one of the few experimental studies on spontaneous code-switching, found that code-switching priming in Dutch-English bilingual dialogue was facilitated by cognates. Building on these findings, we replicated their study on Italian-English bilingual dialogue, to explore whether cognates facilitate code-switching priming in this language pair, previously unexamined in this context. 28 Italian native speakers who use English daily participated. Results showed strong code-switching priming, as hypothesized; However, participants unexpectedly code-switched significantly more in the control words condition (namely in sentences containing words that don't overlap neither in form nor in meaning in the two languages) than in the cognate words condition. This finding, which contrasts with previous literature, may be a consequence of the inhibitory mechanisms operating throughout the task. These language control processes made switching particularly challenging, thus leading cognates, rather than to facilitate the transition between languages, to favor maintaining the language used at the start of the sentence.

Abstract in italiano

In un mondo sempre più interconnesso, il bi- e il multilinguismo sono diventati tratti distintivi della società e il code-switching un fenomeno pervasivo nella vita quotidiana, rendendo essenziale la sua indagine. Studi su corpora dimostrano che il code-switching è potenziato da meccanismi di priming e dai cognates, parole che in due lingue diverse si sovrappongono per forma e significato. Kootstra et al. (2020), uno dei pochi studi sperimentali sul code-switching spontaneo, hanno scoperto che il priming del code-switching nel dialogo bilingue olandese-inglese era facilitato dai cognates. Sulla base di questi risultati, abbiamo replicato il loro studio sul dialogo bilingue italiano-inglese, per verificare se i cognates facilitino il priming del code-switching in questa coppia linguistica, precedentemente non esaminata in questo contesto. 28 parlanti nativi italiani che usano l'inglese quotidianamente hanno partecipato all'esperimento. I risultati hanno mostrato un forte effetto di priming di code-switching, come ipotizzato; tuttavia, i partecipanti hanno inaspettatamente code-switchato in misura significativamente maggiore nella condizione delle parole di controllo (ovvero, in frasi contenenti parole che non si sovrappongono né in forma né in significato nelle due lingue) rispetto

alla condizione cognates. Questo risultato, che contrasta con la letteratura precedente, potrebbe essere una conseguenza dei meccanismi inibitori rimasti attivi durante tutto l'esperimento. Questi processi di controllo linguistico hanno reso il passaggio da una lingua all'altra particolarmente impegnativo, inducendo i cognates, invece che a facilitare la transizione da una lingua all'altra, a favorire il mantenimento della lingua utilizzata dall'inizio della frase.

Zusammenfassung auf Deutsch

In einer zunehmend vernetzten Welt sind Zwei- und Mehrsprachigkeit zu charakteristischen Merkmalen der Gesellschaft geworden und das Phänomen des Code-Switchings spielt heutzutage eine wesentliche Rolle im täglichen Leben, so dass die Erforschung dieses Thema unerlässlich ist. Aus Korpusstudien geht hervor, dass Code-Switching durch Priming-Mechanismen und durch Kognaten – zwei Wörter in zwei verschiedenen Sprachen, die dieselben Form und Bedeutung haben – verstärkt wird. Kootstra et al. (2020), eine der wenigen experimentellen Studien zum spontanen Code-Switching, haben herausgefunden, dass Code-Switching-Priming in zweisprachigen Dialog zwischen Niederländisch und Englisch durch Kognaten erleichtert wird. Aufbauend auf diesen Ergebnissen haben wir ihre Studie in italienisch-englischen zweisprachigen Dialog repliziert, um zu untersuchen, ob Kognaten das Code-Switching-Priming in diesem Sprachenpaar erleichtern, was in diesem Kontext bisher nicht untersucht wurde. 28 täglich englischsprechende italienische Muttersprachler haben an dem Experiment teilgenommen. Die Ergebnisse zeigten ein starkes Code-Switching-Priming Effekt, wie wir hypothesiert hatten; Die Teilnehmer code-switchten jedoch unerwartet deutlich häufiger in der Kontrollwörtern-Kondition (in der Sätze aus Wörtern bestanden, die sich in den beiden Sprachen weder in Form noch in Bedeutung überschneiden) als in der Kognaten-Kondition. Dieses Ergebnis, das im Gegensatz zur bisherigen Literatur steht, könnte auf das Zusammenspiel von Hemmungs- und Konflikt-Überwachungs-Mechanismen zurückzuführen sein, die während des gesamten Experiments wirksam waren. Diese Mechanismen machten den Sprachwechsel besonders schwierig und führten dazu, dass die Kognaten den Übergang zwischen den Sprachen nicht erleichterten, sondern die Beibehaltung der zu Beginn des Satzes verwendeten Sprache begünstigten.

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INTRODUCTION

In our modern, interconnected world, the ability to speak and understand multiple languages has become vital. Whether it's switching between languages in conversations with friends, in multicultural environments, using different languages at work, bi- and multilingualism are a part of our daily lives. What permits us to navigate this multilingual reality is the cognitive mechanism of code-switching, that allows us to go from speaking one language to speaking another one within one conversation or a singular sentence.

In this study, we investigated the role of interaction and of a specific category of words on the way we transition from a language to another. While it has been proven that, while interacting, we tend to align and replicate the linguistic choices of the person we are interacting with, cognates, words that have the same orthographic or phonologic form in more than one language, have been proven to facilitate this 'aligning' effect. These phenomena are known as, respectively, Interactive Alignment effect and Lexical Triggering effect of code-switching.

Code-switching is a natural discourse phenomenon that is pervasive in the linguistic experience of bi- and multilingual individuals. It has been studied across various disciplines, particularly in psycholinguistics, as it offers a unique opportunity to investigate language co-activation, revealing how the languages we know interact not only during production but also during comprehension. Models of bi- and multilingual language processing should be able to account for this phenomenon, as it provides valuable insights into the mechanisms underlying multilingual production and comprehension, ultimately helping us understand how language is organized in our brain.

With our experiment, we contributed to this still novel research field. The structure of this Master Thesis is organized as follows: In Chapter 1, I will introduce the literature that provides evidence for the aforementioned phenomena and motivates our study; In Chapter 2, I will give a detailed description of the methodology of our investigation; Chapter 3 will report the

results of the experiment and of the questionnaires; In Chapter 4, I will discuss the results reported in Chapter 3 and propose insights for eventual follow-ups.

CHAPTER 1

Literature Review

This chapter provides an overview of the phenomenon of code-switching and its triggering sources. Firstly, I will delve into the nature of the phenomenon and the approaches in which it has been investigated so far in psycholinguistics. More specifically, I will discuss the aspects that are believed to have an influence on the patterns in which code-switching (CS) appears in dialogue: A specific word category, namely the cognates, and Interactive Alignment, a mechanism put into act by interlocutors in dialogue. Secondly, I will go into more detail illustrating the study conducted by Kootstra et al. (2020). Their study on the Lexical Triggering effect and influence of Interactive Alignment on code-switching behavior represents the starting point of the present investigation.

1.1. What is Code-switching?

The term 'code-switching' refers to the use of two different languages within a single conversation or even within a single sentence. In the past decades, this phenomenon has become more and more frequent in natural discourse, as the number of bilingual individuals in our society increases more and more quickly. Being CS a typical trait of bilingual dialogue, it is of fundamental importance to investigate it for two reasons. To begin with, understanding the causes that lead to it could be determinant in defining a model of bi- and multilingual

production and comprehension processes. Furthermore, exploring the foundations of this mechanism can enhance our understanding of language organization in the human mind and its interaction with other cognitive abilities, such as cognitive control. In this paper, I will focus predominantly on what aspects of language (from the characteristics regarding the linguistic habits of the speaker to the linguistic features of conversation itself, like word categories) can trigger CS in bilingual dialogue. However, as it will be evident throughout the paper, it must not be forgotten how other cognitive mechanisms play a determinant role in the way we use language every day.

Code-switching can define quite a vast range of patterns. It can be spontaneous, namely 'internally generated', or forced by other factors, like changing the interlocutor one speaks to, thus being 'externally induced' (G. J. Kootstra et al., 2020). Moreover, it can happen within the production or comprehension of a singular utterance (intrasentential code-switching) or between one sentence and another, where a sentence is uttered in one language and the following in a different one (intersentential code-switching) (Zirker, 2007). The latter can happen both within speaker, that is in production, and between speaker, thus when the speaker comprehends in one language and later utters in a different one.

The most interesting case of code-switching, for the purposes of the present research, is the case of internally generated CS. It is in fact one of the goals of this investigation to delve into the aspects that trigger the spontaneous transition from one language to another. CS represents clear evidence of the activation of two distinct languages in the speaker's mind during processing (Hartsuiker & Pickering, 2008; Jiang, 2015; Kroll et al., 2006). What remains less clear, however, is what prompts a switch to a different language than the one previously used, even when it is not required by the context. Thus, the question arises: What aspects of conversation lead to code-switching in bilingual dialogue?

A strong hypothesis in the literature is that particular categories of words may be able to provoke or facilitate the transition from one language to another (Broersma et al., 2020; Broersma & De Bot, 2006; Clyne, 1980). In the next section, in fact, I will delve into the Lexical Triggering Hypothesis, how it was formulated on the base of corpora studies and later tested experimentally.

Nonetheless, many factors can come into play when we plan our speech: It is not just about what we want to say, but also about the person we are interacting with. Therefore, not only purely linguistic factors, but social factors as well are determinant when it comes to internally generated code-switching. Interactive Alignment is the tendency of speakers to 'align' with each other on all linguistic levels. That is, speakers try to adjust their linguistic behavior to the one of their interlocutors, in order to achieve successful communication (Pickering & Garrod, 2004). This phenomenon, which is driven by the priming mechanism (Pickering & Garrod, 2004), is therefore a fundamental aspect when it comes to studying dialogue, in all its facets. In section 1.3, I will delve into the role of Interactive Alignment in code-switching.

1.2. Sources of Code-switching Triggering: The Lexical Triggering Hypothesis According to the Lexical Triggering Hypothesis of code-switching (Broersma et al., 2020; Broersma & De Bot, 2006; Clyne, 1980) there are specific categories of words that trigger or facilitate the access to another language, thus leading the speaker to switch from one language to another. In the original version of the hypothesis, Clyne (1980) had included, between the trigger words, loanwords, proper nouns and bilingual homophones. However, literature has later

demonstrated that cognates, words that share the same etymology in different languages and the same or very similar phonological features, represent the category of words that seems to have the greatest triggering potential (Broersma et al., 2009; G. J. Kootstra et al., 2020). Clyne (2003) initially observed how code-switches often seemed to occur in sentences that contained cognates in spontaneous speech of immigrant multilingual populations. Broersma & De Bot (2006), however, provided the first statistical evidence of the triggering effect of cognates analyzing a corpus of Moroccan Arabic-Dutch bilinguals' conversational speech, where they found that code-switching was significantly more likely to happen right after a cognate word. Based on their findings, the authors suggested that selecting a cognate from the mental lexicon would enhance the activation of the non-target language (the language not initially chosen for the sentence).

It is widely accepted that, in bilinguals, lexical representations of both languages are continuously activated, even when the speaker is using only one of their languages. (Abutalebi & Green, 2007; Costa & Caramazza, 1999; Costa & Santesteban, 2004; Green, 1998). Moreover, the majority of language processing models presume that multilingual lexicon incorporates all the word meaning and form representations from all the languages known by the speaker (Dijkstra et al., 2019; van Hell & Dijkstra, 2002). Therefore, processing a cognate involves the activation of its lemmas in all the languages known by the speaker. This activation at the lemma level then spreads to the cognate's word form representations in both languages, with the activation of the word forms' overlapping parts being reinforced from the activation of both lemmas. The similarity of the word forms thus boosts the activation of the cognate's phonological representations. It has been suggested that lemmas of words sharing form features receive extra activation thanks to these feedback loops (Bernolet et al., 2012; Declerck & Philipp, 2015). As a result, the cognate's lemmas gain enhanced activation from both word forms. Moreover, literature provided evidence that cognates are more closely linked at the conceptual level than non-cognates (de Groot & Nas, 1991; Hell & Groot, 1998; van Hell & Dijkstra, 2002). Hence, when one lemma of a cognate is activated, the activation may spread to the other lemma not only via the word representations and the feedback loops, but via the conceptual level as well, increasing the activation of the second language network and facilitating transitioning from one language to another (Broersma & De Bot, 2006). Further support for this hypothesis is offered by Kootstra et al. (2020), which will be discussed in more detail in section 1.4. Kootstra and colleagues did not find, in fact, any facilitatory effect of false friends on code-switching (on the contrary of cognates), thus suggesting that meaning overlap is a necessary condition of trigger words in order to increase the activation, namely the probability, of transitioning to the second language.

Figure 1. Schematic diagram of how Spanish-English bilinguals name pictures in Spanish by Costa et al. (2005). (A) illustrates the processing of cognates, while (B) illustrates the processing of non-cognates. The thickness of the lines indicates the strength of activation—either the activation being transmitted between levels (arrows) or the activation achieved by the representations themselves (circles).

These two explanations for the facilitatory effect of cognates on code-switching are not mutually exclusive. In light of Kootstra et al.'s

findings, they likely complement each other and concur in provoking the triggering effect. In any case, it seems that cognates, words that overlap in meaning and phonological form, function as a 'bridge' for activation between languages.

These hypotheses have been tested both through natural language corpora and experimental studies. Firstly, numerous studies in both language production and comprehension confirm the special 'status' of cognate words, consistently showing faster reaction times for cognates compared to non-cognates in both children and adults. This phenomenon is known as the Cognate Facilitation Effect. (Costa et al., 2000; Dijkstra et al., 2010; Duñabeitia et al., 2016; Kroll et al., 2006; Lemhöfer et al., 2004; Poarch & van Hell, 2012). Secondly, focusing specifically on code-switching studies, as aforementioned Broersma & De Bot (2006) found more code-switches in sentences containing language ambiguous words than in sentences non containing them in a corpus of conversations between Dutch/Moroccan-Arabic bilinguals. Subsequently, Broersma et al. (2020) analyzed a large corpus of conversations among Welsh-English bilinguals. The authors found that utterances containing cognates were more likely to involve code-switching and that code-switching was generally more frequent among bilinguals who used a greater number of cognates. This suggests that the cognate triggering effect can influence dialogue on a broader scale, extending beyond the individual sentences containing a specific kind of words. Triggered code-switching findings have been replicated, in corpora studies, for both typologically similar languages, like Dutch and English (Broersma, 2009; Broersma et al., 2009) and typologically distant languages, like Russian and English (Broersma et al., 2009).

Conversely, evidence in experimental studies is more sparse and heterogeneous. The nature of the experimental task is surely at the core of the problem: While in corpus studies, production is completely spontaneous and code-switching can be defined as completely internally generated, in experimental tasks it is not always the case, since many factors have to be manipulated. For example, in Kootstra et al. (2012) participants were asked to describe pictures specifically with code-switched sentences after listening to code-switched prime sentences. The authors found that the participants had the tendency to code-switch at the same position in the sentence as the prime sentence, and this effect was enhanced in trials where cognates were present. In this case, code-switching was forced, but the speakers were left free to decide the position of the sentence where this transition could happen. Nonetheless, can this type of elicited production be compared to natural conversation? Another example of an experimental task used to investigate cognates and their effect on code-switching can be found in Bultena et al.'s (2014) work, who conducted a shadowing task in order to investigate to which extent the switch costs would be influenced by the presence of this special word category. The subjects were presented auditorily with a sentence and were asked to start repeating the sentence directly after they started hearing it. The latency between the start of the reproduction by the participant and the start of the recording was considered as a measure of processing time. The authors didn't find any facilitatory effect of cognates in shadowing latencies. Yet, the modality of code-switching in this task cannot be compared to natural conversation, and therefore to corpus examples of internally generated and spontaneous code-switching.

Studying CS and its triggering effects experimentally while trying to maintain ecological validity is, undoubtedly, a great challenge. As Gullberg et al. (2009; 22) stated,

"[...] It is further crucial to stress that different methods and techniques allow different questions to be answered. Depending on whether the focus of interest is on language switching or on CS, on sociolinguistic aspects, grammatical constraints, phonetic properties, development, on-line processing, bilingual memory, the cost of switching, or the neurocognitive underpinnings of CS, different techniques must be employed. The tension between naturalistic, ecologically valid approaches and more artificial, controlled, experimental techniques should be recognized but also be embraced as a source of complementary information rather than as a (false) dichotomy between "good" and "bad" approaches to the study of CS."

It is therefore clear that it is almost impossible to study CS experimentally and be able, at the same time, to compare such data with naturalistic ones. That said, it is of incredible importance to understand on which aspects our investigation is focused, in order to design a task that best fits our purposes while trying to keep all the typical features of natural production intact. This is why, despite some inevitable limitations, we found the confederate's script paradigm used by Kootstra et al. (2020) to be an excellent choice among all the experimental paradigms in the literature. In this type of setting, the participant is asked to take part in a dialogue game with another person, who is supposed to be a participant but is, in reality, a 'confederate', whose utterances are manipulated instead. In this way, we can control what one of the two interlocutors will say in order to verify whether certain conditions have an effect on the other interlocutor, the participant. Of course, during natural conversations there are many factors to control for; However, this seems to be a good compromise between control over the variables of interest and ecological validity of the setting where we want to elicit internally generated code-switching.

1.3. Sources of Code-switching Triggering: Interactive Alignment

Before delving into a more detailed description of the study we aimed to replicate, it is important to introduce another fundamental aspect when it comes to the analysis of dialogue, namely Interactive Alignment. As aforementioned in the introductory section of this chapter, dialogue is a communicative event in which two interlocutors interact. The act performed by speakers to coordinate at linguistic levels with each other is thereby an intrinsic characteristic of natural conversation.

Pickering & Garrod (2004) proposed a model for Interactive Alignment (IA) which explains the alignment between interlocutors (in monolingual conversation) at semantic, syntactic, lexical, phonological, and phonetic levels. According to the model, in between-person IA, the representations activated during message comprehension are also triggered during production due to residual activation. Conversely, within-person IA occurs when the activation of certain representations in production is facilitated by the residual activation from previous production.

Figure 2. Representation of the monolingual interactive alignment model conceived by Pickering and Garrod (2004). The image represents the comprehension and production processes of two interlocutors (A and B) of a dialogue. This mechanism, known also as priming, results in a 'representational connection between interlocutors' (G. J. Kootstra et al., 2020, p. 4).

Treffers-Daller (1998) and Fokke et al.'s (2007) provide examples of how a speaker's knowledge about their interlocutor influences code-switching

behavior in general discourse settings. While the former found that Turkish-German bilinguals code-switched more frequently when interacting with a bilingual interlocutor than with a monolingual one, the latter observed that Dutch-English bilinguals code-switched more often when conversing with a confederate they believed to be an exchange student, compared to a confederate they perceived as a monolingual student who did not code-switch. Additionally, Fricke & Kootstra (2016) analyzed the Bangor Miami Corpus (Deuchar et al., 2014), a large corpus of English-Spanish language use. The authors found that a strong predictor of intrasentential code-switching was the preceding utterance. More specifically, if one sentence contained code-switching, the subsequent sentence was highly likely to also feature code-switching. This pattern occurred regardless of whether the preceding sentence was produced by the same speaker or by another speaker and resulted to happen regardless of the presence of lexical overlap between the two utterances. Fricke and Kootstra (2016) interpreted this as clear evidence of the impact of interactive alignment and priming of code-switching.

As suggested by De Bot et al. (2009), multiple factors contribute to provoking code-switches, with the likelihood of lexical triggering of language co-activation increasing when code-switching is already highly probable. Consequently, if interlocutors align their linguistic choices during dialogue and one of these choices involves code-switching, it becomes possible to elicit code-switching in one of the speakers. This creates an environment where the effect of cognates is more likely to be observed.

All of this information can help us solve part of the 'paradigm problem' we faced in the previous section. The Confederate Script paradigm allows us to manipulate dialogue in order to create the conditions we want to test, keeping the setting as natural and spontaneous as possible. However, Interactive Alignment is the mechanism that makes this conversational setting ideal for our purposes, as it should help create, through the manipulations of the confederate's utterances, a situation where code-switching is already elicited through alignment in code-switching behavior of the two interlocutors.

1.4. Kootstra, Dijkstra and Van Hell (2020)

In this paper, we aimed to replicate the study conducted by Kootstra, Dijkstra, and Van Hell (2020). The authors investigated the role of interactive alignment and lexical triggering of code-switching in Dutch-English bilingual dialogue. More specifically, their target population consisted of Dutch native speakers who started learning English in the 5th grade, were consistently exposed to English via popular media and study textbooks and code-switched regularly in their everyday lives. The researchers conducted two different experiments. In both of them, as mentioned in the previous sections, a confederate's script paradigm was used. The participants were told that they would participate in a dialogue game with another participant (the confederate). The game consisted in a picture description game, in which the two participants took turns in describing pictures to each other, with the aim of selecting the picture described by the interlocutor among a selection of four different pictures.

The first experiment had a 2x3 design (Confederate Code-switch x Trigger Word), where the Prime-Target picture pairs were manipulated. The Prime-Target picture pairs were always pictures involving an actor, an action, a patient and a prepositional phrase. The patient (the trigger word) could either be a Dutch-English cognate, a false friend or a control word, and the prime sentence uttered by the confederate could or could not contain code-switching (from Dutch to English) right after the patient, namely in the prepositional phrase. Lexical overlap between the Prime and the Target was present. However,

throughout the trials, it was not always the same parts of the sentence that were repeated. The aim of this experiment was to investigate the Lexical Triggering effect and the influence of interactive alignment in participants' tendencies to code-switch. Kootstra et al. found that participants code-switched significantly more after the confederate also code-switched rather than after the no-code-switch condition and that this effect was enhanced by the presence of cognates in the sentence. Thus, according to their findings, cognates seem to facilitate code-switching rather than trigger it. A context in which code-switching is already likely to occur seems, therefore, to be necessary in order to be able to observe the Lexical Triggering effect. Moreover, overlap both in form and meaning of the trigger words in the two languages seem to be needed as well: No effect of false friends was found in any of the code-switching conditions.

The second experiment wasn't designed with the purpose of investigating the Lexical Triggering effect, but rather the effect of the act of code-switching and of language node activation. The authors used the same paradigm as the first experiment and the characteristics of the participants were very similar to the ones of the participants who took part in the first experiment. However, there were just three conditions: one fourth of the prime sentences were uttered in Dutch, one fourth in English, and the other half of the trials contained code-switching either from English to Dutch or from Dutch to English. In this case, no lexical overlap was present between Prime and Target. The aim of the researchers, in this case, was to investigate whether the code-switching recurring in participants' descriptions was caused by their alignment with the languages used by the confederate (language activation account) or by alignment of the pragmatic act of code-switching (act-of-code-switching account). Even though participants code-switched more frequently than they produced monolingual sentences, they didn't code-switch significantly more when the prime sentence was also code-switched than when it was uttered completely in English. The results were consistent with the language activation account, thus confirming that it is the alignment of the mental representation of the languages and therefore the activation of both languages' nodes that leads to code-switching in target responses.

This study represents one of the most interesting investigations on the role of lexical triggering and interactive alignment on code-switching. According to Kootstra et al.'s (2020) data, code-switching can be primed through alignment of the language representations and this effect seems to be facilitated by the presence of cognates. However, their study focused on Dutch and English, both of which belong to the West Germanic language group. Although corpus studies have identified a Lexical Triggering effect on CS even in conversations between typologically unrelated languages, experimental studies remain sparse, particularly those focusing on typologically distant language pairs, which are virtually nonexistent to my knowledge. This motivates the present investigation on the effect of cognates and interactive alignment in Italian-English bilingual dialogue, a language pair never investigated in the realm of this specific field of psycholinguistic research. In the next chapter, I will delve into the methodology of this study and what are the differences and similarities with the original study on Dutch and English bilingual dialogue.

CHAPTER 2

The present study

In this chapter, I will explore the methodology of this investigation. Specifically, the upcoming sections will address the study's research questions and predictions, the design and preparation of materials, as well as the scoring and analysis methods.

2.1. Introduction

The current study aims at investigating whether Italian-English cognates and code-switching patterns of an interlocutor have an influence on the code-switching behavior of Italian-English late bilinguals. Specifically, the present research addresses two questions:

RQ1: Do Italian-English late bilinguals code-switch more after their conversation partners also code-switch in comparison to when they do not?

RQ2: Does the presence of cognates enhance the code-switching priming effect in Italian English bilingual dialogue?

Building on the findings from Kootstra et al. (2020), we hypothesize that participants will align with their interlocutor's choice of language – specifically, Italian in Italian trials and English and Italian in code-switched trials – and that code-switching will be more frequent in trials containing cognates. This word category, as explained in the previous section, should facilitate the transition from one language to another because of their overlap in form and meaning. In fact, the activation of the common phonological and semantic features should lead to enhanced activation of the non-target language.

More specifically, we predict an increased level of code-switching in participants' utterances following the interlocutor's code-switching, with a significantly higher occurrence of code-switching in trials containing cognates compared to those with control words (non-cognates). Hence, we expect to find the same results as Kootstra et al. (2020) for both research questions. The code-switching priming effect driven by Interactive Alignment should be independent of the specific languages involved. Regarding the Lexical Triggering effect, previous corpus studies have observed it in bilingual dialogue with non-typologically related languages combinations (Broersma et al., 2009), so we expect to find similar evidence in Italian-English bilingual dialogue as well. To investigate these aspects, we employed the same experimental paradigm as Kootstra et al. (2020), namely the confederate's script paradigm.

2.2. Methods

2.2.1. Participants

30 Italian-English late bilinguals participated in this study (mean age = 25.77, SD = 3.90). All of them were native Italian speakers who began learning English from the 5th grade onward. According to the questionnaire, 73.3% of the participants reported a C1 CEFR level, while 13.3% indicated a C2 CEFR level. The remaining 13.3% indicated a B2 CEFR level. Table 1 provides the mean and standard deviation of their self-assessed English proficiency of their speaking, listening, writing and reading abilities. All participants reported frequent use of English throughout the week, in various contexts and for different purposes. Additionally, all reported code-switching in their daily lives, apart from two people. In order to maintain a relatively homogenous sample as far as the code-switching habits are concerned, these two participants were excluded as they reported they never or rarely code-switch. Therefore, the responses of a total of 28 participants were included in the descriptive and statistical analysis.

Mean

SD
 Min.
 Max.
 Speaking
 4,77
 0,77
 3
 6
 Listening
 5,1
 0,84
 3
 6
 Writing
 4,63
 1,07
 2
 6
 Reading
 5,43
 0,77
 4
 6

Table 1. Descriptive statistics of participants' self-assessments of their speaking, listening, writing and reading abilities. They were asked to rate themselves in the aforementioned abilities on a scale from 1 (very weak) to 6 (very good).

2.2.2. Design

In order to investigate the research questions mentioned in the introductory section of this chapter, we adapted the experimental design from Kootstra et al. (2020) to suit the present study's purposes. The experiment employs a 2x2 design, manipulating two independent variables: Confederate's Code-switching (yes/no) and Trigger Word Status (cognate/control), with a total of four conditions. Each item consisted in two pairs of Prime Sentence and Target Picture: one item either contained a cognate or a control word (an Italian word whose translation in English didn't overlap in meaning or form) both in the Prime Sentence and Target Picture. This pair would then appear both in the code-switched and non-code-switched version.

2.2.3. Materials

The materials of this study consist of a questionnaire on the linguistic profile of the participants, the sentences and pictures created for the dialogue game and a debriefing questionnaire submitted at the end of the experiment.

2.2.3.1. Questionnaire on the linguistic profile

The questionnaire (available in Appendix A) was implemented on the platform Google Forms and contained questions on the linguistic profile, their use of the English language and code-switching habits of the participants.

The section on English use included questions about the Age of Acquisition, the age at which participants achieved proficiency in English, and a self-assessment of their English skills in speaking, listening, reading and

writing. The code-switching section provided an explanation of what CS is and included questions about the frequency and contexts in which participants normally code-switch, both between languages they know and between Italian and English. Participants were also asked in which direction they usually code-switch, when it comes to Italian and English, and the motivations that normally prompt them to transition from one language to another.

2.2.3.2. Experimental Stimuli

The structure and main characteristics of the experimental stimuli were inspired by the experimental stimuli used in Kootstra et al. (2020). As said in the previous sections, an item consisted of a Prime Sentence - Target Picture pair. The pairs were arranged as follows: Each Prime Sentence described a picture with a character, performing a specific action to an object, in a specific place. The Target Pictures were created in the same way: They all contained a character performing a specific action on an object in a precise setting. There were always 8 possible, easily identifiable characters, 8 possible actions and 8 possible settings. These were showed to the participants during the Familiarization Phase, so that they would be able to identify them during the task. Characters were always human and describable with a determiner and a noun, such as *L'infermiere* - The nurse, *Il pompiere* - The firefighter. Settings were always describable with prepositional phrases, such as *in spiaggia* - at the beach, *in giardino* - in the garden. The 8 characters in the Prime sentences were different from the 8 characters present in the Target Pictures, in order to have more variability during the game and keep the task more interesting. The actions and locations were always the same both in the Primes and the Targets, as they were also the parts of speech that were repeated between the sentences uttered by the confederate and the pictures described by the participants.

As explained previously, the Prime Sentences were sentences that described specific pictures. They were always structured in the following way: Actor + Action + Patient + Location (e.g. *L'insegnante lancia un foglio in salotto*). All the words contained in the sentences and the pictures' target descriptions were not cognates, apart from the Patient (i.e. the object that was subject to the action), which could either be a cognate or a control word. The location (a prepositional phrase) could be uttered by the confederate either in Italian or in English. Therefore, the Patient word status, that from now on I will call Trigger Word category, determined the Trigger Word Condition, while the language in which the location was uttered by the confederate determined the Code-switching Condition of the sentence - picture pair. As anticipated, in order to enhance the code-switching priming effect (G. J. Kootstra et al., 2020; Mahowald et al., 2016), lexical overlap between the Prime and the Target was present in the action performed by the character (the verb used by the confederate and elicited in the participant was the same) and in the location (the prepositional phrase used by the confederate and elicited in the participant was the same).

To ensure that the processing of primes and target sentences remained uncompromised, we aimed for the events depicted in the sentences and pictures to be plausible. Therefore, the selection of verbs, patients, and locations was crucial. To meet this requirement, the verbs chosen were always transitive and commonly used, while the words for the patients consistently referred to objects or animals that could realistically undergo the depicted actions. The locations were also quite generic, yet easily recognizable. The control words used for the patient were always words that were phonologically completely different in Italian and in English. The cognates, on the other hand, were words that are

phonologically very similar in the two languages. We selected cognates that best compromised the phonological similarity and the coherency with the sentence context in which they had to fit. A list of the words and objects used in the prime sentences and target pictures, as the complete list of items, is available in Appendix B.

Once the main characters, verbs, cognate and control words, and the locations were defined, the target pictures were created. The images were created with the Pixton app and Canva app.

In order to obscure the true purpose of the experiment but also activate the English language, as code-switching to English can sometimes feel awkward in dialogue between Italian native speakers, filler sentence-picture pairs were inserted. Filler pictures were displayed in red slides and had different features as the Target Pictures. Filler sentences were always uttered in English by the confederate and had to be uttered in English by the participant as well.

In total, 64 experimental items and 16 fillers were created. Four experimental lists were prepared. Each experimental list contained 48 trials, 16 being fillers and 32 being experimental trials, thus containing 8 experimental trials per condition. Every participant saw one list. In each list, there was never a condition appearing two times in a row, and a filler appeared every two experimental trials. Actions, characters and locations were balanced across conditions. Actions co-occurred an equal number of times with all the locations.

Item No.

Target Word Status

CS by Confederate

Confederate's Prime Sentence

Target Picture17Cognate

Yes

Il nonno raccoglie della frutta in the living room.L'infermiere raccoglie una banana in the living room / in salotto.

[The nurse picks up a banana in the living room.]

No

Il nonno raccoglie della frutta in salotto.

[The grandpa picks up some fruit in the living room.]

19

Control

Yes

Il nonno raccoglie una ciliegia in the bedroom.L'infermiere raccoglie le scarpe in the bedroom / in camera.

[The nurse picks up the shoes in the bedroom.]

No

Il nonno raccoglie una ciliegia in camera.

[The grandpa picks up a cherry in the bedroom.]

Table 2. Two examples of items.

2.2.3.3. Debriefing Questionnaire

The debriefing questionnaire was added after the pilot phase was conducted in order to gain more knowledge about the mechanisms that lead the participants to code-switch. The judgments can often be extremely useful in understanding the reasons underlying the choices made by the participants during the dialogue game. In this questionnaire, participants were asked which language they found easier to speak during the game, what led them to speak in English when it wasn't necessary to (if they did), whether the fact that their interlocutor (the confederate) sometimes uttered the end of the sentence in English influenced them and, if yes, in which way. Finally, they were asked whether there were specific words that induced them to speak English and, if yes, which ones.

2.2.4. Norming Phase

A norming test was conducted to determine whether the scenarios depicted in the sentences and pictures might seem too odd or unrealistic. This test was necessary to ensure that the absurdity of certain events described and represented in the experimental trials would not compromise the processing of the confederate's prime sentences or affect the naturalness with which we intended participants to produce the target sentences.

2.2.4.1. Methods

To assess the oddness of the events depicted in the items, a questionnaire was administered remotely via Google Forms to 19 native Italian speakers recruited through personal contacts and social media. Participants, who remained anonymous, were asked to rate a series of statements on a Likert scale ranging from 1 (totally unrealistic event) to 7 (totally realistic event). In the section dedicated to the instructions (available in Appendix D), they were provided with two examples of what is considered as an impossible event and what can be considered as a fully possible and realistic event. After rating the sentence, they also had the possibility to comment with any observation they believed could be useful to improve it. Two lists were created, because of the high number of items, with the sentences we had created for the primes and the target sentences that we wanted to elicit in the participants with the target pictures, all in a random order. Each participant saw one list. Of course, we didn't include the code-switched versions of the items, as the main goal of this phase was to rate the plausibility of the scenario described from the sentence. Every list contained 72 sentences in a randomized order, 8 of which were filler sentences, to make sure that the participants remained focused throughout the entire task. This kind of sentences described impossible events, such as *I pesci lanciano una palla in biblioteca*², and were used to set the parameter for completely unrealistic events.

2.2.4.2. Results

Table 3 represents the list of items tested during the norming phase, along with the mean and standard deviation of the participants' judgments, categorized by their status as either primes or targets. The overall mean for both primes and targets is positive (4.87 for primes and 4.35 for targets) and exceeds the established threshold of 3.5, which we set to determine whether an item is considered realistic enough. Sentences that received ratings below 3.5 included

the prime and target of Item 2, the prime of Items 5, 14, 16, 17, 21, and 22, and the targets of Items 10, 13, 22, 23, 24, 25, 27, 33, 35, 37, 38, 39, 50, and 52. To enhance the realism of these items, we made a few key adjustments. Firstly, we replaced the characters 'La strega' (The witch), 'Il commesso' (The salesman), 'L'avvocato' (The lawyer) with 'La nonna' (The grandma), 'Il ragazzo' (The boy) and 'Il nonno' (The grandpa), figures that are less distinctive but still recognizable when introduced during the familiarization phase. Secondly, we substituted certain cognates and control words with terms better suited to the context. For cognates, 'artista' (artist), 'treno' (train), 'tigre' (tiger), 'dinosaur' (dinosaur), and 'riso' (rice) were replaced with 'biscotto' (biscuit), 'dizionario' (dictionary), 'pera' (pear), 'braccialetto' (bracelet), and 'vaso' (vase). Control words 'cucchiaino' (spoon), 'anguria' (watermelon), 'pane' (bread), 'torta' (cake), 'piuma' (feather), 'serpente' (snake), 'coperta' (blanket), 'valigia' (suitcase), and 'nastro' (ribbon) were swapped out for 'gesso' (piece of chalk), 'asciugamano' (towel), 'legna' (wood), 'bicchiere' (glass), 'foglio' (sheet of paper), 'gelato' (ice cream), 'specchio' (mirror), 'scarpe' (shoes), and 'topo' (mouse). These changes were implemented to create scenarios that were more plausible and realistic.

Primes

Targets

Item No.	
Sentence	
Mean	
SD	
Sentence	
Mean	
SD	
1	
	La cameriera mangia la menta in spiaggia.
	5,64
	1,23
	La bambina mangia una banana in spiaggia.
	6,50
	0,76
2	
	La cameriera indica una tigre in spiaggia.
	3,27
	2,26
	Il poliziotto indica un artista in spiaggia.
	2,75
	2,12
3	
	La cameriera mangia un panino nel bosco.
	6,09
	1,32
	La bambina mangia un mirtillo nel bosco.
	6,75
	0,71

4
La cameriera indica un tappeto nel bosco.
4,18
2,35
Il poliziotto indica un mirtillo nel bosco.
7,00
0,00
5
La cameriera lava una tigre in spiaggia.
2,27
1,52
La regina lava un ombrello in spiaggia.
3,63
2,56
6
La cameriera raccoglie la menta in spiaggia.
4,09
2,38
L'infermiere raccoglie una birra in spiaggia.
5,00
1,77
7
La cameriera lava un tappeto nel bosco.
3,55
1,9
La regina lava un cucchiaio nel bosco.
4,88
2,10
8
La cameriera raccoglie un panino nel bosco.
4,91
1,75
L'infermiere raccoglie un cucchiaio nel bosco.
5,63
2,13
9
L'insegnante porta una zuccina in cucina.
5,91
1,52
Il pompiere porta un ombrello in cucina.
6,25
0,89
10
L'insegnante lancia una zuccina in cucina.
5,45
1,65
La strega lancia una rosa in cucina.
2,88
2,23
11
L'insegnante porta una piuma in biblioteca.
5,82
1,1

Il pompiere porta una borsa in biblioteca.

6,00

1,60

12

L'insegnante lancia una piuma in biblioteca.

4,73

1,95

La strega lancia una tazza in biblioteca.

2,75

2,12

13

L'insegnante vede del sale in cucina.

6,73

0,63

La regina vede una rosa in cucina.

6,38

1,19

14

L'insegnante calcia del sale in cucina.

2,82

1,89

La cantante calcia una birra in cucina.

4,63

2,13

15

L'insegnante vede un serpente in biblioteca.

4,45

2,22

La regina vede una tazza in biblioteca.

6,00

1,85

16

L'insegnante calcia un serpente in biblioteca.

2,45

1,7

La cantante calcia una borsa in biblioteca.

4,38

1,77

17

Il commesso raccoglie una patata in biblioteca.

3,45

1,51

La cantante raccoglie una banana in biblioteca.

4,00

1,69

18

Il commesso mangia una patata in biblioteca.

4,27

1,83

Il re mangia un limone in biblioteca.

4,75

1,49

19

Il commesso raccoglie una ciliegia in camera.

5

1,33

La cantante raccoglie un'anguria in camera.

3,50

1,85

20

Il commesso mangia una ciliegia in camera.

6,54

0,7

Il re mangia un pollo in camera.

5,13

2,36

21

Il commesso indica un dinosauro in biblioteca.

3,27

2,06

Il pompiere indica un limone in biblioteca.

3,50

2,07

22

Il commesso lava un dinosauro in biblioteca.

1,54

1,26

La strega lava un artista in biblioteca.

2,13

1,81

23

Il commesso indica una maglietta in camera.

6,18

1,06

Il pompiere indica un pollo in camera.

3,13

2,03

24

Il commesso lava una maglietta in camera.

4,72

2,21

La strega lava un'anguria in camera.

1,75

1,16

25

L'avvocato calcia una penna in camera.

5,36

1,58

La strega calcia una sigaretta in camera.

2,25

1,83

26

L'avvocato porta una penna in camera.

6,82

0,42

L'infermiere porta un calendario in camera.

6,63
1,06
27
L'avvocato calcia una macchinina in salotto.
5,36
1,43
La strega calcia del pane in salotto.
2,75
1,75
28
L'avvocato porta una macchinina in salotto.
5,18
2,64
L'infermiere porta un cuscino in salotto.
6,63
1,06
29
L'avvocato lancia una racchetta in camera.
5,18
1,69
La cantante lancia un calendario in camera.
5,63
1,69
30
L'avvocato vede una racchetta in camera.
6,45
0,97
Il re vede una sigaretta in camera.
6,00
1,77
31
L'avvocato lancia un quaderno in salotto.
6,55
0,52
La cantante lancia un cuscino in salotto.
6,50
1,07
32
L'avvocato vede un quaderno in salotto.
6,91
0
Il re vede del pane in salotto.
5,38
1,77
33
La signora lava un robot in salotto.
3,73
1,9
Il re lava un treno in salotto.
1,63
1,77
34
La signora raccoglie un robot in salotto.

5
2,21
Il poliziotto raccoglie una carota in salotto.
5,50
1,69
35
La signora lava un vestito per strada.
4,45
1,89
Il re lava una pentola per strada.
2,13
2,03
36
La signora raccoglie un vestito per strada.
5,72
1,51
Il poliziotto raccoglie una torta per strada.
5,50
1,51
37
La signora mangia il riso in salotto.
6,82
0,42
La strega mangia una carota in salotto.
3,25
2,31
38
La signora indica il riso in salotto.
5,27
2,1
L'infermiere indica un treno in salotto.
2,50
2,00
39
La signora mangia un pomodoro per strada.
6
1,1
La strega mangia una torta per strada.
3,38
2,56
40
La signora indica un pomodoro per strada.
5,54
1,72
L'infermiere indica una pentola per strada.
4,00
1,93
41
La calciatrice vede una coppa per strada.
6
1,66
L'infermiere vede una candela per strada.
5,38

1,41

42

La calciatrice calcia una coppa per strada.

4,36

1,62

La bambina calcia un microfono per strada.

4,88

1,55

43

La calciatrice vede una coperta in spiaggia.

6,45

0,7

L'infermiere vede un orologio in spiaggia.

5,25

2,43

44

La calciatrice calcia una coperta in spiaggia.

4,91

1,69

La bambina calcia degli occhiali in spiaggia.

6,88

0,35

45

La calciatrice porta un telefono per strada.

5,36

2,3

Il re porta un microfono per strada.

4,38

1,69

46

La calciatrice lancia un telefono per strada.

5,73

1,26

Il poliziotto lancia una candela per strada.

4,13

1,73

47

La calciatrice porta un calzino in spiaggia.

6,18

1,62

Il re porta degli occhiali in spiaggia.

6,13

2,10

48

La calciatrice lancia un calzino in spiaggia.

5,82

1,4

Il poliziotto lancia un orologio in spiaggia.

4,88

1,96

49

L'investigatrice indica della frutta in giardino.

6,18

0,92

La cantante indica un elefante in giardino.

6,88

0,35

50

L'investigatrice lava una giacca in giardino.

5

1,89

La bambina lava un elefante in giardino.

3,00

2,07

51

L'investigatrice indica i funghi in cucina.

6,36

1,35

La cantante indica una sedia in cucina.

5,88

1,36

52

L'investigatrice lava una valigia in cucina.

4,09

1,37

La bambina lava una sedia in cucina.

2,63

1,85

53

L'investigatrice raccoglie una giacca in giardino.

6,82

0,42

Il pompiere raccoglie la cioccolata in giardino.

5,25

1,83

54

L'investigatrice mangia della frutta in giardino.

6,36

1,07

La regina mangia la cioccolata in giardino.

7,00

0,00

55

L'investigatrice raccoglie una valigia in cucina.

6,64

0,7

Il pompiere raccoglie una mela in cucina.

4,00

1,93

56

L'investigatrice mangia i funghi in cucina.

6,27

1,26

La regina mangia una mela in cucina.

7,00

0,00

57
Il falegname lancia una torcia nel bosco.
6,18
1,03
La bambina lancia una foto nel bosco.
5,25
1,58
58
Il falegname vede una torcia nel bosco.
6,09
0,99
Il pompiere vede una radio nel bosco.
5,13
1,36
59
Il falegname lancia un cappello in giardino.
6,55
0,7
La bambina lancia un libro in giardino.
6,88
0,35
60
Il falegname vede un cappello in giardino.
6,91
0
Il pompiere vede un regalo in giardino.
6,13
1,73
61
Il falegname calcia una tenda nel bosco.
3,64
1,17
Il poliziotto calcia una radio nel bosco.
3,75
2,43
62
Il falegname porta una tenda nel bosco.
6,36
1,58
La regina porta una foto nel bosco.
4,88
1,81
63
Il falegname calcia un nastro in giardino.
4,82
1,75
Il poliziotto calcia un regalo in giardino.
4,50
1,60
64
Il falegname porta un nastro in giardino.
6,36
1,35

La regina porta un libro in giardino.

6,88

0,35

Overall mean

Overall SD

Overall mean

Overall SD

4,87

2,21

4,35

2,39 Table 3. List of the items tested in the norming phase.

Following the aforementioned changes, adjustments were made to the associations between characters, actions, patients, and locations to improve the events. Despite these improvements, two sentences with a low mean score remained unchanged, namely *L'insegnante calcia del sale in cucina*³ and *Il re lava una pentola per strada*⁴. However, since the scoring of the remaining sentences was good, we did not apply changes to the elements of these sentences, since that would have required modifying other sentences with the same components, which could have disrupted the balance. Therefore, for counterbalancing purposes, we kept these two sentences unchanged.

2.2.5. Procedure

First, participants were provided with the consent form (available in Appendix E) and a linguistic profile questionnaire, both administered via Google Forms. Each participant received a unique ID after signing the consent form, which they had to provide at the beginning of the questionnaire. Once the questionnaire was completed, participants were instructed to carefully follow the instructions that the experimenter would provide them with. They were informed that they would be participating in a dialogue game with the experimenter, taking turns to describe pictures. They could participate in the experiment either in person (in a quiet, empty room) or online via the Google Meet platform. In both cases, participants received a slideshow containing the game pictures on their laptops and were informed that the confederate would be viewing a complementary slideshow on a separate laptop. If the experiment was conducted in person, the confederate and participant sat across from each other, each facing their own screen, with no opportunity to see each other's display. As the game began, participants were instructed to open the slideshow on their computers and advance through the slides as their turns alternated. They were told they might encounter three types of slides on the screen: pictures with a red background, combinations of either four objects or four pictures, and pictures with a white background. Pictures with a red background had to be described in English. Participants were instructed to describe these pictures in one sentence and, even if they couldn't recall a specific English word, to paraphrase as needed. The key requirement was to speak in English. Pictures with a white background could be described in Italian, English, or a mix of both languages. The only requirement for these descriptions was the structure of the sentence. Participants were instructed to describe the pictures using the following format: Character + Action + Object

(on which the action is performed) + Location. Beyond this guideline, they were encouraged to speak spontaneously and to utter the first thing they had in mind, without overthinking, so as to obtain a more natural answer and not let them focus on whether a code-switched sentence might sound odd in a conversation with a stranger. This approach was based on the understanding that people often feel more comfortable code-switching with friends or acquaintances than when speaking to someone unfamiliar. The third type of slide, namely the combination of pictures, did not require a description and appeared only when it was the interlocutor's turn to describe an image. Participants were instructed that their primary task was to listen carefully to the description and then write down, on a paper sheet they were asked to have at hand or that was provided to them, the number corresponding to the described image or the object mentioned. This task was designed solely to ensure participants paid close attention to the interlocutor's words; Beyond this, it served no actual purpose in the experiment. Participants were then informed that the characters, actions, and scenarios depicted on the white-background pictures would recur throughout the game. To avoid difficulties in retrieving English nouns, the eight characters, actions, and scenarios along with their Italian names and English translations were shown to them before the start of the game.

Following the instruction and familiarization phase, participants completed six practice trials to resolve any potential confusion about how the game worked. The training stimuli were similar to the experimental ones. The confederate always played first, pretending to describe an image by uttering the Prime Sentence. The participant would then write down the number corresponding to the mentioned object or described image. Afterward, the participant would advance to the next slide and describe their (Target) image to the confederate, who would pretend to perform the same task as the participant had done earlier. This process continued in the same manner for the whole experiment.

After the game was concluded, participants were asked to complete a debriefing questionnaire that included questions about their linguistic choices during the experiment. Participants didn't receive any reward for their participation.

2.2.6. Pilot Phase

Following the norming phase, a pilot study was conducted to ensure the recruitment process and experimental procedures were working smoothly. Five participants took part in this phase, signing the consent forms, completing all questionnaires and engaging in the experiment. The procedure and materials used were those described previously. Since the pilot phase proceeded without issues, the data from these five participants were included in the analysis.

2.3. Data Analysis

2.3.1. Scoring

Participants' responses were recorded and transcribed. Each participant's response was scored on the base of the languages present in it. If it contained both English and Italian, it was scored as code-switched; If it was uttered just in Italian or in English, it was scored as not-code-switched. Additionally, a proficiency and a code-switching score were assigned to each participant. The proficiency score was calculated as the average of participants' ratings on a Likert scale from 1 ('very weak') to 6 ('very good') for their abilities in reading, writing, listening, and speaking. The code-switching score was calculated as the mean of the ratings given to their Italian-English

code-switching habits on a Likert scale from 0 (never code-switch) to 4 (constantly code-switch) in four contexts: when speaking with family, with friends, at work and at university. More specifically, the mean was calculated between the ratings for family, friends and the mean between the ratings for work and university.

2.3.2. Statistical analysis

As in Kootstra et al. (2020), a mixed-effects logistic regression analysis was then conducted on the data, using the lme4 package (Bates et al., 2003) with the R version 4.4.1 (R Core Team, 2024). As far as the fixed effects, our predictor variables were Confederate's Code-switching (yes/no) and Trigger Word Category (cognate/control). In the statistical analysis, the predictor variables were named respectively Codeswitching and Trigger, while the dependent variable was named Response. The reference level for the first predictor was "yes" and the reference level for the second predictor was "cognate". Hence, an effect of the trials containing a cognate word in respect to control word trials could be taken as evidence of a Lexical Triggering effect. In the same way, an effect in the trials where the confederate codeswitched in comparison to the trials where the confederate did not code-switch were to be considered as evidence of code-switching priming.

Initially, we ran a full model that included all predictors and their interactions. The model incorporated as random intercepts both participants and items, with Confederate's Code-switching as a random slope for both of them. Additionally, Trigger Word category was modeled as a random slope just for participants, as an item was defined by the category of the trigger word contained in it. Consequently, we proceeded with the simplification of the model and gradually eliminated the random slopes and the interactions. We chose the best fitting models on the base of the AIC (Akaike Information Criterion). Once we identified the two models with the lowest AIC score, we compared them. If the difference was not statistically significant, we would choose the simpler one, just as in Kootstra et al. (2020), since it is supposed to better reflect the data. Naturally, the effects of the predictors were taken as significant if their p-values were below 0.05.

Results

3.1. Questionnaire on the linguistic profile: Results

As mentioned in Chapter 2, participants were all proficient in English and reported code-switching in their daily lives. All of them were monolingual Italian native speakers, apart from two participants who were also native in another language and were, therefore, early bilinguals. As can be seen Figure 3, most of them started learning English between the first and the fifth grade. The majority also stated to have reached a good level in English at an age ranged from 15 to 19 years old (63.3%), while 7 participants (23.3%) achieved good competence in this foreign language in their twenties. Moreover, 43.3% (N=13) of the subjects indicated they had lived in an English-speaking country.

Figure 3. Age of Acquisition of the English language of the participants
As far as the contexts of use of the English language, participants never or rarely speak English in family contexts. However, they use this language for a considerable amount of hours with friends, during their free time and when navigating on social medias (Figure 4). More specifically, they dedicate significant time to reading and writing for university or work, as well as engaging with multimodal content in English, as reported in Figure 5. Therefore, it can be said that the participants who took part in this study regularly produce and comprehend English across various contexts, including outside of academic and professional settings.

Figure 4. Participants' estimate of the amount of hours spent speaking English in different contexts.

Figure 5. Participants' estimate of the amount of hours spent speaking English in specific contexts of comprehension and production.

Another key aspect explored through the questionnaire was the participants' code-switching habits. Overall, the subjects code-switch between the languages they know daily, most of them with a high frequency: 25.6% of our sample reported code-switching constantly, 46.2% often, 28.2% at times. Similarly, participants code-switch relatively frequently on a daily basis between Italian and English as well (15.8% constantly, 55.3% often, 28.9% at times). As anticipated in section 2.2.1, participants that reported never or rarely code-switching were excluded from the sample for the purposes of the experiment. The reason behind this choice was the fear that they would not code-switch, thus making the code-switching priming and Lexical Triggering effects investigated in this study harder to observe. Our participant group therefore displayed a range in the frequency of code-switching, yet still represented a population typically engaged in code-switching contexts.

However, the most important data, from a descriptive perspective, regards the reasons and contexts where they normally code-switch. As Figure 6 shows, the people that took part to this study seem to code-switch very little in familiar and academic contexts, but quite often when with friends, namely in an informal social environment.

Figure 6. Contexts and frequency of participants' code-switching.
Data on code-switching contexts and frequency are particularly significant when

studying this phenomenon, as it is closely tied not only to conversational and linguistic factors but also to social dynamics. This relationship is clearly illustrated in Figure 6, where a distinction emerges in the frequency of code-switching and the social environments in which it occurs. While code-switching frequency in academic and professional settings can be influenced by the nature of the field or job, responses related to 'family' and 'friends' highlight two distinct register choices based on the status of the people involved in the social interaction. The 'friends' category typically consists of peers, while the 'family' category usually includes older individuals, such as parents, grandparents, and extended family members. This variation in code-switching patterns may reflect the lower integration of the English language in daily life among older generations compared to younger ones. It's also worth noting that our sample is relatively young (mean age = 25.77, SD=3.90).

Another facet of the code-switching habits whose understanding we deemed to be fundamental in order to have a comprehensive picture of the sample tested for this research concerns the direction and motivations of code-switching. In fact, it is extremely important to know from which language to which other language participants code-switch the most, in order to be able to understand the motivations behind the transition from one idiom to the other. In the questionnaire section dedicated to this aspect, 82.1% of the participants indicated that speaking in Italian and pronouncing an English word happens more often than speaking in English and pronouncing an Italian word, while 17.9% indicated that this two situations happen in the same measure. None of the participants stated that they code-switch more often from English to Italian. This data is extremely relevant, as it tells us that most participants code-switch to the weaker language, rather than to the strongest, thus suggesting that the kind of code-switching our participants refer to in the previous questions does not happen because of word retrieval difficulties in English, but word retrieval difficulties in Italian, the dominant language.

In order to gain a more detailed insight on the reasons that typically prompt participants to code-switch, a more specific question was added to the questionnaire.

Figure 7. Participants' most and less frequent motivations for code-switching. More specifically, participants answered the question 'On average, why do you code-switch?' and indicated the frequency in which they code-switch for each of the possible reasons indicated in the questionnaire.

Participants were asked how often they code-switch for each of the four primary reasons listed and shown in Figure 7. As the figure shows, the most common reason for code-switching seem to be word retrieval difficulties (Because I can't think of a specific word in a certain language), while the less common one seems to be motivations related to language-specific expressions or words existing just in one language (Because that word/expression is not present in the language in which I am speaking). However, all the four enlisted motivations seem to have been rated more or less equally, thus indicating that they all concur to causing code-switching in participants' daily life.

3.2. The Experiment: Results

No Code-switching by Confederate

Code-switching by Confederate

Response

Cognate

Control

Cognate	
Control	
Total	
Code-switched	
68	
76	
91	
106	
341	
English	
87	
70	
83	
80	
320	
Italian	
84	
93	
65	
54	
296	
Total	
239	
239	
239	
240	
957	

Table 4 reports the number of code-switched sentences, sentences uttered entirely in English and sentences uttered entirely in Italian per each condition. All participants always used the target structure of the sentence.

Table 4. Number of code-switched, English and Italian responses per condition. Just three trials had to be excluded because they were either incomplete or didn't contain the target cognate word. In two trials, participants didn't produce the target cognate, but still produced, technically, a cognate word *gioiello* (jewel) instead of *braccialetto* (bracelet), flower (uttered in English, Italian translation would be: *fiore*) instead of *rosa* (rose). Therefore, they were included in the analysis. In total, the analysis was conducted on 957 trials. The number of code-switched responses is greater in the Confederate's Code-switching condition in comparison to the Confederate's Not-Code-switching condition. Moreover, it can be noticed that the number of responses uttered completely in Italian decreases in the Confederate's Code-switching condition.

Figure 8 shows the proportion of code-switched responses in each of the four conditions. As the data of Table 4 anticipated, it is evident that code-switching in participants' utterances increases after the confederate also code-switched, both in the Control and in the Cognate condition. This result is further confirmed by Figure 9.

Figure 8. Proportion of Code-Switched responses by Trigger Word Category and Confederate's Code-switching Condition.

Figure 9. Proportion of Code-Switched responses by Confederate's Code-switching

Condition.

However, Figure 10 shows another interesting yet unexpected result. Code-switching in participants' responses seems to increase in trials containing control words.

Figure 10. Proportion of Code-Switched Responses by Trigger Word Category Condition.

As mentioned in the previous chapter, scores for proficiency and code-switching level were assigned to each participant as well, corresponding to the averages of participants' ratings for English proficiency in speaking, listening, writing and reading and the ratings for code-switching frequency in family, friends, work and university settings. Figure 11 and Figure 12 show the scatter plots and correlations for the proportion of code-switched responses by, respectively, the proficiency and daily code-switching scores. As it can be observed, the correlations are quite small (0.3 for Proficiency and -0.09 for Daily Code-switching) and the distribution is quite sparse.

Figure 11. Proportion of Code-Switched Responses by Proficiency.

Figure 12. Proportion of Code-Switched Responses by Daily Amount of Code-switching.

This may be due to the limited variation in proficiency levels and daily code-switching habits within our sample. Additionally, the number of participants in our study can be considered relatively small.

Following a descriptive observation of the data, a statistical analysis was conducted to determine whether the number of code-switched responses in the Confederate's Code-switching and Cognate Trigger Word Category conditions was significantly higher than the number of code-switched responses in, respectively, the Confederate's Not-Code-switching and Control Trigger Word Category conditions. The best fit model, summarized in Table 5, resulted to be the one containing the formula $\text{Response} \sim \text{CodeSwitching} + \text{Trigger} + (1 | \text{Participant}) + (1 | \text{ItemNo})$.

```
Estimate
Std. Error
z-value
p-value
(Intercept)
-1.3228
0.4440
-2.980
0.00289 **
CodeSwitchingYes
0.7189
0.1772
4.056
4.99e-05 ***
TriggerCognate
-0.3986
0.1990
```

-2.002

0.04524 *

Table 5. Fixed effects of the best fit generalized linear mixed model.

The model's total explanatory power is substantial (conditional $R^2 = 0.59$). Within this model, the effect of CodeSwitching [Yes] is statistically significant and positive (beta = 0.72, 95% CI [0.37, 1.07], $p < .001$), meaning that participants code-switched significantly more when the confederate also code-switched. The effect of Trigger [Cognate] is also statistically significant and negative (beta = -0.40, 95% CI [-0.79, -8.45e-03], $p = 0.045$), meaning that in trials containing control words participants code-switched significantly more than in trials containing cognates. This result confirms that the observation made when looking at Figure 10.

3.3. The Debriefing Questionnaire: Results

24 participants completed the debriefing questionnaire, as this phase of the study was introduced after the pilot. Though it is not comprehensive of all the participants that participated in the experiment, these results can still be revelatory about the mechanisms that underlied participants linguistic choices during the experiment.

At the question about which language was easier to speak during the game, the 70.8% of the participants stated that sometimes it was easier in English, sometimes in Italian, while the 25% stated that English was their preferred language during the game. For just one participant (4.2%) it was easier to speak just in Italian. 75% of the participants stated that the fact that the confederate's utterances sometimes ended in English influenced them to start the following utterance in English and/or repeat the location in English. Most of the participants that did not feel influenced by the utterances of the other interlocutor (25%) stated that it was easier to speak English throughout the whole experiment because of the images that had to be uttered mandatorily in English. Some of them made this choice at the beginning of the experiment and never code-switched during the game. Lastly, participants were asked whether there were words that they thought induced them to speak English. Apart from five participants (20.8%), who didn't recall particular words inducing them to speak in their weaker language, 58.8% reported being particularly inclined to utter, in general, the characters in English. The observation of this pattern prompted a more detailed analysis of the dataset, revealing that the characters most frequently spoken about in English were the fireman, policeman, and nurse, an aspect already evident during the data collection phase. More specifically, the character fireman was mentioned in English in 83.9% of code-switched sentences involving that character, policeman in 75%, and nurse in 80.5%. Overall, in code-switched sentences, the actor was mentioned in English 63% of the time, the action 22.1%, the patient 31.2%, and the noun in the prepositional phrase 53.9%. In particular, 75.2% of the prepositional phrases uttered in English in code-switched sentences were uttered after the confederate had also code-switched (namely, had uttered the prepositional phrase in English as well). As far as the actor noun is concerned, after the confederate had code-switched the character was uttered in English 49% of times.

CHAPTER 4 Discussion

Our research aimed at investigating the effect of cognates and code-switching priming on code-switching behavior in Italian-English bilingual dialogue. More specifically, our two main research questions were:

RQ1: Do Italian-English late bilinguals code-switch more after their conversation partners also code-switched in comparison to when they do not?
RQ2: Does the presence of cognates enhance the code-switching priming effect in Italian English bilingual dialogue?

Firstly, we predicted to find a code-switching priming effect on participants' dialogue provoked by the confederate's code-switched sentences. Secondly, we expected an enhanced code-switching priming effect in trials containing cognate words, namely words that share phonological form and meaning in Italian and English. Both predictions were made on the basis of the study by Kootstra et al. (2020), which found evidence of participants' Interactive Alignment with the code-switching behavior of the confederate. Specifically, in Kootstra et al.'s study, participants code-switched more when the confederate had code-switched as well, and there was a significantly higher occurrence of code-switching in trials that included cognates. These results support data from corpus studies that found higher likelihood for CS in utterances preceding, following and containing a cognate (Broersma, 2009; Broersma et al., 2009; Broersma & De Bot, 2006). This effect of cognates has been named Lexical Triggering effect, as cognate seem to 'trigger' code-switching. According to this theoretical approach, in fact, words that share phonological and semantic information in two languages increase the likelihood of transitioning from one language to the other, as the cumulative activation of the shared phonological and semantic representations leads to greater activation of the non-target language (Benolet et al., 2012; Declerck & Philipp, 2015).

Our results strongly confirm the first hypothesis, as the data reveals that participants code-switched significantly more in the Confederate's Code-switching condition than in the Confederate's Not-Code-switching condition (0.10, $p < .001$). This provides further evidence for between-interlocutors Interactive Alignment on language choice. In fact, according to our results, the trials where the confederate uttered part of the sentence in Italian and part of it in English led to the activation of both languages during participants' comprehension process.

As reported in section 3.3, prepositional phrases seem to have been particularly influenced by the Confederate's Code-switching condition, as the 75.2% 5 of the location nouns uttered in English were uttered after the conversation partner had produced sentences whose prepositional phrase was uttered in English as well. In fact, the character, despite having been produced in English in code-switched sentences 63% of the time, does not seem to have been influenced by the last language activated in comprehension by the participants, since the amount of times the actor was pronounced in English in the Confederate's Code-switching condition is at chance level (49%). Moreover, the action and the patient were uttered, still in code-switched sentences, substantially more in Italian than in English (respectively, 77.9% and 68.8%).

These results indicate that the lexical overlap of verbs and prepositional phrases between Primes and Targets seems to have had an effect on the code-switching patterns of the participants, as they seem to be the parts of speech that were most uttered in the same language as the prime sentences. However, these are just speculations and a more accurate text analysis would be needed in order to have a clearer picture about the code-switching patterns of our sample.

Altogether, the data from the descriptive textual analysis of participants' utterances, along with the results from the statistical analysis, indicate that a code-switching Interactive Alignment effect occurred during the experiment, providing further evidence from Italian-English bilingual dialogue to the niche of experimental studies in this research area.

While our first prediction is confirmed, the second one is not. In our sample, cognates did not enhance the code-switching priming effect described above. In fact, the enhancement of code-switching that we expected in cognate trials was found, surprisingly, in control trials (0.06, $p = 0.045$). This tendency cannot be ignored, as it resulted to be statistically significant according to the best fit model. Therefore, it must be the consequence of an underlying hidden mechanism.

Control words, namely words that don't overlap in phonological and orthographical form with their translation equivalents, increased the likelihood of code-switching in participants' dialogue. However, before tapping into the hypotheses regarding the reasons behind this phenomenon, it is necessary to take a step back and introduce two concepts that will be fundamental in order to explain our results: the Inhibitory Control Model (ICM) and the cognate inhibition effect.

4.1. The Inhibitory Control Model and the Adaptive Control Hypothesis

According to the Inhibitory Control Model (Green, 1998) and the later developed Adaptive Control Hypothesis (ACH) (Green & Abutalebi, 2013), during language processing bilinguals apply specific language control processes that help inhibit the interferences from the non-target language and monitor conflicts between the target (the language chosen for communication in that context) and non-target language. Depending on the interactional context, different language control processes may or may not be required. More specifically, Green & Abutalebi (2013) propose three different contexts that we may be immersed in in our daily lives: A single language context, a context in which just one language is used; A dual language context, a context in which two languages are used by different speakers in the same environment; A dense code-switching context, a context in which speakers constantly code-switch or adapt words from their native language in the other and vice versa, as their interlocutors can understand both. The authors also identify 8 language control processes that tap in, depending on the communication goal and the prior knowledge the speaker has about the language spoken by the interlocutor in a certain context. In a dense code-switching context, speakers do not have to exercise control over a specific language because they are free to code-switch from one idiom to the other, as their interlocutors understand both. However, in a dual language context, for example, the speaker needs to select the target language depending on the interlocutor they are communicating with. Since the model assumes that all languages known by the speaker are constantly and simultaneously active and their lemmas are always competing for selection, inhibition processes will have to intervene in order to suppress the activation of the non-target language and favor, in this way, the activation of the target one. The more a speaker is

dominant in a certain language, the greater will be the amount of activation of that language. The greater is the amount of activation of a language, the greater will be the cognitive load needed by the control processes in order to inhibit that language. This model is supported by evidence of greater switching costs (measured as the difference between response times after a switch and response times after trials that don't imply switching) when transitioning from the L2 to the L1 rather than in the opposite direction in low-proficient bilinguals. This pattern is often described as asymmetry of the language switching costs (Bonfieni et al., 2019; Costa et al., 2006; Costa & Santesteban, 2004; Ma et al., 2015; Meuter & Allport, 1999). Given that the L1 is typically the dominant language, it is also likely to be the most activated language, necessitating a greater degree of inhibition. Switching from an L2 to an L1, as posited by the ICM, entails inhibiting the already activated L2 while de-inhibiting the previously suppressed L1. Compared to the reverse transition from L1 to L2, the L2-to-L1 switching process demands greater cognitive resources in unbalanced bilinguals, since the de-inhibiting and re-activating process of an L1 involves more cognitive effort than the effort that the corresponding L1-to-L2 switch would require.

4.2. The Cognate Inhibition Effect

The cognate inhibition effect is an effect less commonly found in the part of literature that investigates this special word category and stands in opposition to the cognate facilitation effect briefly cited in Chapter 1.

In fact, most of the literature reports evidence of cognate facilitation effect both in comprehension and production studies: cognates lead to faster reaction times in picture naming tasks (Christoffels et al., 2007; Costa et al., 2000; Verhoef et al., 2009), translation tasks (Christoffels et al., 2006; Kroll & Stewart, 1994) and lexical decision tasks both in L1 and L2 (Dijkstra et al., 1999; Lemhöfer & Dijkstra, 2004; van Hell & Dijkstra, 2002) in comparison to non-cognates. There is general consensus on imputing this processing advantage to the increased activation caused by their similarity at the word form level. In fact, both in comprehension and production, the overlap of a cognate's word form representations should lead to increased activation of both lemmas in the two languages.

However, there are also studies that observed slower naming latencies for cognates than for non-cognates in mixed language naming tasks (Broersma et al., 2016; Filippi et al., 2013), identifying this result as a consequence of a cognate inhibition effect. In particular, Filippi et al. (2013), who conducted a study using the naming task paradigm, reported not only general slower response times when switching from a less proficient L2 (English) to the dominant L1 (Italian), but also significantly slower naming latencies for cognates in comparison to non-cognates. Broersma et al. (2016) hypothesized that this pattern may be a reflection of two distinguished mechanisms, that may be at play during the lexical selection of cognates: On one hand, there might be a facilitatory effect induced by the overlap of the word form representations, that can facilitate access to the target lemma when its selection is needed, for example, in picture naming tasks; On the other hand, an inhibitory effect may arise as a consequence of the high activation of the two lemmas in both languages, leading to competition at the lexical semantic level when speakers are immersed in a context where constant switching is required. This competition may therefore slow down the selection process of the lemma, as inhibition processes are required in order monitor the conflict between two highly activated competitors, namely the two lemmas in the two languages, both receiving enhanced activation thanks to the

word form overlap. The authors provided further evidence for this theory with their results from a picture naming task on balanced and unbalanced bilinguals, who also showed a cognate inhibition effect modulated by the dominance on the two tested languages (English and Welsh). When naming in Welsh, the English-dominant group showed a cognate inhibition effect, while the Welsh dominant and balanced bilingual groups showed a cognate facilitation effect.

4.3. Summing everything up

As cognates represent a special word category that receives extra activation from their shared conceptual and word form representations, the conflict they cause results to be bigger than the one caused by non-cognates. Non-cognates will receive a certain amount of activation on the base of the language that is more active in that moment (the activation or inhibition of a language, based on whether it is the target or non-target language both in comprehension and production, will have an influence on the activation level of its lemmas) and their frequency of use: they will have a specific quantity of, so called, resting level activation depending on how much that word is used by the speaker and how much a speaker uses that specific language (Dijkstra & Heuven, 2002). Therefore, words from a weaker L2 will generally have a lower resting level activation than words from the L1. If we follow the reasoning behind the ICM and the cognate inhibition theory, this disparity should lead to less conflict, as, in this case, in contexts of dense code-switching where the speakers can code-switch as they want, there would be a clearer 'winner' between the two competitor lemmas, in comparison to cognates' lemmas: The one that has indeed higher activation.

During our experiment, while the cognates' lemmas probably had very similar activation levels in both languages, because of the enhanced activation received via the word representation level, non-cognates probably did not. First of all, as anticipated in the preceding paragraph, they probably had different amounts of resting level activation across languages. It is true that our sample consists of Italian dominant speakers. However, not only they were highly proficient in English, but they also reported using English and code-switching quite often in their daily life. This can lead to uncommon patterns of resting level activation, which can be different for different lemmas in the two languages. For example, if one participant talks about a specific topic consistently in one language, the resting level activation of certain lemmas could be higher in the L2 rather than in the L1, as they are never used in the native language. In short, lemmas' resting level activation can change on the basis of how much exposed we are to a certain language and how much we use certain words in a certain language, and if we consistently use our L2, despite it being weaker than our L1, certain words may be - even if temporarily - more activated in that language rather than in the native one.

One could argue that cognates can have certain amounts of resting level activation too, on the basis of their 'subjective frequency' (Dijkstra & Heuven, 2002). However, even if one cognate's lemma in one specific language has a greater resting level activation, theoretically, the lower resting level activation of the other lemma in the other language will automatically be raised because of the word form overlap and the phonological loop mentioned in Chapter 1. This could create a situation in which, during the lexical selection process, cognates' lemmas in the two languages have similar activation levels, but controls do not.

Additionally, it can be said that in our game participants found themselves in two different kinds of contexts: A single language context, when they were obliged to describe filler pictures completely in English; And a dense

code-switching language context, when in critical trials, they were completely free to switch from one language to the other, because it was part of the game's rules and because the interlocutor not only was known to speak both Italian and English, but was code-switching in her utterances as well. In the dense code-switching context, according to the ACH, inhibitory language control process should not be required, as it is a free code-switching environment, where the speakers do not have to inhibit one language or the other. However, in filler trials they were not free to code-switch, since they were forced to utter the complete description in English. In those trials, they were forced to exert the language control processes necessary to maintain the goal of speaking one language. They had to inhibit Italian, their L1, in order to switch to their less dominant L2, English. This implies that, to a certain extent, general control processes had to be executed throughout the whole task in order to achieve the goal. This assumption is confirmed by the fact that, in our experiment, we managed to elicit 341 (35.6% of the total) code-switched sentences, 320 (33.4%) sentences in English and 296 (30.9%) sentences in Italian. On the contrary, Kootstra et al.'s (2020) participants produced a total of 2021 (86.9% of the total) Dutch sentences, 131 (5.6%) English sentences and 173 (7.4%) code-switched sentences. While we asked to utter filler descriptions totally in English, in order to enhance code-switching effects, Kootstra et al.'s fillers were pictures that had to be described with a sentence containing at least one English word. This leads us to think that in Kootstra et al.'s study, the most active language was Dutch, while according to our results, our different choice regarding the fillers lead to higher activation of the English language, the weaker one. This seems to be also confirmed by the fact that English and code-switched sentences are both more numerous than monolingual Italian ones. The necessity to execute a complete switch to English, as they had to utter a complete and full sentence in that language for fillers, inevitably implies the use of language cognitive control processes. The fact that not only fillers (one third of the trials in an experimental list), but also a great amount of trials was uttered in English (33.4% of the total trials) suggests that, generally, participants may have had difficulties in switching back to Italian. Having to switch back to Italian, the native language, after a filler seems to have been particularly demanding for some participants. A fact supported by the evidence reported when explaining the ICM.

It seems therefore reasonable to think that a general, lighter form of control may have been carried out during the whole dialogue game, leading participants to keep speaking in English even in critical trials and switch to Italian when English words did not come to mind. While English lemmas' activation would depend on activation of English and inhibition of Italian in fillers, Italian lemmas' activation would depend both on dominance and on resting level activation (determined by frequency). Transitioning from a single language context to a dense code-switching context and vice versa, also means turning 'on' and 'off' the different control processes required by the two interactional contexts: This constant transition may have lead participants to carry over in the critical trials - at least part of - the inhibitory processes 'turned on' for the fillers. What would this mean as far as the Trigger Word Category Condition is concerned?

Following the theoretical explanation of inhibition in bilingual speech and, more specifically, in the case of cognates and after exposing some considerations about participants' patterns of use of control processes throughout the task, we can make some assumptions about the reasons why control words elicited more code-switching than cognates.

If during the task, because of a 'light' version of the inhibition and conflict monitoring processes, persisting from filler trials, it was generally demanding to switch in case of high competition between the lemmas, then when faced with the competition between cognates, whose lemmas in both languages receive activation because of word form overlap, the easier choice would have been to stay in the same language as the preceding words. In short, between competitors (the cognate's lemmas), the 'winner' is the one that receives additional activation from the language that was activated before the cognate. This would also make it easier to continue the sentence in the same language, as the sentence's language keeps being more active than the other. Additionally, because of a weak form of inhibition on the non-target language, it would have been more costly to switch (to de-inhibit the non-target language). In the case of control words, this would not happen because, despite a slight form of inhibition of the non-target language, the competitor with the higher resting activation level would win over the other. In this case, there could either be a prosecution in the same language, or a switch.

Since control words were words that in principle did not overlap in form with their translation equivalents, they had the same status as all the other words in the sentence. Therefore, it cannot be said that control words per se enhanced the code-switching priming effect. Code-switching might have happened because in general both languages were active and the control words had different amounts of resting level activation, leading to switch. However, it can be assumed that cognates favored staying in one language and hindered, in some way, the transition from one language to another, as speakers, when faced with two lemmas overlapping in phonological form, preferred staying in the language of the first two words they had uttered and continue with that. In the case of non-cognates, on the other hand, they could have accommodated the activation of a word in another language as the activation of the translation equivalent had a lower resting level activation and was not retrievable at the moment.

This study demonstrates how even small differences in the paradigms used and in the language history characteristics of the sample have an influence on such 'delicate' effects like the Lexical Triggering one. It is possible that not only variations in the fillers but also differences in dominance, proficiency, daily amount of code-switching and sociobiographical variables, may have contributed to the divergence between our results and those obtained by Kootstra et al. (2020). An effect of attitude towards CS, which may differ between Italian-English and Dutch-English bilinguals, is also not to exclude.

Naturally, the above presented explanation represents just an hypothesis about the mechanisms that instantiated our results. Despite not having replicated the findings by Kootstra et al. (2020), I believe our data provides extremely interesting insights about the role of dominance, daily code-switching and language control across trials.

As far as the dominance is concerned, it is clear that a stronger L1 had an influence in the code-switching patterns, as the amount of inhibition it requires is stronger than the amount of inhibition needed by an L2. This made the switch cognitively more demanding throughout the experiment, especially in case of high competition.

The fact that our sample is used to code-switching and actively uses English daily, permitted us to obtain more code-switched sentences. People that code-switch often are more used to mixing the two languages within the same sentence and find it less awkward in respect to people that are not used to it. Moreover, people that use English and Italian in different contexts and with different people, are also more used to passing from one interactional context

to another, and more used to, specifically, dense code-switching contexts. What kind of patterns would have resulted from the experiment if we had chosen people that vary more in the daily amount of English used and code-switching? What kind of influence would a low daily amount of CS have on the strength of inhibitory processes throughout the task?

Finally, language control seems to have had a toll on participants' cognitive load during our experiment. The addition of such strongly English-activating fillers was made because of our fear that English would not be activated enough during the game. The intervention of inhibitory process during the task hindered the cognate facilitation effect and favored, on the contrary, a cognate inhibition effect. However, this study provides evidence of how control processes have an influence over the Lexical Triggering effect and how they can manipulate it.

All in all, cognates do seem to have power over speakers' likelihood to code-switch: In this case, they had the power to significantly reduce it.

4.4. Limitations

Our study was not without limitations. First of all, as already discussed, the insertion of fillers that had to be completely uttered in English inevitably caused the intervention of inhibitory control processes. This did not allow us to investigate, experimentally, whether Lexical Triggering of CS can be elicited in bilingual dialogue of non-typologically related languages. Fillers more similar to the ones used in Kootstra et al.'s would have maintained a more dense code-switching oriented context.

A further modification that could be made in a possible follow-up study regards the task that was introduced in order to make sure that participants paid attention to the confederate's utterances. In fact, participants had the goal to listen to the interlocutor's descriptions and write, on a piece of paper, the number of the object that was mentioned in the confederate's description or the image that she had just described. The four objects or images among which they had to choose appeared in participants' slides when it was the confederate's turn to describe the pictures. In critical trials, participants always had to choose between objects. The fact that their task depended on the object (always the patient in the sentence), induced them to listen to the utterance until the confederate had uttered it and pay less attention to the rest of the sentence containing the prepositional phrase, the part of speech determining the Confederate's Code-switching condition. However, this small flaw did not influence negatively the results, as we were still able to find evidence of Interactive Alignment effect. Even if less carefully, the prepositional phrase was still processed. I would recommend using complete pictures similar to the critical trials in future follow-ups. This approach would encourage participants to pay closer attention to the confederate's entire utterance in order to detect differences among the four candidate pictures.

4.5. Insights for future research

The present study has brought to light dynamics that could be further investigated in future studies. First of all, the role of proficiency and dominance could be investigated in relation to their effects on code-switching and code-switching triggering sources. Despite our attempt to sample participants with a similar language profile as the ones from Kootstra et al.'s study, differences stemming from the typological diversity of Italian and English, two languages pertaining to two different language families, may have an additional effect on how languages are stored and managed in our brain. Does

syntactic and phonologic distance between the two idioms further influence the control processes patterns and their influence on code-switching? Was switching in case of competition demanding on this auditory modality also because of the distance between Italian and English phonology?

A practical result that would be worth further analysis regards the code-switching patterns, specifically regarding the first component of the sentence, the subjects. In fact, in our study they resulted to be uttered in English quite often in comparison to other parts of the sentences. Why so? Participants did confirm in the debriefing questionnaire that the last language used by interlocutor led them to start the sentence in English, but, as said in this chapter, in-English uttered characters cannot be attributed to the last activated language, as characters were uttered in English, in code-switched sentences, just 49% of the times in trials in the Confederate's Code-switching condition (the condition in which the last part of the utterance produced by the confederate - the last language activated in comprehension - was English). Still, 58.8% of participants stated that the nouns of the characters led them to speak in English, and this is confirmed by the descriptive results reported in section 3.3. It would be therefore deeply interesting to conduct a more in-depth analysis of the dataset containing the transcription of participants' utterances.

Another aspect that could be further researched regards the sociolinguistic factors that have an influence on CS between languages that have different statuses, such as the speakers' attitude towards it. Many studies have been conducted on attitude towards code-switching and the factors that underlie it. Most studies have analyzed attitude towards code-switching in educational settings and in relation to language acquisition, reporting generally negative feelings towards it. In fact, CS is often seen as a reflection of scarce linguistic proficiency and as a counterproductive phenomenon for acquisition (Berthele, 2012; Martin-Jones, 2000). A prevalently negative tendency of attitude towards CS persists among adult speakers (Dewaele & Wei, 2014). Attitude towards CS seems to depend on many variables, such as proficiency, personality, sociobiographical variables as being immersed or not in ethnically diverse environments, the education level and the age (Dewaele & Wei, 2014). On the other hand, attitude itself seems to have an influence on linguistic choices: Badiola et al., (2018) found effects of attitude towards code-switching on acceptability judgement tasks.

As previously discussed in section 3.1, our participants reported code-switching more with their friends than with their families, confirming a common assumption about Italian-English code-switching and its acceptability. People belonging to older generations than the one to which our sample belongs to are usually less proficient in English than their younger compatriots for two main reasons: Firstly, because of globalization, the availability of English contents is much higher now in comparison to a few decades ago. In fact, our participants, despite different backgrounds, all daily read, watched or listened to English books, tv series and music. Secondly, English words are being more and more integrated in young people's jargon, also as a consequence of the higher exposition to English contents. These facts could also have consequences on bilinguals' attitude towards code-switching, especially when they have to interact with unknown people, as the experimenter. Relating these assumptions with our results, despite having been able to elicit a great amount of code-switched sentences, a slight negative attitude towards code-switching could have favored the choice to stay in one language when it was possible and code-switch just in case of word retrieval difficulties. This may have been

different for the Dutch-English bilingual sample of Koostra et al., as the attitude towards code-switching may differ across countries. I suggest that aspects regarding the attitude towards code-switching be analyzed through a questionnaire in eventual follow-ups. In general, sample's variety in proficiency, daily amount of code-switching and code-switching attitude would provide more insights into the role of these variables in code-switching behaviors and language control patterns.

CONCLUSION

To conclude, our study investigated the role of Interactive Alignment and Lexical Triggering in Italian-English bilingual dialogue. In order to investigate the effects of these two mechanisms, we replicated Kootrstra et al.'s (2020) study, conducting an experiment with a confederate's script paradigm and a picture description dialogue game. Results from descriptive and statistical analysis of the data revealed a clear Interactive Alignment effect, as participants significantly code-switched more when their interlocutor had code-switched as well in the preceding utterance. However, they code-switched significantly less in trials containing cognates, the target word category that should have triggered and therefore enhanced the Interactive Alignment effect of code-switching. This result led to further research about possible inhibition factors that may have caused a cognate hindering effect of code-switching. Reflecting more on the trial structure and items present in the experimental lists and on a less commonly observed but literature supported cognate inhibition effect, I hypothesized that the high activation and competition between cognates' lemmas may have caused an inhibitory effect (favored by the persisting inhibition from filler trials) that favored the prosecution of the sentence in the same language as the first two uttered parts of speech (the subject and the verb, as the trigger word was always the syntactic and semantic object of the sentence). On the contrary, control words did not have this 'language maintenance' effect, as their activation depended more on their resting level activation and on the contemporary activation of both Italian (in comprehension) and English (in comprehension and production) during the task. Finally, I discussed the limitations of the present study and insights for possible follow-ups.

As mentioned in the introduction, code-switching is an integral part of our lives, especially as our world grows increasingly multilingual each decade. Investigating such an intrinsic phenomenon of our society is crucial for understanding the multifaceted nature of the human language processing. Through this study, I hope to have added a small but meaningful 'brick' to the vast wall that represents the knowledge about this fascinating and complex phenomenon.

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Appendix A - Questionnaire on linguistic profile

INSTRUCTIONS

Hello! Thank you for taking part in our study. Before we begin, we ask you to fill in this questionnaire about your linguistic profile, the languages you use in your daily life and not.

1. Participant ID*: _____

2. Date of birth*: _____

3. Level of education *

INDICATE HIGHEST LEVEL OF EDUCATION ALREADY COMPLETED (e.g. If you are currently enrolled in a Bachelor's degree, indicate High School Diploma, etc.)

* High School Diploma

* Bachelor's degree

* Master's degree

* Other

Linguistic profile

In this section we will ask you questions about your language profile.

1. Is Italian your only native language? *

* Yes

* No

2. If not, what are the mother tongues other than Italian?

3. Do you know any languages other than English? *

* Yes

* No

4. If yes, which languages do you know and at what level would you roughly place yourself? (A1, A2, B1, B2, C1, C2)

5. At what age did you start studying English? *

* 0 - 5 years

* 5- 10 years

* 11 - 14 years

* 15 - 19 years

* 20 +

6. At what age do you think you have reached a good proficiency in English? *

* 5- 10 years

* 11 - 14 years

* 15 - 19 years

* 20 +

* Not yet

7. Have you ever lived in a country where English is spoken? *

* Yes

* No

8. If yes, for how long?

* Less than 6 months

* Less than a year

* 1 year

* More than one year

Language use

In this section we will ask you questions concerning your use of English in everyday life. Answer based on your habits during the last 6 months.

1. On average, in what contexts and for how many hours do you use English during the week? *

Never

Less than 3 hours

From 3 to 7 hours

More than 7 hours

With friends

?

?

?

?

With the family

?

?

?

?

At the university

?

?

?

?

At work

?

?

?

?

On social media

?

?

?

?

During free time

?

?

?

?

2. On average, how many hours per week do you use English in the following contexts? *

Never

Less than 3 hours

From 3 to 7 hours

More than 7 hours

Watching tv (movies, tv series...)

?

?

?

?

Reading for pleasure

?

?
?
?
Reading for work and/or university
?
?
?
?
Writing for work and/or university
?
?
?
?
Writing emails or texts to friends
?
?
?
?
Listening to music
?
?
?
?

Language proficiency

In this section we would like to ask you some questions to better understand your competence in English.

1. What level of English do you think you have? *

- * A1
- * A2
- * B1
- * B2
- * C1
- * C2

2. If you have completed an official certification (e.g. IELTS, TOEFL, CAE ect.), write the name of the test(s) you took and the score you obtained. If you do not remember the exact score, please indicate 'Approximate score'.

3. From 1 (very poor) to 6 (very good)... *

- 1
- 2
- 3
- 4
- 5
- 6

How good do you understand when READING in English?

- ?
- ?
- ?
- ?

?
?

How good do you SPEAK in English?

?
?
?
?
?
?

How good do you WRITE in English?

?
?
?
?
?
?

How good do you understand when you LISTEN to English?

?
?
?
?
?

?Code-switching

In this section, we will ask you questions about how much code-switching you do per day. The term code-switching is used to describe the phenomenon of code-switching, i.e. when the interlocutor changes language within a conversation or within a sentence, whether in spoken or written language. This can be the use of entire sentences, parts of sentences or even just one word in a language other than the language in which the conversation is conducted. Examples of code-switching might be:

'Oggi abbiamo fatto lezione praticamente all day long.'

'Ti consiglio di lasciar andare. Live and let live.'

In answering the questions, think about your language habits over the past six months.

1. How much code-switching (between the languages you know) do you usually do during the day?

- * Never
- * Rarely
- * Sometimes
- * Often
- * Constantly

2. How much Italian - English code-switching do you usually do during the day?

- * Never
- * Rarely
- * Sometimes
- * Often
- * Constantly

3. In everyday life, is it usually code-switching from Italian to English or from English to Italian? *

- * I most often speak in English and pronounce a word and/or sentence in Italian.
- * I most often speak in Italian and pronounce a word and/or sentence in English.

* They both happen equally.

4. On average, how often and in what contexts do you code-switch? *

Never

Rarely

Sometimes

Often

Constantly

With friends

?

?

?

?

?

With the family

?

?

?

?

?

At the university

?

?

?

?

?

At work

?

?

?

?

?

5. On average, why do you code-switch? *

Never

Rarely

Sometimes

Often

Constantly

Because a specific word doesn't come to mind

?

?

?

?

?

Because usually I think about that topic in another language

?

?

?

?

?

Because that word/expression is not present in that language

?
?
?
?
?

Because my interlocutor understands both languages

?
?
?
?
?

Appendix B - Experimental Stimuli

Prime Characters

Translation

Target Characters

Translation

Il falegname

The carpenter

La regina

The queen

Il ragazzo

The boy

La bambina

The girl

Il nonno

The grandpa

Il pompiere

The firefighter

La signora

The lady

L'infermiere

The nurse

La calciatrice

The football player

La cantante

The singer

L'investigatrice

The detective

La nonna

The grandm

La cameriera
The waitress
Il poliziotto
The policeman
L'insegnante
The teacher
Il re
The king
Verbs
Translation
vedere
to see - to look at
calciare
to kick
lanciare
to throw
mangiare
to eat
indicare
to point at
portare
to carry
lavare
to wash
raccogliere
to pick up
Prime Cognates
Translation
Target Cognates
Translation
Giacca
Jacket
Radio
Radio
Biscotto
Biscuit
Ombrello
Umbrella
Coppa
Cup
Candela
Candle
Telefono
Telephone
Microfono
Microphone
Menta
Mint
Pera
Pear
Foto
Photo
Birra
Beer

Torcia
Torch
Braccialetto
Bracelet
Tenda
Tent
Carota
Carrot
Frutta
Fruit
Elefante
Elephant
Zucchina
Zucchini
Cioccolata
Chocolate
Sale
Salt
Rosa
Rose
Patata
Potato
Banana
Banana
Racchetta
Racket
Vaso
Vase
Penna
Pen
Sigaretta
Cigarette
Dizionario
Dictionary
Calendario
Calendar
Robot
Robot
Limone
LemonPrime Control
Translation
Target Control
Translation
Funghi
Mushrooms
Mela
Apple
Gesso
Chalk
Gelato
Ice-cream
Asciugamano
Towel

Orologio
Clocl
Calzino
Sock
Occhiali
Glasses
Tappeto
Carpet
Mirtillo
Blueberry
Quaderno
Notebook
Specchio
Mirror
Cappello
Hat
Libro
Book
Legna
Wood
Regalo
Gift
Bicchiere
Glass
Sedia
Chair
Foglio
Paper sheet
Borsa
Bag
Pomodoro
Tomato
Tazza
Cup
Ciliegia
Cherry
Scarpe
Shoes
Maglietta
T-shirt
Pollo
Chicken
Macchinina
Car
Topo
Mouse
Panino
Sandwich
Cuscino
Pillow
Vestito
Dress
Pentola

Pot

Locations

Translation

In giardino.

In the garden.

In spiaggia.

At the beach.

In cucina.

In the kitchen.

In salotto.

In the living room.

Nel bosco.

In the wood.

In biblioteca.

In the library.

Per strada.

In the street.

In camera.

In the bedroom.

Final Items

No.

Prime

1

a. La cameriera mangia una patata in the garden.

b. La cameriera mangia una patata in giardino.

2

a. La cameriera indica una patata in the garden.

b. La cameriera indica una patata in giardino.

3

a. La cameriera mangia i funghi in the kitchen.

b. La cameriera mangia i funghi in cucina.

4

a. La cameriera indica i funghi in the kitchen.

b. La cameriera indica i funghi in cucina.

5

a. La cameriera lava una giacca in giardino.

b. La cameriera lava una giacca in the garden.

6

a. La cameriera raccoglie una giacca in giardino.

b. La cameriera raccoglie una giacca in the garden.

7

a. La cameriera lava un bicchiere in cucina.

b. La cameriera lava un bicchiere in the kitchen.

8

a. La cameriera raccoglie un bicchiere in cucina.

b. La cameriera raccoglie un bicchiere in the kitchen.

9

- a. L'insegnante porta una racchetta in the kitchen.
- b. L'insegnante porta una racchetta in cucina.

10

- a. L'insegnante lancia una foto in the kitchen.
- b. L'insegnante lancia una foto in cucina.

11

- a. L'insegnante porta un foglio in the living room.
- b. L'insegnante porta un foglio in salotto.

12

- a. L'insegnante lancia un foglio in the living room.
- b. L'insegnante lancia un foglio in salotto.

13

- a. L'insegnante vede del sale in cucina.
- b. L'insegnante vede del sale in the kitchen.

14

- a. L'insegnante calcia del sale in cucina.
- b. L'insegnante calcia del sale in the kitchen.

15

- a. L'insegnante vede un gesso in salotto.
- b. L'insegnante vede un gesso in the living room.

16

- a. L'insegnante calcia un gesso in salotto.
- b. L'insegnante calcia un gesso in the living room.

17

- a. Il nonno raccoglie della frutta in the living room.
- b. Il nonno raccoglie della frutta in salotto.

18

- a. Il nonno mangia della frutta in the living room.
- b. Il nonno mangia della frutta in salotto.

19

- a. Il nonno raccoglie una ciliegia in the bedroom.
- b. Il nonno raccoglie una ciliegia in camera.

20

- a. Il nonno mangia una ciliegia in the bedroom.
- b. Il nonno mangia una ciliegia in camera.

21

- a. Il nonno indica una zuccina in salotto.
- b. Il nonno indica una zuccina in the living room.

22

- a. Il nonno lava una racchetta in salotto.
- b. Il nonno lava una racchetta in the living room.

23

- a. Il nonno indica una maglietta in camera.
- b. Il nonno indica una maglietta in the bedroom.

24

- a. Il nonno lava una maglietta in camera.
- b. Il nonno lava una maglietta in the bedroom.

25

- a. Il ragazzo calcia una penna in the bedroom.
- b. Il ragazzo calcia una penna in camera.

26

- a. Il ragazzo porta una penna in the bedroom.

- b. Il ragazzo porta una penna in camera.
27
- a. Il ragazzo calcia una macchinina in the library.
b. Il ragazzo calcia una macchinina in biblioteca.
28
- a. Il ragazzo porta una macchinina in the library.
b. Il ragazzo porta una macchinina in biblioteca.
29
- a. Il ragazzo lancia un dizionario in camera.
b. Il ragazzo lancia un dizionario in the bedroom.
30
- a. Il ragazzo vede un dizionario in camera.
b. Il ragazzo vede un dizionario in the bedroom.
31
- a. Il ragazzo lancia un quaderno in biblioteca.
b. Il ragazzo lancia un quaderno in the library.
32
- a. Il ragazzo vede un quaderno in biblioteca.
b. Il ragazzo vede un quaderno in the library.
33
- a. La signora lava un robot in the library.
b. La signora lava un robot in biblioteca.
34
- a. La signora raccoglie un robot in the library.
b. La signora raccoglie un robot in biblioteca.
35
- a. La signora lava un vestito on the street.
b. La signora lava un vestito per strada.
36
- a. La signora raccoglie un vestito on the street.
b. La signora raccoglie un vestito per strada.
37
- a. La signora mangia un biscotto in biblioteca.
b. La signora mangia un biscotto in the library.
38
- a. La signora indica un biscotto in biblioteca.
b. La signora indica un biscotto in the library.
39
- a. La signora mangia un pomodoro per strada.
b. La signora mangia un pomodoro on the street.
40
- a. La signora indica un pomodoro per strada.
b. La signora indica un pomodoro on the street.
41
- a. La calciatrice vede una coppa on the street.
b. La calciatrice vede una coppa per strada.
42
- a. La calciatrice calcia una coppa on the street.
b. La calciatrice calcia una coppa per strada.
43
- a. La calciatrice vede un asciugamano at the beach.
b. La calciatrice vede un asciugamano in spiaggia.

44

- a. La calciatrice calcia un asciugamano at the beach.
- b. La calciatrice calcia un asciugamano in spiaggia.

45

- a. La calciatrice porta un telefono per strada.
- b. La calciatrice porta un telefono on the street.

46

- a. La calciatrice lancia un telefono per strada.
- b. La calciatrice lancia un telefono on the street.

47

- a. La calciatrice porta un calzino in spiaggia.
- b. La calciatrice porta un calzino at the beach.

48

- a. La calciatrice lancia un calzino in spiaggia.
- b. La calciatrice lancia un calzino at the beach.

49

- a. L'investigatrice indica della menta at the beach.
- b. L'investigatrice indica della menta in spiaggia.

50

- a. L'investigatrice lava della menta at the beach.
- b. L'investigatrice lava della menta in spiaggia.

51

- a. L'investigatrice indica un tappeto in the wood.
- b. L'investigatrice indica un tappeto nel bosco.

52

- a. L'investigatrice lava un tappeto in the wood.
- b. L'investigatrice lava un tappeto nel bosco.

53

- a. L'investigatrice raccoglie una foto in spiaggia.
- b. L'investigatrice raccoglie una foto at the beach.

54

- a. L'investigatrice mangia una zuccina in spiaggia.
- b. L'investigatrice mangia una zuccina at the beach.

55

- a. L'investigatrice raccoglie un panino nel bosco.
- b. L'investigatrice raccoglie un panino in the wood.

56

- a. L'investigatrice mangia un panino nel bosco.
- b. L'investigatrice mangia un panino in the wood.

57

- a. Il falegname lancia una torcia in the wood.
- b. Il falegname lancia una torcia nel bosco.

58

- a. Il falegname vede una torcia in the wood.
- b. Il falegname vede una torcia nel bosco.

59

- a. Il falegname lancia un cappello in the garden.
- b. Il falegname lancia un cappello in giardino.

60

- a. Il falegname vede un cappello in the garden.
- b. Il falegname vede un cappello in giardino.

61

- a. Il falegname calcia una tenda nel bosco.

b. Il falegname calcia una tenda in the wood.

62

a. Il falegname porta una tenda nel bosco.

b. Il falegname porta una tenda in the wood.

63

a. Il falegname calcia della legna in giardino.

b. Il falegname calcia della legna in the garden.

64

a. Il falegname porta della legna in giardino.

b. Il falegname porta della legna in the garden.

Appendix C - Debriefing Questionnaire

Hello! Thank you for taking part in our study! Finally, we ask you to fill in this questionnaire concerning the game you have just played.

1. ParticipantID:

2. During the game, was it easier to speak English or Italian?

* In Italian

* In English

* Sometimes in English, sometimes in Italian

3. If you uttered sentences in English during the game even when it was not necessary, what do you think prompted you to do so?

4. Did the fact that your interlocutor finished sentences in English influence you in any way?

5. Were there any words specifically that induced you to speak in English? If so, which ones?

* Yes

* No

* If yes, write here which ones: _____

Appendix D - Norming Test Instructions

Gentile partecipante,

Ti ringraziamo per aiutarci nella nostra ricerca.

L'obiettivo di questo studio è determinare il grado di realistica di alcuni eventi.

Leggerai una serie di frasi in cui un personaggio compie delle azioni in un luogo preciso, ad esempio La bambina indica un mirtillo nel bosco.

Per ogni frase ti verrà chiesto di rispondere alla domanda "Quanto è realistico questo evento?" attribuendole un punteggio da 1 (totalmente irrealistico) a 7 (totalmente realistico).

Per esempio, consideriamo l'azione Il tostapane parla con il frigo in cucina come totalmente irrealistica (Punteggio 1) e l'azione Il bambino mangia una mela in cucina come totalmente realistica (Punteggio 7).

Non è necessario rifletterci troppo, puoi procedere rapidamente. Non c'è una risposta giusta o sbagliata.

Dopo ogni frase troverai un riquadro in cui potrai fare commenti e dare suggerimenti su come migliorare la frase.

Non preoccuparti degli errori di battitura.

English Translation:

Dear participant,

Thank you for helping us in our research.

The aim of this study is to determine the degree of realism of certain events.

You will read a series of sentences in which a character performs actions at a specific location, e.g. The girl points to a blueberry in the forest.

For each sentence you will be asked to answer the question 'How realistic is this event?' by giving it a score from 1 (totally unrealistic) to 7 (totally realistic).

For example, consider the action The toaster talks to the fridge in the kitchen as totally unrealistic (Score 1) and the action The child eats an apple in the kitchen as totally realistic (Score 7).

You don't need to think about it too much, you can proceed quickly. There is no right or wrong answer.

After each sentence you will find a box where you can make comments and suggestions on how to improve the sentence.

Don't worry about typing errors.

Appendix E - Consent Forms

Modulo per l'espressione del consenso informato

Cognate facilitation effect on code-switching priming in Italian-English late bilinguals

Gentile partecipante,

Il presente studio è condotto dalla laureanda Chiara Carraro sotto la supervisione di Giulia Bencini del Dipartimento di Studi Linguistici e Culturali Comparati dell'Università Ca' Foscari di Venezia. Accettando questo modulo, esprime il suo consenso alla partecipazione allo studio e alle attività in esso incluse. Per partecipare a questo studio inoltre è necessario accettare anche un consenso per le audio registrazioni: la mancata accettazione di questo consenso non le permetterà di partecipare allo studio.

La partecipazione a questo studio è volontaria e potrà decidere di abbandonarlo in qualsiasi momento senza alcun tipo di conseguenza negativa. Esprimendo il suo consenso, autorizzerà i/le ricercatori/trici ad archiviare in formato digitale ed elaborare in maniera confidenziale i suoi dati personali per l'intera durata del progetto di ricerca. A tutela della sua privacy, tutti i dati raccolti non saranno mai riconducibili alla sua persona, in accordo con il codice etico e di condotta dell'Università Ca' Foscari di Venezia e con le normative vigenti. I dati verranno trattati in forma anonima in accordo con il Regolamento UE 2016/679 e il Decreto Legislativo n. 196/2003; inoltre, i risultati delle analisi dei dati verranno presentati e pubblicati in tesi, libri o articoli per riviste scientifiche in forma aggregata e anonima. Può richiedere in ogni momento di modificare, rettificare o eliminare il suo consenso alla partecipazione allo studio e tutti i dati raccolti contattando il/la responsabile della raccolta dati.

Lo studio e i moduli che le viene chiesto di compilare hanno ricevuto l'approvazione della Commissione Etica di Ateneo in data 05.02.2020, verbale n. 1/2020 (per ulteriori informazioni: commissione.etica@unive.it).

Metodologia di ricerca

Il presente studio è rivolto a soggetti di età superiore a 18 anni e madrelingua italiani che parlano anche inglese. I partecipanti potranno decidere se partecipare allo studio in presenza o se partecipare in modalità telematica, attraverso la piattaforma Google Meet. L'interesse principale è quello di indagare i meccanismi coinvolti nella tendenza degli interlocutori a cambiare lingua durante un contesto conversazionale. Lo studio durerà all'incirca 45 minuti. Ai partecipanti verrà chiesto di partecipare ad un gioco linguistico in coppia con un altro partecipante. Durante il gioco i partecipanti dovranno, a turno, descrivere delle immagini (mostrate tramite PowerPoint) nella lingua di preferenza (italiano o inglese). Le attività proposte coinvolgeranno dunque la descrizione di immagini e l'ascolto di frasi. Infine, le chiederemo di compilare un breve questionario sul profilo linguistico e un breve questionario riguardante le impressioni del partecipante sul gioco.

Durante la sessione sperimentale la Sua voce verrà registrata come parte effettiva del progetto di ricerca. La partecipazione allo studio dipende dal Suo consenso alla registrazione audio della Sua voce ed è assolutamente volontaria. Al fine di tutelare la Sua privacy, il file contenente la registrazione audio e il file con la relativa trascrizione non saranno mai riconducibili alla Sua persona o ai Suoi dati personali, ma verranno trattati come descritto nell'informativa.

Contatti

Per qualsiasi domanda relativa alle procedure dello studio e per modificare/revocare il consenso alla partecipazione allo studio, ora o in futuro, può contattare:

- Supervisore della ricerca (relatrice): Giulia Bencini, Tel: 041 234 6680 / 041 234 7839, giulia.bencini@unive.it
- Ricercatore/responsabile della raccolta dati (studentessa): Chiara Carraro, 897822@stud.unive.it
- Eventuali altri recapiti: Staff BemboLab. Email: bembolab@unive.it, Telefono: 041/2345738 - 041/2345748

Informativa sul trattamento dei dati nell'ambito del progetto
Cognate facilitation effect on code-switching priming in Italian -English late bilinguals

ai sensi dell'art.13 del Regolamento UE 2016/679 ("Regolamento")

Con il presente documento, l'Università Ca' Foscari Venezia ("Università") le fornisce informazioni in merito al trattamento dei dati personali raccolti all'interno del progetto di tesi denominato Cognate facilitation effect on code-switching priming in Italian - English late bilinguals che si prefigge di indagare gli effetti dei cognates sulla tendenza a cambiare lingua all'interno di un contesto conversazionale ed è condotto dalla laureanda Chiara Carraro e supervisionato da Giulia Bencini quale Principal Investigator e relatrice. Ove necessitasse di ulteriori informazioni relative al progetto, la preghiamo di contattare il Principal Investigator scrivendo all'indirizzo di posta elettronica giulia.bencini@unive.it.

Il progetto è stato redatto conformemente agli standard metodologici del settore disciplinare interessato ed è depositato presso il Laboratorio BemboLab dell'Università Ca' Foscari Venezia ove verrà conservato per cinque anni dalla conclusione programmata della ricerca stessa.

1. Titolare del Trattamento

Il Titolare del Trattamento è l'Università Ca' Foscari Venezia con sede legale in Dorsoduro 3246, 30123 Venezia, rappresentata dal Magnifico Rettore pro tempore.

2. Responsabile della Protezione dei Dati

L'Università Ca' Foscari ha nominato il "Responsabile della Protezione dei Dati", che può essere contattato scrivendo all'indirizzo di posta elettronica dpo@unive.it o al seguente indirizzo: Università Ca' Foscari Venezia, Responsabile della Protezione dei Dati, Dorsoduro 3246, 30123 Venezia (VE).

3. Categorie di Dati Personali, Finalità e Base Giuridica

Il trattamento ha ad oggetto i seguenti dati personali del partecipante: dati anagrafici e dati sul suo profilo linguistico.

I predetti dati saranno raccolti attraverso un form redatto sulla piattaforma Google Form.

Il trattamento dei dati personali verrà effettuato con strumenti informatici, adottando misure tecniche e organizzative adeguate a proteggerli da accessi non autorizzati o illeciti, dalla distruzione, dalla perdita di integrità e riservatezza, anche accidentali.

Per la tutela della riservatezza dei partecipanti, i dati verranno successivamente privati dei riferimenti direttamente identificativi (nome e cognome), in modo che non siano più immediatamente riconducibili al soggetto a cui si riferiscono, e analizzati ai soli fini della realizzazione del suddetto progetto. La procedura di pseudonimizzazione consisterà nell'assegnazione di un codice univoco al partecipante, che verrà utilizzato durante tutto il processo di collezione e analisi dei dati sperimentali. L'assegnazione avviene non appena la ricercatrice riceverà il modulo del consenso informato firmato dal partecipante. Il codice viene comunicato al/la partecipante per essere inserito dove richiesto in tutte le sessioni dello studio. Il codice verrà utilizzato anche per catalogare le registrazioni audio. Le registrazioni audio saranno ascoltate, lette e analizzate dalla ricercatrice con il solo scopo di trascriverle. Le registrazioni saranno inoltre conservate in questa forma al fine di condurre l'analisi fonologica della pronuncia da parte dei partecipanti delle frasi sperimentali che verrà condotta dopo il conseguimento del titolo (ottobre 2024). Tutte le operazioni di analisi dei dati verranno svolte utilizzando le trascrizioni nell'ambito del progetto di ricerca. Il file chiave con i dati anagrafici e il codice univoco assegnato sarà conservato protetto da password e separato dagli altri file e sarà accessibile solo alla ricercatrice responsabile della raccolta dati e alla Principal Investigator.

Le attività di ricerca sono svolte nell'ambito dell'esecuzione delle finalità istituzionali di ricerca scientifica dell'Ateneo, pertanto la base giuridica è rappresentata dall'art. 6.1.e) del Regolamento ("esecuzione di un compito di interesse pubblico").

È possibile opporsi al predetto trattamento in qualsiasi momento, scrivendo al Responsabile della Protezione dei Dati personali ai recapiti sopra indicati. L'Ateneo si asterrà dal trattare ulteriormente i predetti dati personali salvo sussistano motivi cogenti che legittimino la prosecuzione dello stesso.

4. Tempi di Conservazione

Le registrazioni audio saranno conservate in forma pseudonimizzata in una cartella protetta da password sul Google Drive legato all'indirizzo email istituzionale della ricercatrice responsabile della raccolta dati (Chiara Carraro) in condivisione con la Principal Investigator (Prof.ssa Giulia Bencini). Al termine di quest'ultima analisi e non oltre due anni dal conseguimento del titolo, tutti i file (file audio, trascrizioni, risposte ai questionari) verranno anonimizzati completamente eliminando il file chiave.

5. Destinatari e Categorie di Destinatari dei Dati Personali

I dati raccolti saranno trattati dai ricercatori dell'Università e dai ricercatori impegnati nel progetto, che agiscono sulla base di specifiche istruzioni fornite in ordine alle finalità e modalità del trattamento medesimo, nonché da soggetti che forniscono servizi ausiliari all'Università nominati 'responsabili del trattamento'. La lista aggiornata dei responsabili del trattamento è disponibile alla pagina: <https://www.unive.it/pag/34666/>. I dati, in forma aggregata ed anonima (in modo da non renderla identificabile), potranno inoltre essere comunicati ad altre Università o enti per lo svolgimento delle attività di ricerca e diffusi per attività di disseminazione dei risultati (ad es. in pubblicazioni, rapporti di ricerca, banche dati nonché citazioni durante lezioni, seminari e convegni). Potranno altresì esaminare tutta la documentazione (comprensiva dei dati identificativi dei partecipanti) raccolta nell'ambito del progetto sia organismi nazionali e internazionali sia comitati delle riviste scientifiche italiane e straniere al fine di controllare che la

ricerca sia condotta correttamente e in conformità alle disposizioni vigenti, nonché eventuali auditor.

6. Diritti dell'Interessato e Modalità di Esercizio

Lei potrà esercitare nei confronti dell'Università tutti i diritti previsti dagli artt. 15 e ss. del Regolamento; in particolare, potrà ottenere: l'accesso ai dati personali, la loro rettifica o integrazione, la cancellazione (c.d. "diritto all'oblio"), la limitazione e l'opposizione del trattamento. La richiesta potrà essere presentata, senza alcuna formalità, contattando direttamente il Principal Investigator (giulia.bencini@unive.it) e/o il Responsabile della Protezione dei Dati all'indirizzo dpo@unive.it ovvero inviando una comunicazione al seguente recapito: Università Ca' Foscari Venezia - Responsabile della Protezione dei dati, Dorsoduro 3246, 30123 Venezia. In alternativa, è possibile contattare l'Università, scrivendo a PEC protocollo@pec.unive.it.

Inoltre, se ritiene che i dati personali siano stati trattati in violazione a quanto disposto dal Regolamento, potrà fare reclamo al Garante per la Protezione dei Dati Personali o adire le opportune sedi giudiziarie.

Il/La sottoscritto/a _____
nato/a il _____

dichiara

di aver letto con attenzione e compreso le informazioni contenute nel presente documento. Dichiaro di esprimere il proprio consenso a partecipare allo studio qui descritto e dichiaro di aver letto l'informativa sul trattamento dei dati personali. Il consenso potrà essere modificato/revocato in qualsiasi momento. Il/La ricercatore/trice invierà quanto prima una copia del modulo di consenso informato compilato.

? Acconsento a partecipare allo studio e dichiaro di aver letto l'informativa sul trattamento dei dati

? Non acconsento a partecipare allo studio e dichiaro di aver letto l'informativa sul trattamento dei dati

? Esprimo il consenso alla registrazione audio durante la sessione sperimentale.

Ho letto con attenzione e compreso tutte le informazioni e i punti del documento. Esprimo il mio consenso all'utilizzo delle registrazioni audio come indicato qui sopra e autorizzo il/la ricercatore/trice a trattare, gestire ed archiviare tutti i dati sperimentali con le modalità sopracitate. Il/La ricercatore/trice ha risposto alle mie domande in maniera esaustiva. Mi è stata consegnata una copia del presente documento. Il mio consenso potrà essere modificato/revocato in qualsiasi momento.

Consenso Informato per Registrazione Audio - Maggioreanni

Durante la sessione sperimentale la Sua voce verrà registrata come parte effettiva del progetto di ricerca. La partecipazione allo studio dipende dal Suo consenso alla registrazione audio della Sua voce ed è assolutamente volontaria. Al fine di tutelare la Sua privacy, il file contenente la registrazione audio e il file con la relativa trascrizione non saranno mai

riconducibili alla Sua persona o ai Suoi dati personali, ma verranno trattati come descritto nell'informativa sul trattamento dei dati personali inclusa nel consenso informato generico.

Le chiediamo di esprimere il consenso all'utilizzo delle registrazioni audio mettendo una crocetta negli appositi spazi. Se esprimerà il Suo consenso, i risultati delle analisi dei dati in forma aggregata potranno essere pubblicati sotto forma di tesi, libri o articoli per riviste scientifiche.

Le ricordiamo che Lei potrà contattare la ricercatrice di riferimento scrivendo all'indirizzo email 897822@stud.unive.it o lo staff del BemboLab chiamando i numeri 041/2345738 - 041/2345748 oppure scrivendo una email a bembolab@unive.it per chiedere di modificare o ritirare il consenso alla partecipazione al progetto di ricerca in qualsiasi momento o per chiedere chiarimenti riguardo il progetto di ricerca.

Lo studio e i moduli che Le viene chiesto di compilare hanno ricevuto l'approvazione della Commissione Etica di Ateneo (Università Ca' Foscari Venezia) in data 05.02.2020, verbale n. 1/2020. Per qualsiasi chiarimento riguardo le modalità di approvazione dei progetti e delle procedure può contattare i membri della Commissione all'indirizzo email commissione.etica@unive.it.

1. Esprimo il consenso alla registrazione audio durante la sessione sperimentale.

? Sì ? No

2. Le registrazioni audio e le relative trascrizioni potranno essere ascoltate, lette e analizzate dalla ricercatrice nell'ambito del progetto di ricerca.

? Sì ? No

3. Le registrazioni audio e le relative trascrizioni potranno essere conservate in formato digitale e cartaceo dal/la ricercatore/trice (e eventualmente dal team) per l'intera durata del progetto di ricerca.

? Sì ? No

4. Le registrazioni audio e le relative trascrizioni potranno essere conservate in formato digitale e cartaceo dal/la ricercatore/trice (e eventualmente dal team) almeno per 2 anni dopo la conclusione del progetto di ricerca.

? Sì ? No

5. Le registrazioni audio e le relative trascrizioni potranno essere ascoltate, lette e analizzate da altri/e ricercatori/trici del BemboLab per studi di approfondimento al termine dell'attuale progetto di ricerca.

? Sì ? No

6. I dati estrapolati dalle registrazioni audio e dalle relative trascrizioni e collettivamente analizzati potranno essere pubblicati in forma anonima in riviste e in articoli scientifici.

? Sì ? No

Ho letto con attenzione e compreso tutte le informazioni e i punti del documento. Esprimo il mio consenso all'utilizzo delle registrazioni audio come indicato qui sopra e autorizzo il/la ricercatore/trice a trattare, gestire ed archiviare tutti i dati sperimentali con le modalità sopracitate. Il/La ricercatore/trice

ha risposto alle mie domande in maniera esaustiva. Mi è stata consegnata una copia del presente documento. Il mio consenso potrà essere modificato/revocato in qualsiasi momento.

- 1 The teacher throws a paper sheet in the living room.
- 2 The fishes throw a ball in the library.
- 3 The teacher kicks some salt in the kitchen.
- 4 The king washes a pot in the street.
- 5 The percentage is calculated on the total number of code-switched sentences in which the prepositional phrase was uttered in English.

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